

LIKE!

WORK PACKAGE 5

Read all about
the LIKE! Project

5.1 DIGITAL DASHBOARDS

5.2 LOCAL DATA FOR LOCAL SERVICES

5.3 IoT - INTERNET OF THINGS

Interreg
North Sea Region
European Regional Development Fund



EUROPEAN UNION

COLOFON

LIKE! Project - Building a local digital innovation culture (an Interreg North Sea Region project).

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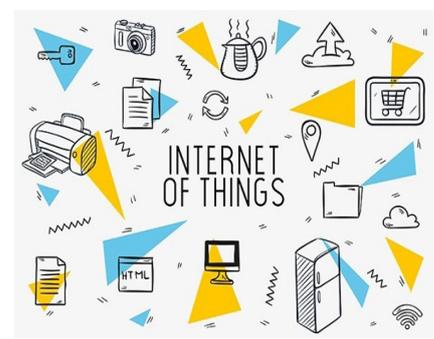
www.linkedin.com/company/like-project-building-a-local-digital-innovation-culture/

Find the complete magazine at our website: www.northsearegion.eu/like



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About the LIKE! Project

The LIKE! Project is funded by the Interreg North Sea Region (NSR) under programme Priority 1 Thinking Growth: supporting growth in North Sea Region economies. The project began on 01/10/2016 and is due to end on 01/03/2020.

Project Objectives

LIKE! will significantly enhance the capacity of the public sector to facilitate and deliver innovation. This will result in the development of a wide range of innovative services for improved public service delivery. Local government, citizens, universities and SMEs will come together to co-create smarter, more efficient and more innovative services.

In order to manage the project more efficiently, it has been broken down into themes, or **Work Packages** as we call them here. The LIKE! project has five work packages; a work package covering project management, a communications work package, and work packages covering the three main themes of the LIKE! project.

Because the three main themes are also quite large, we have broken each of these down into three sub-work packages. We sometimes refer to these as **Pilots** in this magazine.

Work Package 3

Creating a local digital innovation culture across the North Sea Region

- WP 3.1 DEVELOPING INNOVATION AND SKILLS
- WP 3.2 NEW FORMS OF ENGAGEMENT
- WP 3.3 INCLUSIVE SERVICES

Work Package 4

Smarter Services

- WP 4.1 SMARTER SERVICES
- WP 4.2 LOCAL SERVICES
- WP 4.3 CONTENT AND CHANNEL STRATEGIES

Work Package 5

Create a Digital DNA for Cities and Neighbourhoods

- WP 5.1 DIGITAL DASHBOARDS
- WP 5.2 LOCAL DATA FOR LOCAL SERVICES
- WP 5.3 IoT - INTERNET OF THINGS

PREFACE

Creating Digital DNA for the City/Neighbourhood



Leads WP 5

A key part of LIKE! has been developing new ways for cities and communities to use data to understand citizens - both to design and then deliver better services, and to help managers and politicians and stakeholders to use data to help make better policy decisions for communities.

In Work Package 5, LIKE! partners focused on developing new ways of using information to understand how cities and communities are working and changing and then using this information to design better services and improve how services target users. Partners identified and then developed new ways to understand and manage the vast amount of data they collect, turning this data into information and knowledge that was used to provide better and more transparent government and services.

The **'Creating Digital DNA'** work in LIKE! has focused on areas of 3 transnational work - 1) 'digital dashboards', 2) 'Local data for local services' and 3) 'Internet of things (IoT)' - that bring together a wide range of local pilots and activities and help us learn lessons from each other. There are strong links between these Digital DNA transnational themes/pilots and those in the other LIKE! work packages on **'Creating a Local Digital Innovation Culture'** and **'Developing Smarter Services'**.

This work uses data and information to understand the 'Digital DNA' of a City or Neighbourhood.

OUR THREE THEMES

The **'Digital dashboards'** pilot used a range of platforms to build dashboards that visualised data on maps, combined existing data from multiple sources (e.g. social media, data on communities and neighbourhoods, budgets) and provided customised analyses of services and neighbourhood performance. We brought together local governments, citizens and SMEs to collaborate to develop outputs targeted to key groups in each area, combining information and open data to provide new insights into community needs and service delivery.

Many of the **digital dashboards** that LIKE! partners produced have been made public and where possible the underlying code has been open sourced. The general learning from our work is designed to be platform agnostic, focusing on what these tools mean for communities, for service design and for service delivery, rather than on the technical details of developing or managing different platforms.

The **'local data for local services'** work brought together governments, community organisations and citizens, and used a combination of local, neighbourhood, regional and national data and information to build tools to help citizens, policy makers and stakeholders understand the detail behind local issues and values. This information was then used in service (re)design and delivery and in the development of new approaches to tackling local problems.

The **'Internet of Things'** activity explored how sensors can be used to deliver better understanding of neighbourhoods and how sensors can help deliver better services and information. Partners combined meetings, workshops and hackathons to engage SMEs, citizens and other interested organisations to understand the potential of these new technologies and to identify and develop use cases in their communities.



WP 5 LEADER **Grethe Fallesen** **Aalborg Commune,** **Denmark**

What was the goal of the 'digital DNA' work?

Gaining actionable insights that could feed into policy development work by using data and dashboard to provide clarity and communicate effectively.

Did WP 5 meet these goals? What were the main accomplishments of the Partnership in WP 5.1?

Yes, a lot of different dashboards and insights have been achieved for all partners. The main accomplishments for the WP5 group were the monthly WebEx meetings where we inspired each other showed and discussed our results.

What was the personal highlight for you?

The best experience so far was the presentations and workshops at the mid-term conference in Angus, where the partners worked together to share our results and engaged participants to generate value maps at the workshops.

I cannot nominate the best output as all partners have made excellent dashboards!

What do you think are the broad/over-arching lessons that the partnership learned about digital DNA that other organisations should know?

I think that there are a lot of benefits of making dashboards - like data transparency, enabling access to data for all, adding location as key factor in enabling new types of data analysis, better decision making, and therefore more accountability, the rise of interactivity, and the results you can get by adopting gamification.

What were the main challenges partners faced - and what does this mean for other organisations?

Apart from the obvious like shortage of resources - time and money, we identified a number of pitfalls you should be aware of: ownership of data, misinterpretation, insufficient data, and incomparable data. Management sometimes aren't keen on insights into failed policies either!

5.1 DIGITAL DASHBOARDS

The LIKE! Approach

LIKE!'s goal was to create customisable 'digital dashboards' that transform open data, administrative data and commercial/citizen generated data into focused information and insights that citizens, governments and SMEs use to improve services and communities.

Dashboards aren't about data. They are ways to tell stories.

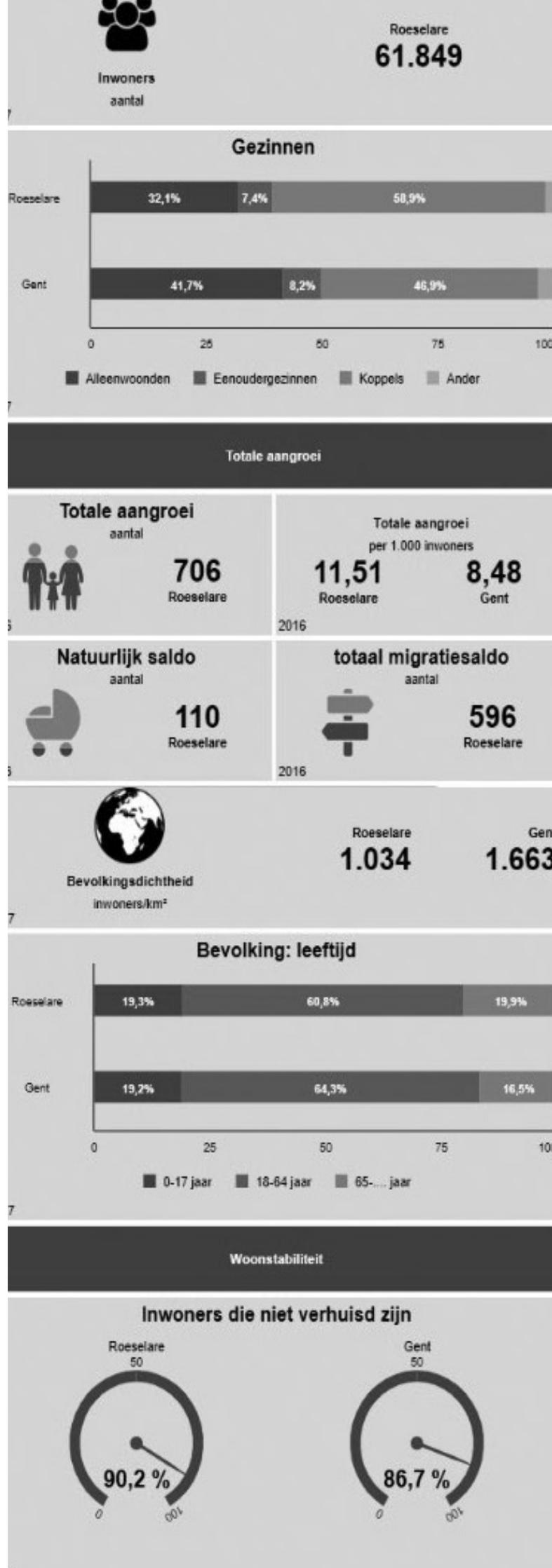
A dashboard is a way users – be they managers, citizens, politicians, staff – can understand the latest information on something – perhaps how a service is running, or data on a neighbourhood.

To have value, the dashboard needs to be created with end users with the goal of helping them understand something.

Co-design is key to a successful dashboard. If analysts work with users in a co-design process, they will produce dashboards that add real value to users. If codesign isn't part of the process, you run the risk of creating technically sound solutions that users won't use.

Avoid the platform trap – dashboards aren't about platforms: platforms are just a way to tell your story.

LIKE! partners use dashboards in a range of different ways. Aalborg uses a dashboard to understand the geographical distribution of how money is allocated and spent on sports and leisure across the municipality, while Groningen uses dashboards to understand local variation in poverty and the uptake of relevant services. Other municipalities use them to help manage services - Angus uses information in their dashboards to analyse service delivery against their strategic commissioning plan.



650
Datasets

4.300
External Users

55 LIKE! Dashboards

44.786
Page views

6.625
Internal Users

550
External organisations
use them



Theme lead
Peter van Kampen,
University of Groningen,
The Netherlands

What was the goal of the Digital Dashboard work?

To exchange experience, and to learn about each other's work of course. We also tried to find ways to build a common dashboard on a theme that covered all the partners, but that wasn't successful. We learned that all organisations were on their own path on developing and using dashboards. Some opportunities to use dashboards for citizens engagement work weren't realised as we had hoped because of conflicting priorities at local levels.

We worked on an inventory of dashboards and different dashboard examples from all partners, that is not necessarily the complete collection of dashboards they implemented. Based on this inventory we will deliver a dashboard about the dashboards from LIKE!.

What were the main accomplishments of the Partnership in meeting these goals/working in this area?

We have exchanged a lot of different experiences and lessons



that we have all learned with building and using dashboards. The general understanding and utilisation of dashboards across LIKE! has expanded considerably and every partner succeeded in building their own dashboards.

What was the personal highlight for you?

I think the highlight for me will be the collection and the aggregation of all of the work that we have done into a ‘common dashboard’ which will bring together everything the partners have done in a visual way and which will show the richness and variety of the use of dashboards that everyone has developed.

“It is not easy to pick the best dashboard since all the dashboards have very aims and different local contexts”

Now we are working on a ‘nature appreciation’ dashboard that will cover all of the partner regions, so we’re hoping to deliver a transnational output that will show how citizens values nature across the North Sea Region.

What do you think were the main lessons that the partnership learned when working on this theme that other organisations should know?

I think that a very basic lesson is that it depends heavily on the experience of the organisation; one lesson might be also not to complicate things by setting too innovative goals.... just produce insight with your dashboard based on information at hand and be as clear as possible on the colors and your presentation so stakeholders/target audience can interpret it as good as possible; this will most probably give the best impact of the dashboard.

Organise your data so it can be easily and continuously updated - see for instance the data offices in Angus, Drenthe and Suffolk.

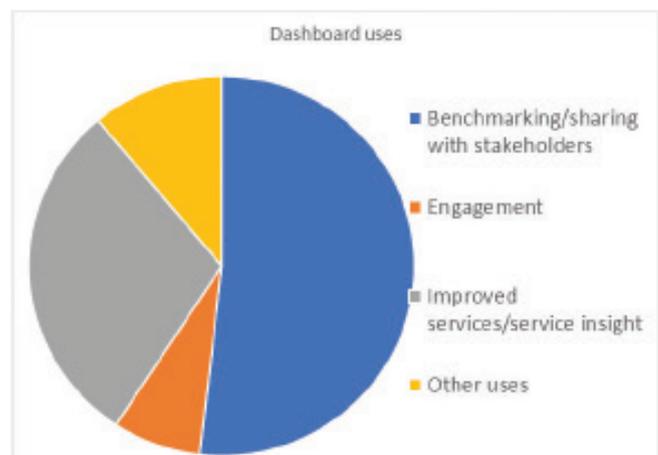
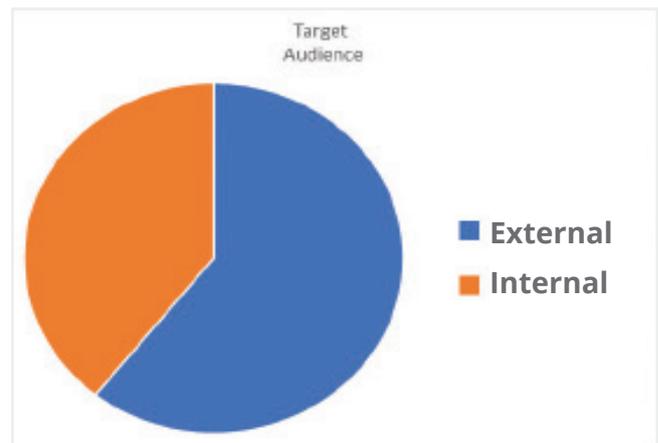
Connect your data and infrastructure to the regional/national level - like Roeselare, Suffolk and Angus have done. This will allow you to benchmark your local areas and services against other municipalities, and it will help you share knowledge and costs (of services).

What were the main challenges that the LIKE! partners faced when working on this theme - and what does this mean for other organisations?

The main challenge was that while all of the partners were keen to build dashboards, everywhere is unique, so they all have different data, different management/political environments, different services and different objectives and outcomes – but we produced some really interesting dashboards, like Groningen’s Neighbourhood Compass.

Capacity and funds are always challenges – but the demands from a developing organisation will push towards innovation in these areas.

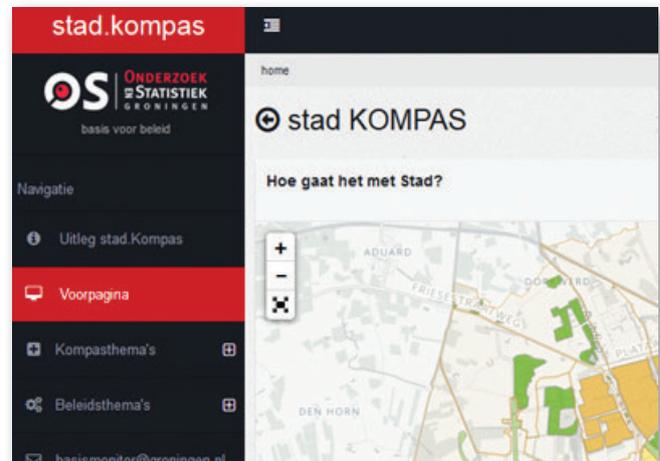
“People learn and work with data and dashboards and then become more engaged and creative. And as a result sometimes the standard solutions or ways of working aren’t that convincing anymore”.



Groningen Compass

Marcel Daalman,
Groningen,
The Netherlands

Groningen is a city of 231.000 people and 44 neighbourhoods in the North East of the Netherlands.



Groningen had an existing data portal with data and information on neighbourhoods, but this was a static website that could only be updated by a specialist.

Users weren't able to compare what was going on in different neighbourhoods, and a fair degree of technical knowledge was needed to get the most out of the website and the data it held. Groningen wanted a tool that provided much more structured information about neighbourhoods.

Through the LIKE! project Groningen wanted to build a much more flexible tool that could tell the stories of each neighbourhood. It should use live data wherever possible, and should always use or re-use existing data.

Groningen had four strategic aims for the platform:

- It should be able to **tell** stories about Groningen's neighborhoods.
- Users should be able to **share** the outputs and the underlying data.
- The lay-out should be **flexible**, so users could choose what was relevant for them.
- The platform should always have the most **up-to date data**, including live data collected from services, users and citizens.



Groningen used a five-step process to prepare for this transition. Rather than moving directly to re-developing the platform, they focused on ensuring that the underlying approach was correct.

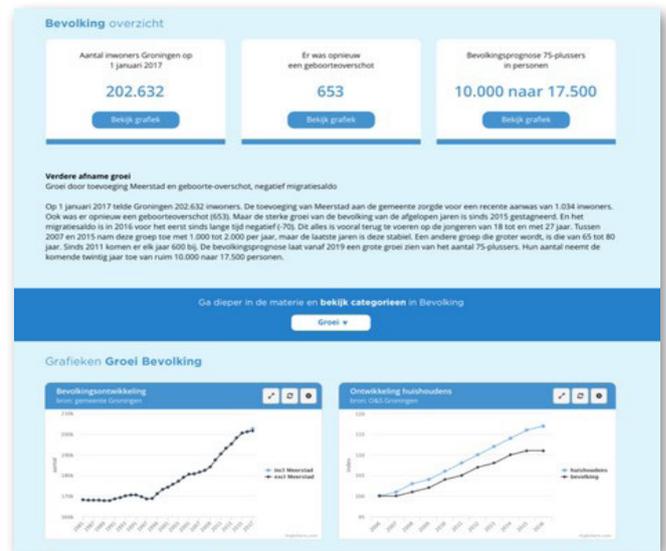
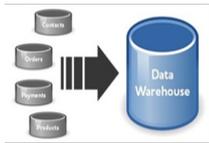
1. **Usability of indicators** – making sure that the data they used was correct and was interpreted through the platform in ways that made sense to users.
2. **Flexibility of framework** – making sure that the platform that was developed was flexible and could be adapted as policies changed and as user requirements changed.
3. **Identify the target group** – understanding who

your users are and what they want/need from the platform is key to developing and delivering a successful platform that is used and relevant.

4. **Focus group for usability** – once the users were identified the next step is to make sure that the platform was going to deliver the information and data that they want in the format they wanted it so they could use the data/visualisations immediately.
5. **Reusability of the software** – making sure that the platform was designed so it could evolve and that other organisations could deploy it if they wanted to.

The BasisMonitor – the data behind the compass

The BasisMonitor (Basic Monitor) was created by Groningen's Onderzoek Informatie en Statistiek (Research Information and Statistics) to provide a data platform for Groningen. The BasisMonitor supports local management and accountability, aids policy formation and prioritization for urban programs and neighbourhoods, provides information to support cooperation with external partners, and provides information for citizens.



“Dashboards result in improved conversations and highlighted priorities”

The BasisMonitor combines data from three very different data sources. It starts with data from Groningen's data warehouse, which brings together a range of local service and administrative data. External data from a range of sources is then added. Finally Groningen adds data from their biannual citizen survey of 8,000 citizens.

Why a compass?

All of Groningen's neighbourhoods have their own unique characteristics. The challenge we had was how to present all of this information in an understandable form. Groningen decided to use a compass to show how a neighbourhood is doing at a glance.

The compass uses two colour schemes. The traffic light colours – red/yellow/green, indicates variation from the neighbourhood average across Groningen: red stands for less favourable and green more favourable than the average.

The blue colour scheme is neutral, showing variations in the data without comparing it to other areas. If a neighbourhood has many children for example, then the box for children will be shown in darker blue.

The Compass quadrants

The compass is divided into four main areas or themes – these are in the centre of the compass. These are:

- **Environmental profile**
- **Physical environment**
- **Quality of life**
- **Social living environment**

The outer ring of the compass shows the values for each of the 36 neighbourhood indicators. The values of each indicator are translated into Z-scores. Z-scores are a statistical measure that shows the variation of the neighbourhood score from the Groningen average. As you move towards the centre of the compass the indicators are combined into broader sub-themes, which are then combined into the four main themes. Users are able to drill down from the compass and get comparison data in the forms of maps and charts so they can compare neighbourhoods in greater detail.

“I feel more informed from having used the dashboard – I am now more evidence based.”

What Groningen Learned from the Compass Pilot:

Dashboards are effective

users find them easier to use than tables of data, as they find it easier to interpret illustrations.

Data transparency

A well-designed dashboard provides on-demand access of all of your most important metrics.

At a glance

Information is faster to ‘read’ for most users.

Better decision-making

Dashboards provide a foundation for dialogue and great decision making.

Interactivity

The best dashboards provide a dynamic experience. Rather than providing static information, you and your users can filter data, interact with charts to see changes over time, and even add ad-hoc components on-the-fly. That means users can get as much or as little detail on specific metrics as they want.

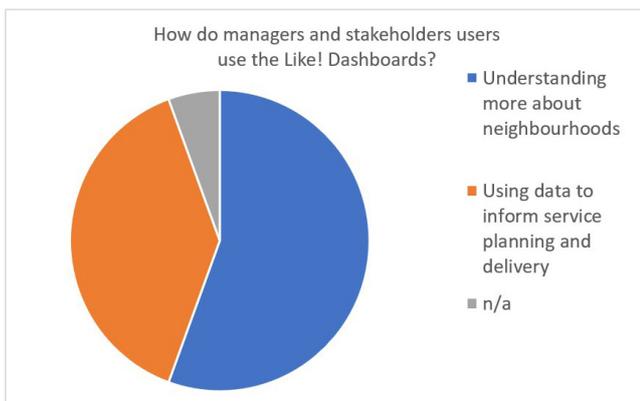
Gamification

You can design dashboards and platforms to gamify some user metrics to increase the likelihood of user retention and increase the level of platform use and adoption.

What do users do with LIKE! dashboards?

The LIKE! Partners surveyed a range of managers and stakeholders to find out how they used the LIKE! dashboards and what were the benefits to them of having access to the dashboards.

Users generally used the LIKE! dashboards for two reasons – to understand more about particular neighbourhoods, or to understand how services were working.



“The combined insight we get from using dashboards is the most important one – and this insight goes across several policy areas”

LOCALITY RESPONSES:

“To get information on neighbourhood level”

“To get local stats for my area”

“Understanding needs and performance of health and social care services in my locality”

“Reviewing locality data”

“Getting information about my locality”

“Comparing different localities in Angus.”

“Trying to extract locality information about priority mental health issues”

“Dashboards give a lot of information about our city and the differences between the neighbourhoods.”

“Finding data + information about my city and smaller areas of my city”

SERVICE RESPONSES:

“To see how services were working”

“To help when commissioning services”

“Data information to inform service planning and priority actions”

“Monitoring KPI's”

“For statistics and background information about the city”

“To support all kinds of policies”

“Looking up numbers to set up infographics (external analyses of the organisation)”



Have the LIKE! dashboards changed how you manage/deliver services?

USERS HIGHLIGHTED:

"Improved visualisations"

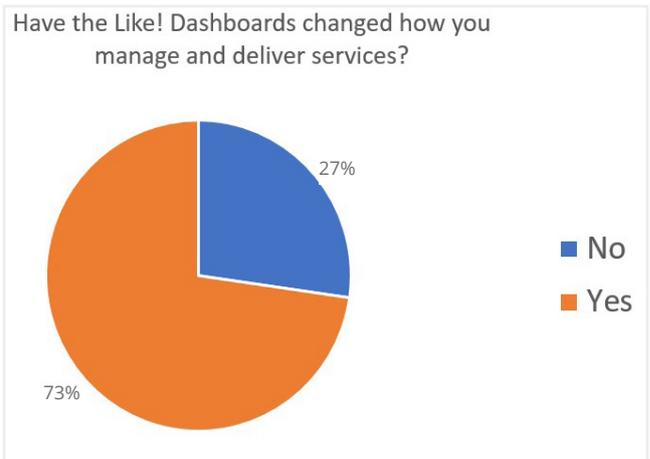
"Quicker access to the right data"

"Supporting policy decisions"

"Have data in one place – you can use it or refer other people to the same single source of information"

"You have relevant information that is based on local statistics and information"

73% of respondents said that the LIKE! Dashboards had helped them change how they managed or delivered services.



"Dashboards provide accurate data for sharing and helping design our services to meet needs locally."

Using Open Source software to deliver dashboards for local partners and citizens

Paul Feltham, Angus Council, Scotland

Scotland aims to integrate health and social care services, and to develop co-production approaches in the development of public services. Angus is made up of four localities, each of which has different health and social care needs and different population profiles. Angus is using a locality-based model in our work to drive improvement in the planning and delivery of integrated health and social care services. Our pilot used open source solutions to build public dashboards that partners and staff would use to get information to support decision making in their local areas.

We aimed to develop and deploy an accessible, interactive dashboard that displayed two sets of information – firstly needs information, that partners could use to understand the expected demand for services, and secondly per-

formance information on the delivery of adult health and social care services in Angus that citizens could use. There is a secure section in the dashboard which provides more detailed information on performance of individual services for managers across the partnership.

We wanted to deliver a solution that allowed us to control the content on our website/dashboard, and to have only 1 place to update. An initial review of platform/dashboard options was done, and a short list was identified for user testing and cost comparison.

Angus HSCP decided to explore the use of open source technology as we felt it was the best opportunity to develop a presence that works for our intended audience.

After initial testing of our options our focus groups identified WordPress as the more intuitive and functional option, as it was a platform we would be able to deploy within a short period of time.

Using Open Source technology for dashboards shows the LIKE! Project the opportunity of using this technology to improve and make services smarter. It also allows organisations to explore ways of beginning digital and sharing information, and to rapidly deliver services to partners and citizens.

We may eventually reach a point where we need to procure a dedicated dashboard/information platform, but the knowledge gained from developing and deploying our open source solution will enable us to better specify the technical and operational requirements of any future platforms.

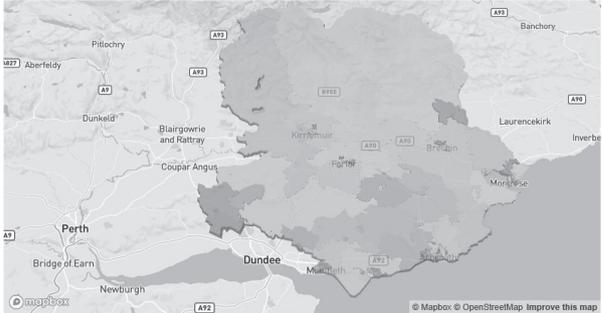
Using open source technology has allowed the Angus Health and Social Care Partnership to develop our own solution, where we can directly manage/update our platform while benefitting from a broad support community. The plugin features of WordPress have allowed us to add more functionality than our partners websites can offer, including graphs and charts and feedback and web forms. We have also been able to develop our social media presence and integrate it with our web presence.

Our platform choice means we can develop a solution that works for our audience while easily getting feedback on how this is progressing.

DASHBOARD

Turning Data into Knowledge

- Home
- Needs Assessment
- National Performance
- Strategic Delivery Plan
- Locality Profiles
 - North West
 - North East
 - South West
 - South East
- Partnership Website



Individual Locality Profiles can be found by following the links below.



North West



North East



South West



South East

NORTH WEST

The North West is the largest locality in Angus at 1,143 square kilometers which covers 52% of the entire Angus area. It is a predominantly rural area consisting of Forfar, Kirriemuir, Sidlaws, Birkhill and Muirhead. The North West also has the biggest population of the four localities. As of 2017, there were a total of 35,921 individuals living in the North West meaning it is the least densely populated area in Angus with only 31 people per square kilometer. With 23% of people aged 65+ it has the second highest proportion of those aged 65+ in Angus.



North West Adult Population: 29,224

Needs in Our Community

Long Term Conditions

Our Performance

1 in every 41 people aged 65+ have been admitted to hospital for a fall incident	1 in every 20 People receive Personal Care at home	73,705 Nights of long term Care Home Placement for those aged 65+
1 in every 8 people 65+ has a Community Alarm Service	1 in every 92 people aged 65+ receives Community Meals	4,798 hours of Personal Care have been delivered per 1,000 adults
The average length of hospital stay for adults is 11 days	1 in every 9 people is admitted to Hospital for an Emergency	



Using dashboards
to deliver better services

LESSONS LEARNED



We surveyed the LIKE! partners to get them to tell us the key things they think organisations need to do to successfully develop, deploy and use dashboards.

LESSON #1

Understand what you want the dashboard to do

This was the overwhelming #1 tip from partners, mentioned by almost 40% of responses:

"Understand the questions that need to be answered"

"You need to know what you want to measure"

"Understand what your target audience wants to know"

"Set up specific dashboards for specific needs"

"You can use it to show service improvement"

LESSON #2

Work with your users

Just because you've built a dashboard, it doesn't mean users will definitely use it. You need to work with them to deliver a tool that support them.

Listen to the user! That is really key

- Involve the end user in the development of the dashboard.
- Involve the people who use the information in the development of the dashboard.
- Use the dashboard to help operational managers to understand data and performance better.

LESSON #3

Keep it simple

- More data sets does not mean better insights.
- The usability of the site needs to be very good otherwise people will not use it.
- Give a good overview of all the key indicators in one big dashboard.

LESSON #4

Address your capacity issues

Dashboards are a new way of working for many organisations.

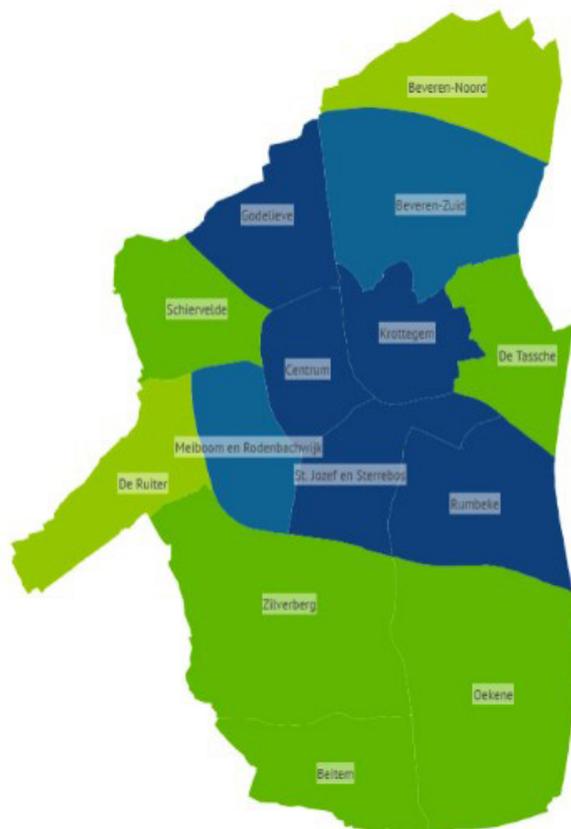
- Don't be frightened to try something to find it doesn't work. Build your dashboard as you go.
- Data is not always available from all partners, leading to "patchiness" of dashboards.
- We are still developing tests of required information using excel spreadsheets – we don't need to build a platform first.
- Have workshops - you need to deliver know-how on how to work with the dashboard to your users!

LESSON #5

Make sure your data is good and that it's correct

- Get the data sorted and consistent before using it on a dashboard or map.
- Look at key data sets, ensuring they're modelled correctly and use technologically agnostic approaches to platforms so you're not locked in to a platform.
- Try and make sure that your data model is as granular as possible - so that the data can be re-used to answer other questions.
- Provide comparable information (and context) as well as your real (local) numbers.
- Remember to collect data "before" and "after" so you can help users look for trends.

Dashboards are
the future, the
start of a new era
when it comes to
fact-based policy



*The data at neighbourhood level of the city of Roeselare
can be a first step for better data-adjusted policy making.*

THE CITY IN NUMBERS

How Roeselare uses dashboards

In Belgium, there is a lot of data available about different themes and in different domains (health, education etc.). Belgium's multilevel government structure—local, regional and federal—makes it more difficult for users to find the right and the most recent data for their area of interest.



Roeselare decided to bring together data and information from a range of external sources and then make it available on a public platform. To reach this goal, it was crucial to have the cooperation of different government agencies, a data-focused team, and a customer friendly digital platform.

Roeselare chose to use the SWING dashboard platform (see <https://roeselare.incijfers.be/dashboard>) to build a portal where all the relevant data is brought together in one place. Citizens, employees, corporations, organisations, associations, etc. can now find the city's core data in one accessible place.

consistency across the various data platforms in Flanders, and to allow users to compare similar data for many sources and areas.

The introduction of **Roeselare.incijfers.be** was a great success. Roeselare organized a series of workshops to introduce the platform and encourage them to use it. The SWING sessions showed staff what they could do with data in their jobs.

It raised awareness about what data sources could be used and how accessible the data is now. Staff no longer have to request data and wait:

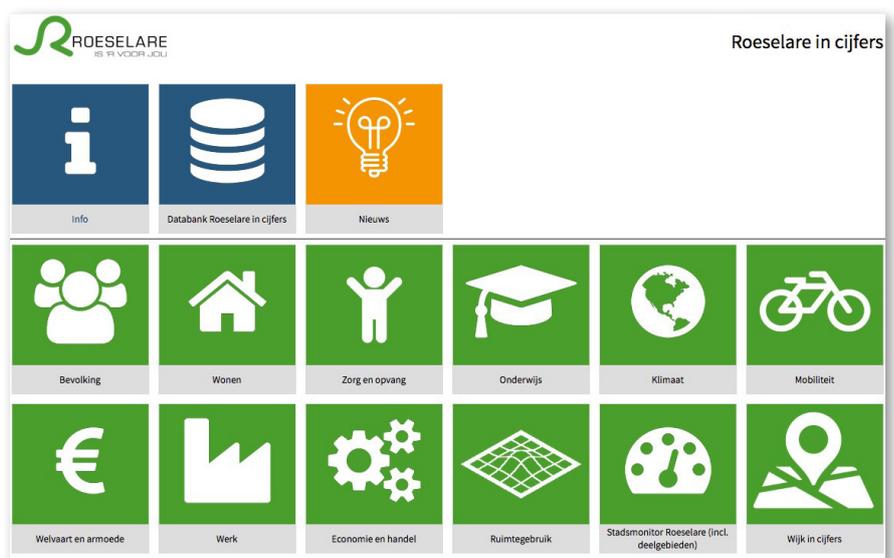
they can now download their data in a few clicks. The era where people need to spend hours and hours searching for data is starting to disappear.

The platform also has community benefits, as it enables citizens and communities to learn more about their city and their neighbourhoods. The site also empowers them to use the data and information, for example to respond to policy proposals or to questions.

Publishing data helps to achieve an open, transparent climate and can increase the trust in the local government

The pilot made an accessible and useful dashboard that can be used for policy making, but also by citizens to look at the city in numbers

To do this, Roeselare didn't work by itself - the municipality worked with the 12 largest cities in Flanders ('Centrumsteden') and the Flemish Community Committee in Brussels. This collaboration worked to ensure



Rethinking how to use dashboards

- Updating the Suffolk Observatory

Suffolk County Council and its local partners had access to a wide variety of local and national data sets in a previous version of the Suffolk Observatory, which combined large amounts of data about the services they deliver, local demographics, and trends, together with a large number of relevant national datasets.

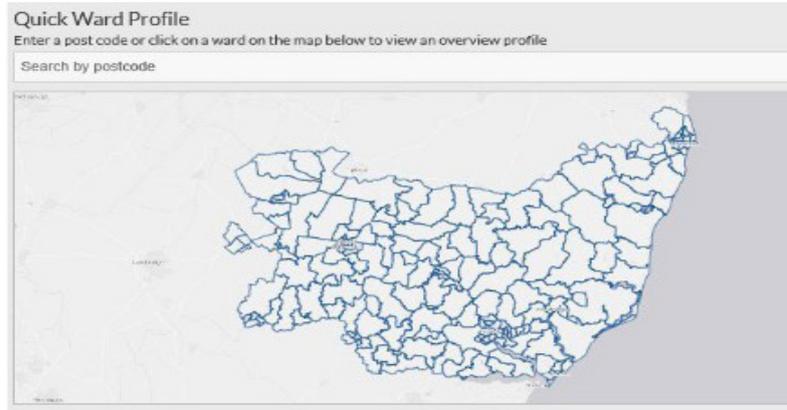
The starting point

While this brought all of the data that partners had together in one place, the problem users faced was that the data was often in quite a raw format, and needed a lot of manipulation/analysis for it to become valuable for less technical users if they were to be able to use the Observatory to support local priorities and deliver services in the most appropriate way.

The goal - where Suffolk wanted to be

Suffolk decided to use learning from the LIKE! project to update how the Suffolk Observatory worked and help it transition from a data storage asset into a resource for a different and wider audience - policy makers, strategists and decision makers.

These new audiences needed data presented and analysed and summarised in new and different ways that reflected their needs, and which were useful to them.



The revamp of the Suffolk Observatory would therefore improve both the user experience and broaden the user base to reach new audiences and provide them with more interactive and relevant experiences.

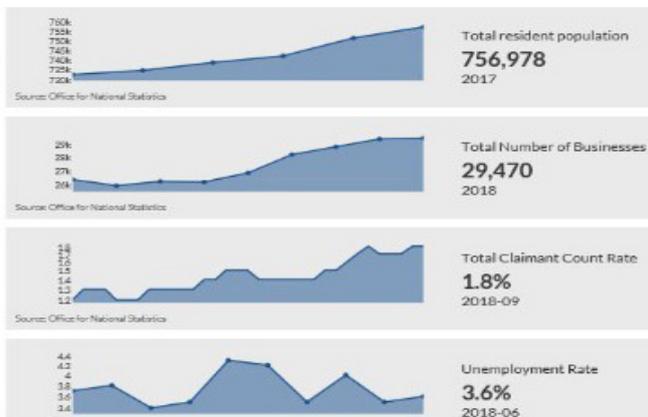
The upgrade plan

The local partners formed a Steering Group to decide the requirements of the new site. Most importantly, it was felt that the tools and underlying data in the observatory needed to be developed to allow users to obtain **place-based information**.

This meant that the Observatory would now enable users to analyse and see a range of relevant background information for local areas which enabled policy makers to make better decisions about the distribution and types of public services for different areas, according to their needs and local contexts.

Being able to see 'data on a place' was a key part in being able to support both locality budgets and wider strategic investments in services.

It was also felt that the underlying data model in the site should be flexible and allow the user to 'slice and dice' the



data in a variety of different ways so they could focus on the issues that were important to them. This meant that users could look at broad areas of interest (such as population and the economy) and also be viewed through specific relevant themes - such as crime, deprivation, health, social care etc.

The new Suffolk Observatory has this data modelled 'under the bonnet', turns the data into information and allows the information to be viewed through a "thematic lens".

What can users get from the new Suffolk observatory?

The user can pick how they want to access information held by the Suffolk Observatory:

- **data tables**
- **graphs**
- **pie charts**
- **infographics**
- **widgets**

What's in the Observatory for me?

Data in the Observatory is still available in the more traditional raw format, but the upgrades Suffolk and partners have delivered means that the site isn't just used by data analysts anymore. Citizens who are looking for information about the area they live in can see the indicators and information about their town, village or parish. Politicians can use the data to see what the trends are in their constituencies, and council strategists and policy developers can use the data as a guide to what the effect is of applying certain policies in certain areas.

LOOKING TO THE FUTURE

Analysts and policy makers in Suffolk are now starting to use the Observatory as a foundation for initial on how Suffolk might change in the future. They are using the data and resources in predictive models to forecast (with bounds – forecasts aren't guaranteed to come true!) what might happen in the future under a variety of different policy scenarios.

Some of the data held in the Suffolk Observatory has been used in a project to estimate what the population of Suffolk might look like in twenty years' time.

The Suffolk population as a whole is expected to grow by 7% over the next twenty years. In contrast, the number of people in Suffolk who are over 75 years old is expected to grow by 65% by 2030.

This analysis shows both the value of data and of analysis to support longer-term planning. It highlights the need of for the Council to develop a appropriate plans to provide care services for older people and so, knowing this, new strategies and policies can be devised that look at early help and support for older people.

FYI

Issues that can complicate Digital Dashboards

LIKE! identified four key issues that could hamper efforts to develop and deploy dashboards:

1. **Inaccessible** or **bad** data
2. Starting with the **data** instead of the the **problem**
3. Lack of communication **between data people** and **decision people**
4. Not enough understanding of the **business problem**

Other tips from LIKE! partners:

“Some data needs background information to understand what it means or how it should be used: be aware of this.”

“Usability is key – if you don’t pay attention to usability then users won’t use the dashboard.”

“Don’t overwhelm users with data: allow them to drill down from an overview.”

“Don’t make your dashboards and data too abstract: stick to the facts.”



STARTING OUT WITH DASHBOARDS: A Practical Exercise

If you're new to dashboards, they can seem complicated and you may wonder where to start. LIKE! suggests you sit down with colleagues and stakeholders and ask yourselves the following 5 questions. This will help structure how you think about dashboards, what you want to get out of them, and identify who you need to work with and what resources you have to work with.



Dashboard Planning Exercise

1. List your potential dashboards
2. Identify the key audiences and users for each dashboard
3. What's your co-design approach to working with these users?
4. What analysis does each dashboard need?
What policy outcomes should it support?
5. What data is available? What's not available?

The LIKE! Approach

The 'local data for local services' work brought together governments, community organisations and citizens, to build tools to help citizens, policy makers and stakeholders understand the details behind local issues.

This information was then used in service (re)design and delivery and in the development of new approaches to tackling issues.

Local data for local services

**Theme lead
Vivienne Davidson
Angus Council**

What was the goal of the Local Data for local services work?

To create a transnational approach that built on lessons learned from across the North Sea Region on the development of data dashboards that would provide local data for use by both the public and by service providers in the development of new local approaches to tackling local issues.

What were the main accomplishments of the Partnership in meeting these goals/working in this area?

Angus published a development guide to developing and deploying simple data dashboards that only used open source software. The aim was to support the third sector (social organisations, charities etc.) and SMEs, and to show how they could also use and provide data to support local service development.

Groningen developed a 'compass' that brought together a wide range of geographic information and data for the 44

neighbourhoods in Groningen for the use of policy makers, stakeholders and local services.

Suffolk used Microsoft's BMI tools to provide live data to management in the County Council. This was very successful, but was aimed at a different audience to the work in Angus and Groningen.

What was the personal highlight for you?

The latest version of the Groningen data dashboard website uses both the Angus approach and delivers a compass-style visualisation to provide an excellent overall approach to providing local information for local services, citizens and managers.

The Angus dashboard has been successfully supporting our locality improvement groups who are now producing improvement plans for their areas based on the information we have provided.

What do you think were the main lessons that the partnership learned when working on this theme that other organisations should know?

Transnational working was challenging – but we saw real benefits from the sharing of ideas and different approaches.

What were the main challenges partners faced when working on this theme - and what does this mean for other organisations?

Getting together and sharing information and approaches has been a challenge, as all partners have been pressed to deliver very different local solutions as our local partners and colleagues are depending on the development of these tools. This meant that bringing together the key themes and outcomes was more of a challenge for us.



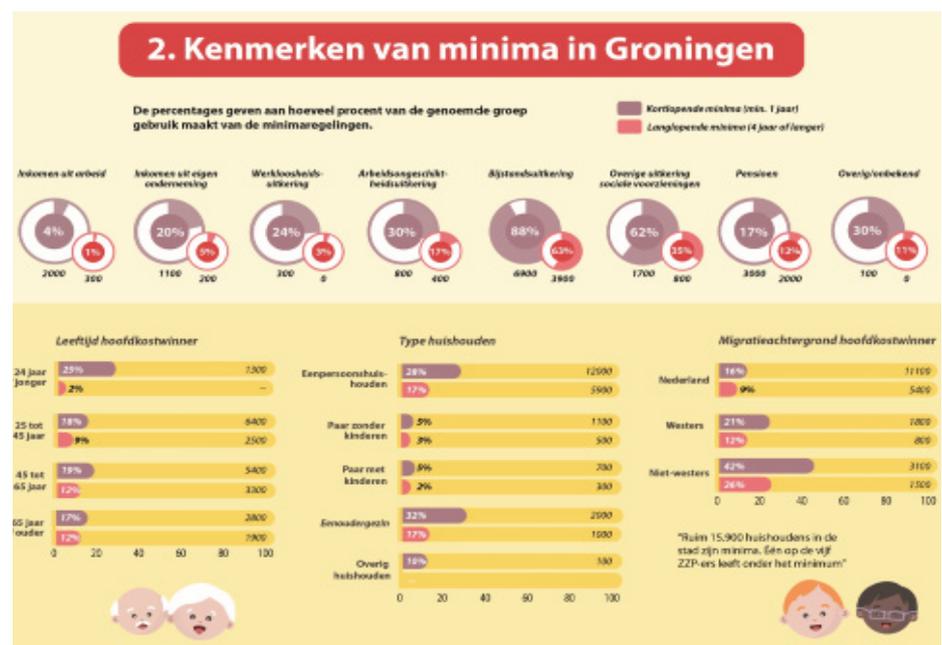
Understanding what poverty looks like in our area

Armoedemonitor, Groningen, The Netherlands

Groningen, a city in the north east of the Netherlands, has some of the worst poverty in the Netherlands - with almost 20% of the population affected by short-term poverty and over 10% affected by longer-term poverty. Over 4,000 children are directly affected by poverty in Groningen.

In the 'Armoedemonitor' project, local municipal data from Groningen was combined with income data from Statistics Netherlands (CBS) to better understand the makeup of the population within the municipality whose income is lower than 110% of the minimum-income threshold set by the Dutch government.

While national data will tell us the percentage of people across the city affected in this way, local data is also needed if we are to truly understand the environment and condition of this particular population and to be able to place/analyse this within a broader local and national context - to understand how poverty affects different groups of people, different cities, and what it means for both local and national governments.



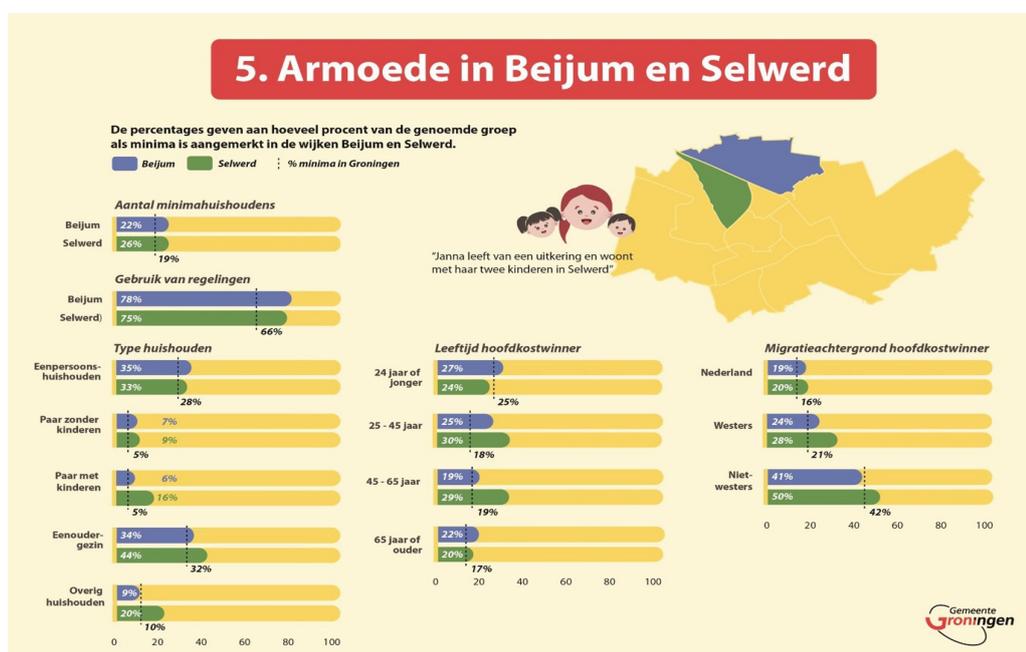
De-identified data from Groningen was provided to Statistics Netherlands, who anonymised the data, linked it with other anonymised nationally-held data sets, and returned a file of anonymous data on the target population to the municipality for further analysis. Without linking local data with data from Statistics Netherlands we cannot fully understand the nature of the local population affected by poverty,

*It is the combination of the two data sources that does the job for us
 – previously we did not have access to the data from Statistics Netherlands so we weren't able to develop a tool like this*

The pilot certainly was successful, as it gave us a great deal of insight into the characteristics of low-income families in Groningen. We learned that a substantial proportion of the population that had low incomes were actually employed in small jobs – this was a surprise to both local and national policy-makers.

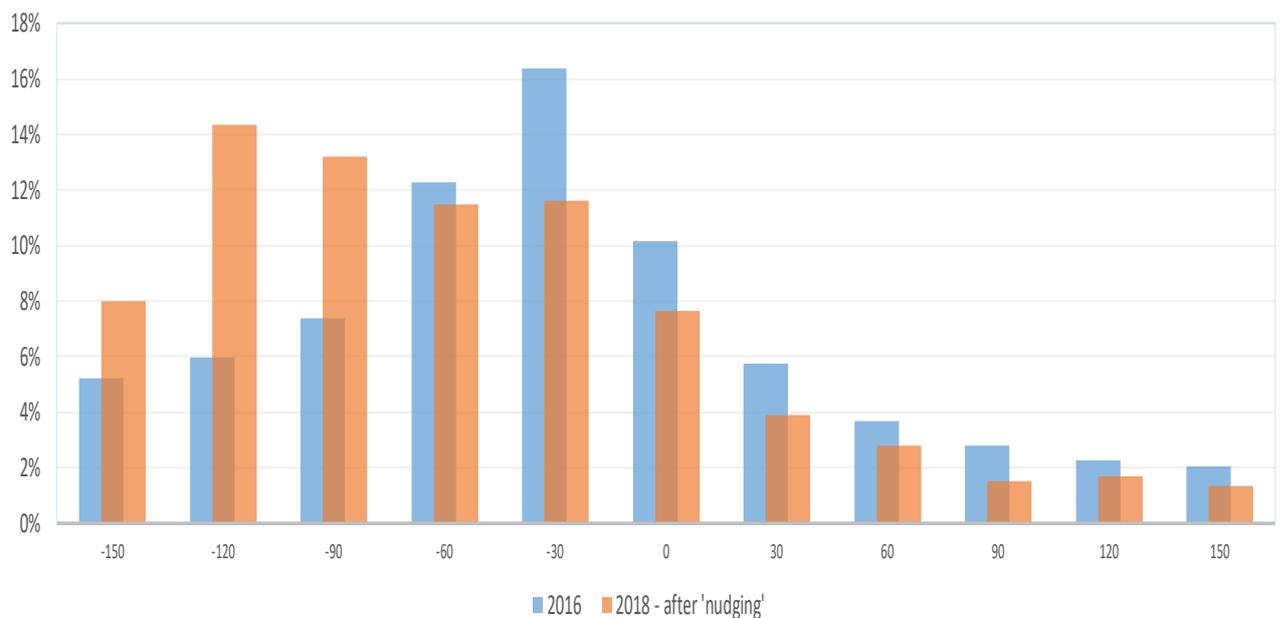
The thing that surprised us the most was the fact that the population Statistics Netherlands identified as having an income of less than 110% of the income threshold differed considerably from the population group who were being supported by local measures in Groningen to compensate for the fact that they had low income.

Now that we know more about which groups and families fall below the income standard and what their situations are, we can now develop more appropriate national and local policies to address their needs.



Using Data to help nudge citizens to change how they use services AALBORG, DENMARK

Number of days before passport expiry when renewal applications are received 2016 vs 2018



In Aalborg in Denmark, the local municipality is responsible for working directly with citizens who want to renew their passports. Aalborg noticed that citizens tended to forget to check the expiration date of their passport and often discovered that their passports had expired just before they planned to go on holiday. This meant that Aalborg had to process a peak in passport renewals at certain times of the year.



Since 2018, local residents have been sent a letter in their digital mailbox 4 months before the expiration date of their passport, with information about the need to get their passport renewed and when to come to the Citizens Service Centre.

This nudging of citizens has removed the peak in passport renewals close to their expiration dates, and saved time for citizens as they are no longer waiting in long queues. Previously, citizens just had to wait in long queues to be served.

This is a good example of local data being used to provide good outcomes for citizens. Citizens are very satisfied with the nudging and information they get and they are happy to avoid long queues. The employees experience much less stress from waiting and impatient citizens before the peak holiday season.

We learned that using local data can provide us with ideas to change the way we are working and at the same time improve services for citizens and make it less stressful for employees.

*The team found
that their
model was able
not only able to predict
fraud,
but to provide
unexpected
insights into how
the system
was actually working.*

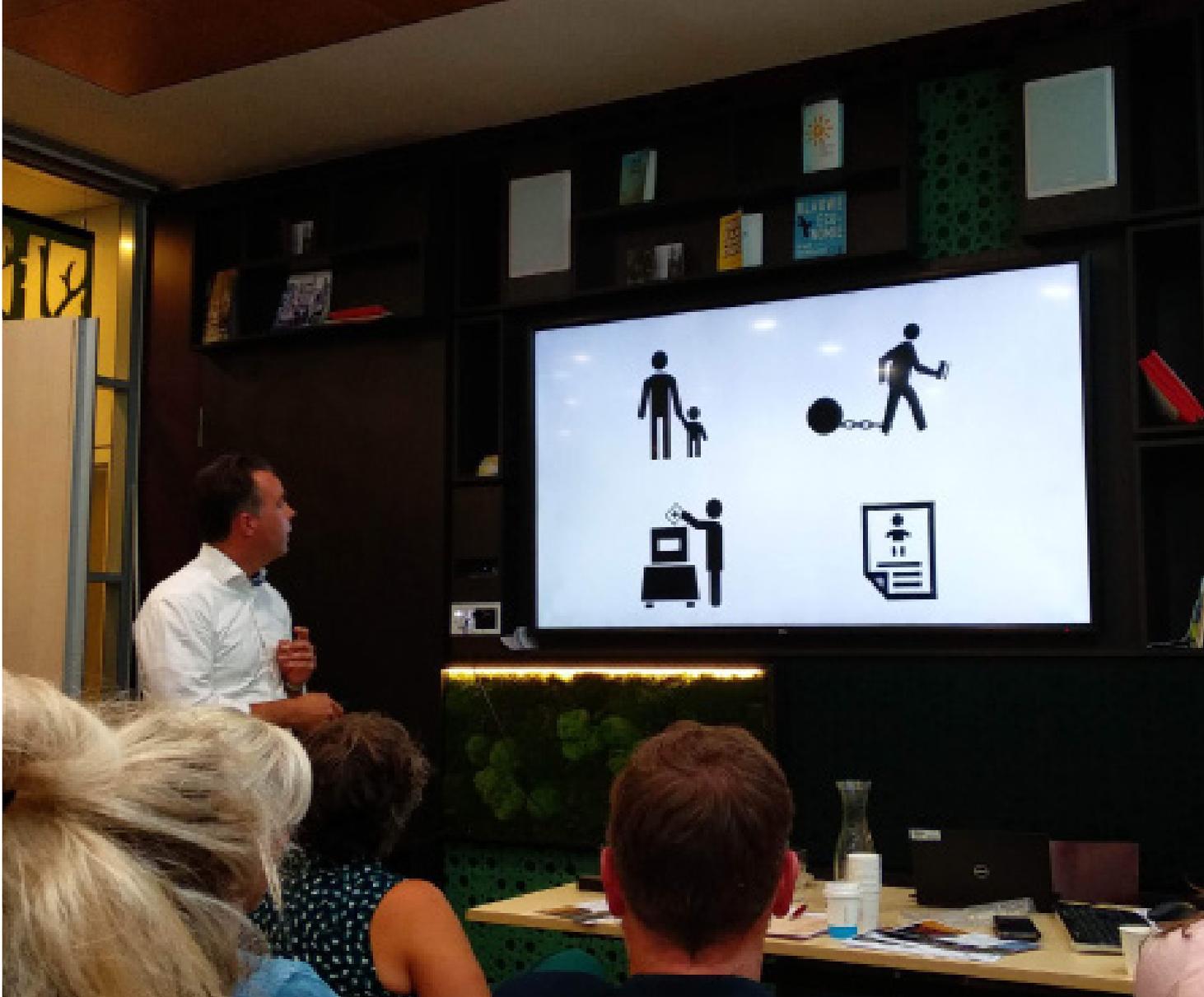
*I think this approach
will be continued.
It will probably
be one
of the ways
(the department
will use)
to detect fraud*

USING DATA TO IDENTIFY SOCIAL SECURITY FRAUD

Groningen, Netherlands

To tackle the problem of social security fraud Groningen delivered a pilot that developed an integrated database of social security claimants that brought together information from a range of sources which was linked at a personal level. This allowed the team to develop a range of customer profiles which were used to determine the risk of a fraudulent social security claim.

Employee involvement was really important - it is not just a technical trick. Our outcome was only achieved because of the interaction between the employees and researchers.



The tool was built by a research team in the municipality to help the department which delivered local social security services.

The team who developed the tool found it was very important to work very closely with the team that collected and managed the data that they used in their fraud prediction model – it was essential to work with the delivery team to understand the experiences of the people using the systems. This allows you to get a good view of the meaning (and of the quality) of the data that you are working with.

One of the unexpected results of this work was when the research team identified weaknesses in the systems they were analysing.

In the Netherlands asylum seekers are entitled to social security benefits. At first glance, it seemed that asylum

seekers seemed to commit a lot of fraud. But on closer inspection it became clear that this impression was actually caused because the application procedure itself is too complicated, and not necessarily because of intentionally fraudulent claims. The solution to this problem is relatively obvious: **improve the guidance and training for these applicants and the teams processing their claims.**

RAUM für VECHTA

Getting citizens involved in local planning in Vechta, Germany

The City of Vechta (Lower Saxony, Germany) along with the University of Vechta delivered a pilot called “Raum für Vechta” which gave citizens an opportunity to give their views of the overplanning of local urban areas via a website with an online survey tool (www.raum-fuer-vechta.de). The feedback captured from this form of citizen participation are then incorporated into municipal planning discussions.

In an increasingly digital society, the technical possibility of involving citizens in municipal decision-making processes is growing. Unfortunately, our experience in Germany is that we don't actually understand if citizens are actually willing to take advantage of this opportunity. In Vechta we believe that more participation opportunities must be created, so that citizen participation and capturing citizens views becomes more and more common and the normal way to work with citizens.

In urban planning we see that that not all citizens understand what developments are planned. At the same time, we don't always know the views of the citizens who are directly or indirectly affected by planning decisions. So as part of the LIKE! project we developed a website and a questionnaire which the municipality would use to learn more about the attitude of citizens to proposed change on a limited number of hypothetical “test” sites. We did this to

validate this approach and the questionnaire, so we could then further refine it to then use it with citizens on real planning decisions in on real areas in Vechta.

We hope that capturing more information about the range of citizens' wishes and views on planning decisions in their neighbourhoods will help to reduce local conflicts over planning processes and planning applications.

The information gathered from citizens' surveys on land use changes should help the administration to develop better planning tools and deliver better outcomes for citizens. This tool should also make sure that planning issues and potential conflicts are highlighted to the local administration at an earlier stage of the planning process.

Several hundred citizens filled out the questionnaires for the test areas. This is a very good result for our small municipality. We held a public event, in which the city, the university, citizens and companies took part, which gave us an opportunity to clarify many questions about our approach. Now we can improve and optimize the website and the questionnaire based on this feedback.

Our approach to service delivery will now change as a result of getting this local data. It is important that administrations and citizens understand and learn

RAUM FÜR VECHTA

more from each other – both will benefit from this, and there are only winners from this. We hope that other administrative units in Vechta will adapt this participation method and that other municipalities will adopt and adapt this tool.

Everyone involved now understands that the municipality can do a better job of working with citizens and organising ways in which citizens can feed into and participate in decisions. As a result, we've found that citizens are now more willing to become involved and to participate in civic activities – so this is a prerequisite if we really want many people to get involved.

While it was important to communicate with citizens about the new service through the print media, we learned that it was extremely important to use social media.

We probably would not have succeeded in persuading so many citizens to participate if we hadn't used social media.

We have learned that we had to work to draw attention to the work we are doing at a very early stage, very intensively and again and again. This also applied to events with interested citizens. There were several times during the project when we thought that it would be sufficiently well known, but when we talked to citizens we learned that this was not true!

It would have been helpful if the questionnaire we developed should have been tested by an even larger group of testers – as many weaknesses were only identified when we sat down with the citizens who had completed the questionnaire. We'll remember this in future civic participation projects!



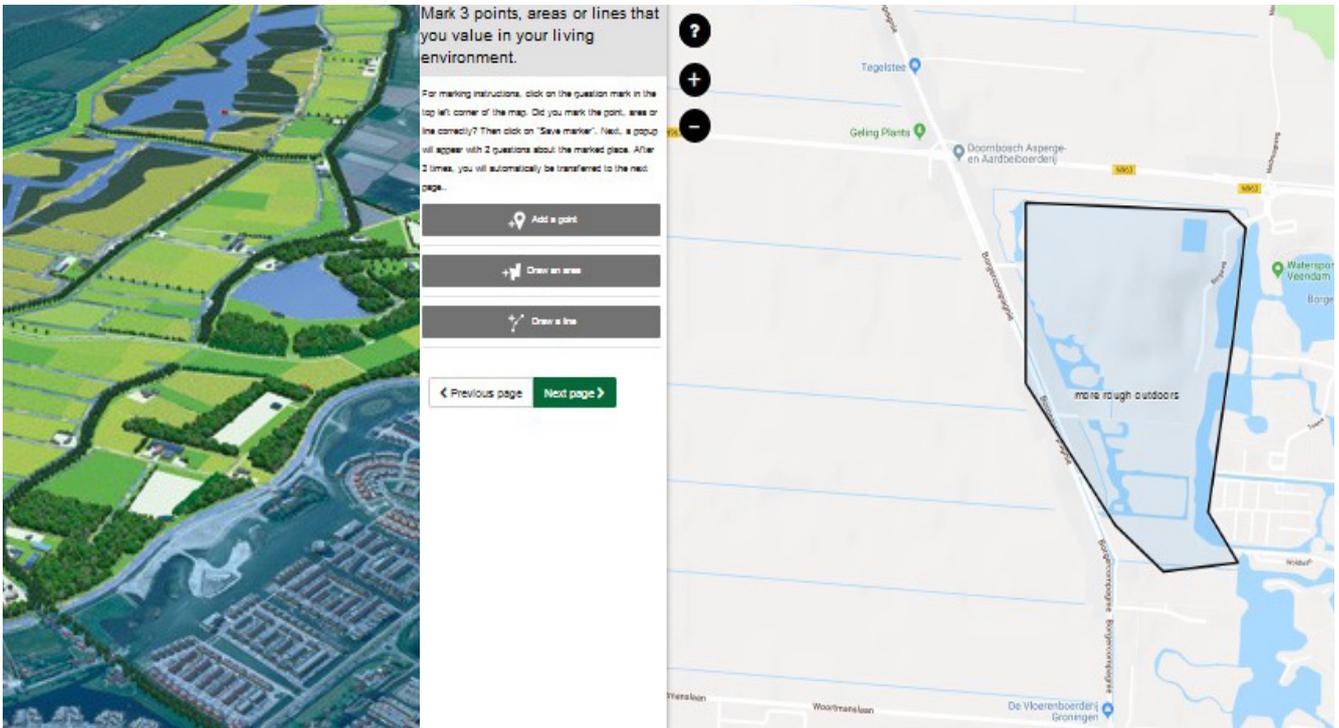
Using data to understand how citizens value local places

In a densely populated country like the Netherlands, space is limited, but demand for space is high for living, working, recreation, traffic and transportation. This often leads to conflicts across different interest groups, delays are common, and planning processes can therefore take a long time. Projects with significant spatial impacts – such as roads or the development of new neighbourhoods – often lead to sharp discussions amongst users, stakeholders, communities and policy makers. This can be made worse if there isn't a good understanding of the views of local communities about places and their views on changes and different uses. Resistance to (any) change may be an underlying reason for local concerns.



Anne Marel Hilbers
*University of Groningen
The Netherlands*

While many people assume that an integrated approach to spatial planning should be better than other approaches, we need to develop tools to show how to bring together a range



of different views from different users (citizens, owners, communities) that capture a range of different perspectives (place/neighbourhood values, economic values, utility, future options etc.).

We believe that an integrated approach to planning needs to incorporate specific (soft) place values from citizens to facilitate the selection of acceptable alternatives when places change. This should start with a shared understanding of what citizens' key place values really are. This can only come from the use of data that is generated by (instead of about) citizens and stakeholders in order to identify acceptable plans and alternatives.

we are trying to make the transition from understanding economic value to understanding spatial value, and from analysing the effects on 'the consumer' to analysing the effects on 'the citizen'

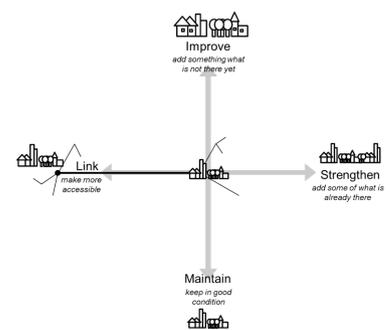
We developed and tested a novel online interactive value mapping tool called the **Place Value Identifier**, which allows users to mark points, areas and lines to describe particular areas.

In our test 1227 Dutch citizens indicated which places they valued in their living environment, and why. They identified 3690 valuable places: 55% marked a point, 36% an area, and 9% a route. Participants told us whether they thought these places need to be either maintained (64%), strengthened (20%), improved (12%) or, connected (3%).

The tool allowed participants to value all of these places against each other by distributing a limited amount of points over them, which tells project owners about the eventual trade-offs citizens would be willing to make if one of their key places might be affected by proposals – information which can accurately inform planners and stakeholders of

key places might be affected by proposals – information which can accurately inform planners and stakeholders of citizen's views on areas and how they would like them to be changed.

This location-based experiential information can be a welcome addition to the other layers of information in evidence-based planning, where the active use of a wide range of various types of knowledge, different ways to collect, analyse and deliver data are essential elements of planning.



IoT

– Internet of Things



What is IoT?

The Internet of Things is a set of enabling technologies that allow a range of devices/machines/sensors etc. to be connected to the internet – some by physical/wired connections, but more commonly through a wireless connection of some sort (e.g. Bluetooth, WiFi, LoRaWAN).

Like most enabling technologies, it's not clear to many users what the value of IoT is – while it sounds good to be able to connect almost anything to almost anything else, what is the value of actually doing that? Because the answer to this isn't always clear, the value of IoT is sometimes obscured by the hype.

But what IoT does do is create opportunities for us to build new and relatively inexpensive systems that link sensors in the real world to our networks so we can understand what is going on in areas without having to actively, and expensively, monitor them.

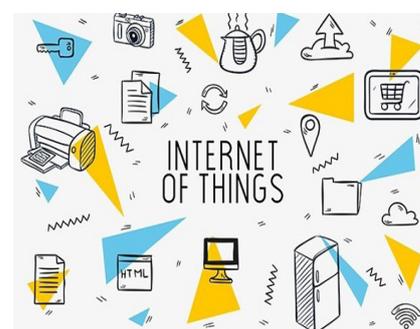
What is LoRaWAN?

The communication technology which makes the IoT possible is called Long Range Wide Area Network (LoRaWAN). A LoRaWAN network is designed to be highly energy efficient (transmitters usually are selfpowered with extremely long-life batteries that should last for over a decade. LoRaWAN has low bandwidth requirements (below 2G), and transmitters can have a very long range - up to 10 km in rural areas.

The LIKE! Approach to IoT

LIKE!'s partners set out to explore how sensors can be used to deliver better understanding of neighbourhoods and how sensors can help deliver better services and information.

We did this in two ways -through a series of public events and hackathons, and by developing local pilots to use sensors to capture information to help understand how neighbourhoods were being used.





Theme lead

Esmeralda Top

Provincie Drenthe, The Netherlands

What was the goal of your theme?

To boost the use of Internet of Things (LoRaWAN) for creating smart solutions and smart services.

What were the main accomplishments of the Partnership in meeting these goals/working in this area?

In the LIKE! project we've experimented with a hackathon as a means to develop new techniques to build and enhance multi-stakeholder relationships to enhance co-design activities and to deliver better services. A hackathon is an innovation marathon. With the partnership we've organized an international Internet of Things hackathon, participants and challenge-owners have created smart solutions for societal challenges by using IoT/LoRaWAN, just within a 30-hour pressure cooker setting. Smart solutions were created for challenges on health, mobility, sustainability and safety, and partners are now working out how to deliver these solutions.

What was the personal highlight for you?

The international hackathon was my personal highlight. We've organized it from A till Z. It was awesome to see 80 enthusiastic participants working on challenges of from the LIKE! partnership regions.

What do you think were the main lessons that the partnership learned when working on this theme that other organisations should know?

We proved to ourselves that the internet of things can help to provide a range of new and innovative smart solutions to create smarter services and address wider societal challenges.

But we also learned that the Internet of Things part of the LIKE! project was sometimes hard to deliver, as not all partners were initially interested in this work or had potential projects or understood the potential of the technology.

It was the way we worked through this and changed partner's perceptions that makes European projects and European cooperation so interesting. As we worked on this it was great to see that more partners from across the project realized that the Internet of Things can help to provide smart solutions for societal challenges and to create smarter services, and by the end of the project all of the partners had developed use cases or project ideas that used IoT.

It was also interesting to see that the various European regions have similar challenges. For example we found that many partners were interested in understanding how they could monitor road or land use and how they could make their infrastructure smarter.

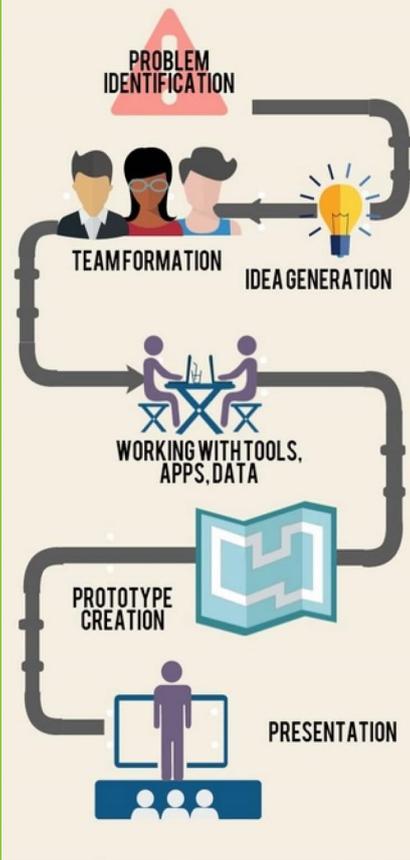
What were the main challenges partners faced when working on this theme - and what does this mean for other organisations?

Within our workpackage it was really hard to get the LIKE! partnership in the 'action mode'.

I think the IoT part was a bit of an outsider within the scope of the LIKE! project. The project partners were mostly of different policy fields and in the beginning the potential of IoT/LoRaWAN wasn't really well known or understood. However, I'm very proud that during the project more partners became interested in and active with IoT.

A lesson learned is firstly to collect the 'right' people (with similar policy fields background) and together outline the common vision/mission and make work arrangements. You need 'skin in the game' otherwise it will become very hard to keep people committed.

WHAT IS A HACKATHON?



One of the key problems organisations have when they start to think about IoT is how they can use this enabling technology. As an enabling set of technologies, there are a wide range of possible ways to use data and the technology to help with service design and delivery. This plethora of opportunities often makes it difficult to know where to start, as organisations can find it difficult to understand both the art of the possible, and then need to consider which of many possible network/hardware/software combinations is the most appropriate for them.

The LIKE! International IoT Hackathon

What is a hackathon?

A hackathon is an innovation competition where bright, creative people try to come up with solutions to a set of challenges provided by the organisers. Hackathon participants are organized into small teams – we had teams of 5-6 people. Every team member usually has their own roles and tasks.

The LIKE! International IoT hackathon

LIKE! hosted a large-scale, three day long IoT hackathon in March 2019 to create smart solutions for societal challenges based on IoT/ LoRaWAN technologies. Organised by the Province of Drenthe, our hackathon was a 30-hour inventors marathon at **'Technologies Added'** in Emmen, the Netherlands' first shared smart factory.

This provided partners with an opportunity to first develop IoT use cases that were relevant for them, and then to bring them to the hackathon and see how experts would turn these ideas into products or prototypes at the hackathon. It was awesome to see 80 enthusiastic participants working on the challenges from the LIKE!.



LIKE! IoT Use Cases from the International IoT Hackathon

Hackathons need themes – our IoT Hackathon had 4:

1. **Mobility**
2. **Health**
3. **Safety**
4. **Sustainability**

1. MOBILITY IoT THEME

Challenge number 1: Smart Urban Freight Logistics *Interreg B project SURFLOGH* and *University of Groningen*

Transportation companies drive around with half empty trucks and often go into city centres to drop off just one package. This is inefficient and leads to traffic jams and unnecessary vehicle emissions in cities. Information flows are too big and dynamic to centralize planning of all freight transportation. But what if freight itself could talk, and packages and pallets could self-organize their distribution?

Solution: *A package tracking solution* with temperature sensor, humidity sensor,

accelerometer, weight sensor, NFC and location. *team Dogs of Assen, Hanze University of Applied Science, The Netherlands*

Challenge number 2: Parents bring and pick up kids from schools by using their cars. This causes traffic jams and dangerous situations. How can we dynamically guide traffic in school areas? *Municipality of Roeselare*

Solution: *Kidz&Ride* sending notifications of kids entering and exiting the school. *Team Tegendraads - Toolbox, The Netherlands (Winner – best design)*

Challenge number 3: First, find a way to identify the frequency of use

of the official bridle ways in Vechta, Germany over a long period of time. Second, find a way to identify whether the bridle ways are just used by equestrians or if they are also used by pedestrians and cyclists. *Municipality of Vechta*

Solution: *Geophone Movement tracker, team Hack The Pony - individual mix, International (London, Berlin.)*

2. HEALTH IoT THEME

Challenge number 4: How might we use IoT to ensure people stay well hydrated and fed, reducing the risks of dehydration which can lead to other complications such as Urinary Tract Infections. How could IoT help the person by monitoring physiological conditions (e.g. wearables) and providing prompts and escalations at appropriate times? *Angus and Suffolk County Council*

Solution: *Carrie the Care robot with AI that would check that people have eaten or drunk as well as being used to support customers with memory difficulties to sequence specific tasks. team KIB - Hondsrug College, The Netherlands*

Challenge number 5: How might we use IoT to reduce the reliance / burden on carers, to empower the cared for more and provide a better quality of living for both the carer and the cared for? How might IoT enable more remote based support rather than one-on-one care? *Suffolk County Council*

Solution: *A platform with IoT that integrates existing and future support devices and sensors and links them with services. Team Zorgloos, individual mix, The Netherlands*

Challenge number 6: How can we make cyclists drinking bottles smarter

and how can we reduce the litter of drinking bottles created during cycling tours? *Bidon-it / Ideas4u (entrepreneur)*

Solution: *A smart water bottle that is being tracked via GPS, LoRaWAN and QR team Singapore - Rudralabs, Singapore/India (Winner - best overall solution)*

3. SAFETY IoT THEME

Challenge number 7: How can a safe and secure exchange of data via USB be created? *QBIT (company)*

Solution: *Itis-í covert command and control penetration system via LoRaWAN. Team Tesseract, Rotterdam, The Netherlands*

4. SUSTAINABILITY IoT THEME

Challenge number 8: How to detect illegal waste deposit throughout the city? (at underground waste deposit containers). How can IoT be used in waste management. *Municipality of Groningen*

Solution: *A LoRaWAN solution with pressure and proximity sensors and sensor that will send notifications when the bin is full. Team GARBit, ICT lyceum, The Netherlands*

Challenge number 9:

How can we use IoT to help encourage recycling? *Angus*

Solution: *A smart LoRaWAN waste bin with four separated components. The sensor automatically separates waste into the right waste component and sends data via an app. Team GICT, Groningen, The Netherlands (Winner best commercial solution)*

RESULTS

10 different challenges (partner use-cases) at the start of the 30-hour challenge. After 30-hours the teams pitched their solutions to a jury of experts, who decided who won awards for Best Overall, Best Design and Best Commercial Potential.

- **Best Overall** was won by the team from Singapore/India who designed a solution for the challenge by BidonIt. They've added intelligence to a drinking **bottle for cyclists**.
- **Best Design** was won by team Toolbox who created a solution for the challenge of the municipality of Roeselare about using IoT to prevent traffic jams at schools.
- **Best Commercial** was won by team Gict who pitched a solution for the challenge provided by Angus Council about encouraging citizens to recycle more.

Suffolk County Council

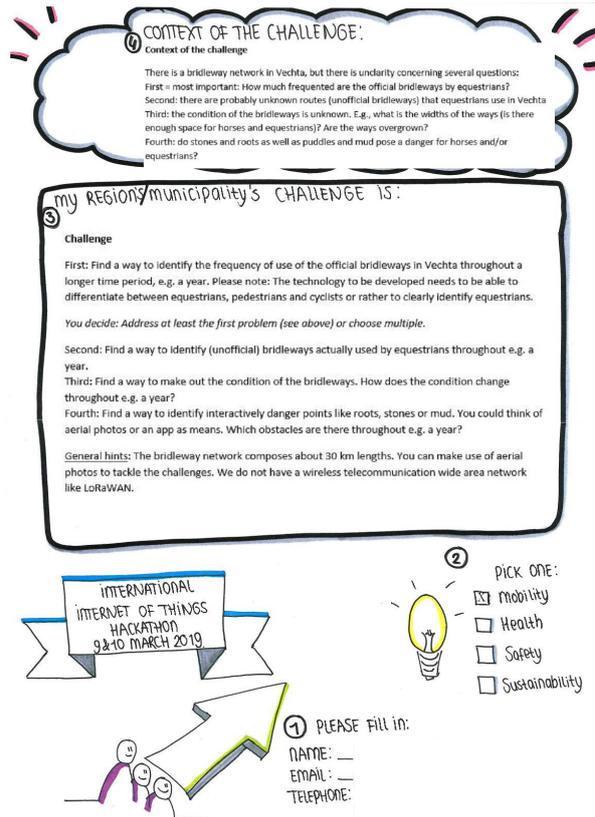
Two of the seven IoT challenges/use cases that were developed by Suffolk County Council were used during the LIKE! International IoT Hackathon.

1. How might we use IoT to ensure (elderly) people stay well hydrated and fed?
2. How could we use IoT to reduce the reliance/burden on carers?

Suffolk's IoT challenges were developed in response to Suffolk's strategic health and care policy objective "keeping people living well in their own homes for longer is beneficial to the customer, they are happier and more independent for longer."

Over the course of the hackathon each of the ten participating teams were assigned a challenge from LIKE! partners, and asked to come up with an IoT solution to the problem, and to design a 'proof of concept' to present at the end of the hackathon.

Suffolk met their two teams and provided them with real-life examples of how these challenges affect elderly residents of Suffolk, how local services are provided, and outlined relevant UK legislation. At the end of the first day the teams presented their initial ideas to Suffolk, who helped them develop their ideas with additional information and use-case examples.



Using IoT to understand brideway use in Vechta, Germany

Both teams were able to develop - within 30 hours - solutions that have the potential to improve the lives of Suffolk residents. The notion of a system that can not only support customers to sequence everyday events as well as monitoring and feeding back food and fluid intake has the potential for people to remain living in their own homes and delaying the need for traditional care provision.

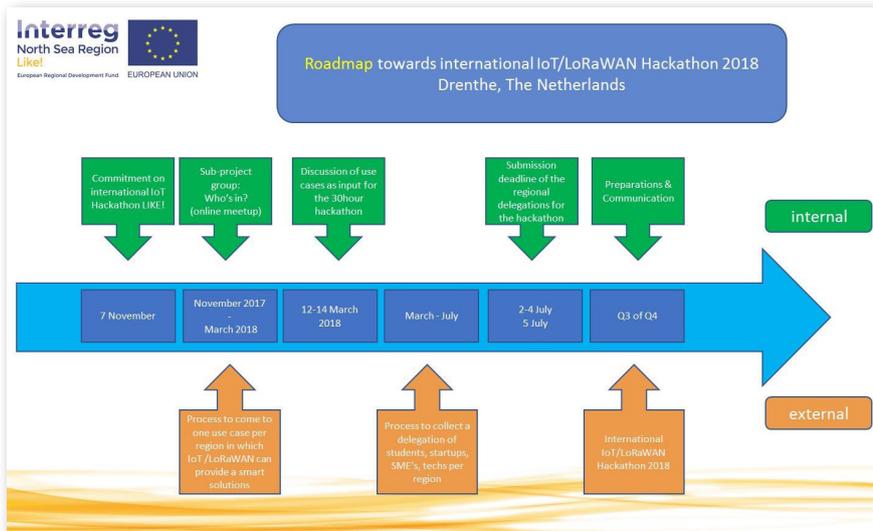
Suffolk particularly liked the idea of a platform that has the potential to host a range of devices that cover both health and social care needs. With the future of health and social care becoming more integrated, developing the platform proposed by this team can help make this a reality.

#1 Keeping the elderly hydrated

Team KIB explored how to keep the elderly hydrated and fed pitched the idea of a robot with AI that would check that people have eaten or drunk as well as being used to support customers with memory difficulties to sequence specific tasks.

Over the course of 30 hours the team devised a working prototype that allowed the user to select on a screen whether they wanted support to make a hot drink, cold drink, snack or main meal.





For the presentation the hot drink option was used and the robot showed on screen the various steps required in order to make a cup of tea. This sequence of events included a safety message to remind the user to be careful with the hot water. During the planning and construction process we discussed the potential for including sensors that would monitor and alert others how much of the food or drink was consumed. Due to the time constraints this wasn't incorporated into the final version but has the potential to be developed further. Sensors including smoke alarms, flood sensors, pendant alarms, blood pressure monitors and blood sugar monitors would be linked to the platform, which would understand who to alert depending on which sensor was active.

#2 Reducing the burden on carers

Team Zorgloos focused on reducing the reliance/burden on carers using a platform that would be integrate existing and future support devices and sensors. This platform would put the customer at the centre of their support network, and health and social care data could be directly shared with relevant parties, removing this task from their carers.

For example if a fire was detected then the emergency services would be notified, a knock at the front door could be sent via an app to a family member who could check ID and grant access to the visitor, and a low blood sugar reading could alert a community nurse.

The prototype that was developed at the hackathon supported blood pressure readings, and analysed readings and sent appropriate alerts.

Best overall solution from the LIKE! International IoT Hackathon

1. Standalone module on cycle (bottle cage) - one-time installation of a lightweight circuit

- IR Receiver
- GPS - To track location
- GSM/LoRa WAN/NB-IOT - Gateway to send location data to the cloud whenever the bottle is thrown away

2. Water bottle has a sticker which has both

- IR blaster (low cost) and - This is to identify if the bottle is within proximity of the IR transmitter of the standalone module
- QR Code

3. Fans scan the QR code on water bottle after finding them, and share on social media

- Based on the number of bottles collected by the fans, they can be rewarded (Branding & Broadcasting)
- Application for Fans - in that they can see all the bottles that are thrown away

4. Prediction

- Previous track records
- Predict thirst based on weather, player physical build, last water consumption time, distance cycled, water consumed by riders

USING IoT TO MONITOR FOOTFALL

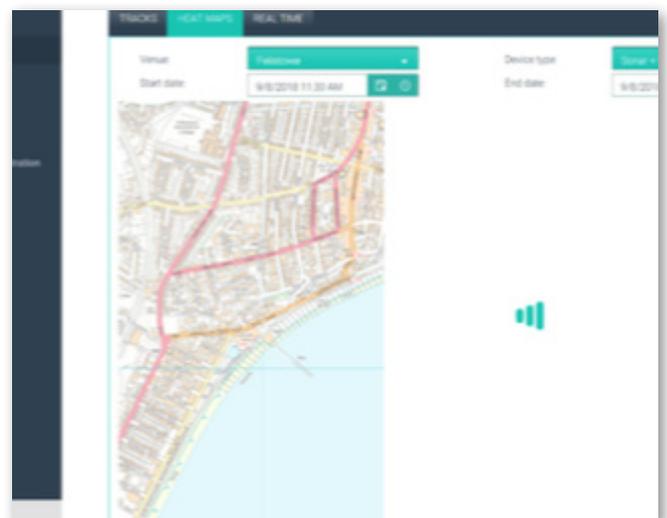
Suffolk, England

Suffolk wanted to understand how people visited the town of Felixstowe in the south of England. They particularly wanted to find a way to understand if people used the retail high street and the seaside promenade in different ways.

Suffolk's IoT pilot used two LoRaWAN antennae mounted on two buildings (marked as A and B on the map) one on the promenade, and one in the High Street. Seven wifi sonars and cameras attached to streetlights helped to measure the footfall down the main High Street and along the promenade between the two antennae.

The monitors and cameras work to count the number of people on the street and calculate how many people are in an area at any given time. This data is represented on a dashboard which can give both real time and historical information so the Council and retailers can compare visitor numbers and the flow of visitors across the town.

The results gave some insights into the number of people who were visiting Felixstowe on a normal day and allowed Suffolk to compare this with the number of visitors on event days. This information will be used to help plan future events, such as where to locate emergency services, information stands, additional facilities etc.







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