SmartCities

Co-design in Smart Cities

A guide for municipalities from Smart Cities

Contents

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1. Introducing Co-design

Co-design describes the process of bringing stakeholders into the service design process. This can start modestly – for instance an ICT department may work to change its relationship with front line service delivery staff – through to citizen-led service re/design. At the heart of the approach is a move towards user-led process design, possibly also leading to a user-led approach to the delivery of services. This type of co-design could be seen as part of a broader shift towards citizens and professional staff working together to co-produce services in municipalities.

This report brings together the different experiences and perspectives of Smart Cities partners who have used different forms of co-design, and links this with the findings from an evaluation of co-design in Smart Cities that was carried out by Edinburgh Napier University in 2011. Starting with an overview of definitions of co-design, it includes in depth examples of the different approaches to co-design that were taken by different Smart Cities partners, and gives examples of the of the context in which co-design works. It also places co-design in the wider context of service improvement efforts, including design thinking, segmentation and customer insight. We also describe examples of what we call 'horizontal co-design' – where organisations learn from their peers, or work together with their peers to design new services.

By their nature, government services are complex and have to be delivered to all eligible citizens: involving a random selection of citizens or a self selected group in service design could lead to contradictory ideas, or to badly targeted services. This is a challenge faced by all approaches to public service development. In solving this dilemma, Smart Cities partners have found **segmentation** and **customer insight** useful in helping to efficiently prioritise and target groups, for instance in deciding where to start with the co-design process. This report touches on how cities can take advantage of the detailed demographic data built up by commercial companies – Experian's MOSAIC data for example – to compare predictions of service use against how they are actually used, and to identify areas where service provision needs to be reconsidered. Another co-design approach is to use **surveys** to better understand your customers and how they can be grouped together, and this report includes a description of survey work by Smart Cities' Belgian partners MEMORI and Leiedal in the Kortrijk area of West Flanders.

> *"In our municipal policy plan local youth are indicated as an important target group. Therefore we will open a separate youth desk in the town hall"*
>
> **But what problems to does the local youth see in their lives? Can you help to solve them?**

The **customer journey mapping** process can combine segmentation and customer insight techniques with business process improvement work. It takes on board service customers' experiences and then works to improve them, an approach which fits well with co-design. This report summarises the City of Edinburgh council's experience with customer journey mapping (which is covered in more detail in the separate Smart Cities report on *Customer Journey Mapping* – available at http://www.smartcities.info/research).

Involving citizens in the design process creates significant challenges in collecting ideas and moving them into action. This report includes examples of the challenges that Leiedal faced in combining web-based online idea collection with efforts to make concrete changes to local environments and to show citizens how their ideas were actually making administrative processes change.

Kristiansand in Norway provides an example of a country where many of the elements of co-design have been incorporated into planning decisions for some time, even before the internet became a routinely-used tool. This report includes three examples that make the benefits of co-design approaches clear not just for service users, but for staff and the whole community.

Design thinking provides a useful range of techniques for bringing together citizens (as users) and municipal staff (as providers) to work to identify the problems that need to be solved - avoiding being trapped by pre-defined 'solutions' that may never really be used.

This report provides useful practical background information for municipalities and other public sector organisations that are considering incorporating aspects of co-design into their service development.

1.1 About the Smart Cities project

Smart Cities is an innovation network made up of fifteen government and academic partners from six countries that is working to improve the development and take-up of e-services and e-government across the North Sea Region of Europe. Project partners are improving e-service-delivery by rethinking the basics of service delivery, by changing their innovation methodology, by transferring their best practices to other project partners, and by working with academic and research partners.

"I've been working here for 20 years, I know what people want and need."

Are you saying what you want to do?

Public services need to adapt to the needs of citizens. Often new e-services are technology-initiated, but Smart Cities start with the user. Sociology, marketing and economic science have a lot to offer to the developers of e-services – but this means bringing a range of data sources together to develop accurate profiles of target customer groups.

The local governments and municipalities in the Smart Cities project have used a wide range of geographical, transactional, demographic and survey data to better understand citizen's needs and to re-engineer services for their communities.

This has allowed partners to identify and use the most appropriate service channels for different target groups and to proactively provide services that will meet their needs. When combined with co-design approaches, this will allow local government to use a strong mix of information and established best practices to better understand their customers and to identify the most appropriate channels for service delivery.

The Smart Cities project has published a number of other research reports and guides – they are referred to in the text where relevant, and a full list can be found at the end of this report.

2. Co-design and the citizen

Co-design emphasises engagement by those responsible for delivery of a service or product with stakeholders in general, and with the end user/customer/citizen in particular. The Smart Cities project has taken a pragmatic approach to the meaning of 'co-design', starting from a simple ideal:

Activity where the users of the planned new system actively collaborate in (a) defining what the system should do (problem definition), (b) the development process and (c) acceptance of the results.

There are many (possibly conflicting) stakeholders, goals, perspectives and interests involved in service development; the aim of co-design is to create a route that allows all to make constructive contributions, and it does not start with the assumption that any stakeholder is more important than any other. Co-design is more than just simple user testing: stakeholders need to have an active role in the design and implementation processes.

In the commercial world, co-design is more common in organisations with a relatively high level of new product development. It is generally initiated by the service provider as part of the development of niche markets, and can and can be done with user-friendly user-friendly toolkits. This requires the maintenance of long term relationships with customers, rather than mass-market short-term transactions.

For governments, one objective of co-design can be the empowerment of citizens: B2Cit (Business/government to citizen) co-design strategies differ from others in that they are not either provider, or customer-focussed. They are **user-centric co-design strategy**: strategies, where collaboration is not based on the notion of a customer, but of a **citizen** who participates in the process.

Co-design can be seen in the wider context of the co-production of services, where citizens continue to have active roles in delivering a service once the design stage is complete. This is best summarised in the following table from the NESTA report on co-production (Boyle and Harris, 2009):

Relation of co-design to co-production		Responsibility for design of services		
		Professionals as sole service planner	**Professionals and service users/ community as co-planners**	**No professional input into service planning**
Responsibility for delivery of services	**Professionals as sole service deliverers**	Traditional professional service provision	Professional service provision but users/ communities involved in planning and co-design	Professionals as sole service deliverers
	Professionals and users/ communities as co-deliverers	User co-delivery of professionally designed services	Full co-production	User/community delivery of services with little formal/ professional
	Users/ communities as sole deliverers	User/community delivery of professionally planned services	User/community delivery of co-planned or co-designed services	Self-organised community provision

In this model, whether co-design is facilitating the development of professional or user-led services, it requires that professionals and users are both involved as partners in the planning/design process.

There are four aspects of co-design:

1. Participation: **co-design is collaborative**. The collaborative nature of the process is enhanced and extended all of the participants by several of its other features. There is a great deal of transparency involved in co-design: all participants are aware of the design methodology, its inputs and outputs, its goals and current status, etc.. It is designing with people, not merely for people. This high level of participation requires a continuity of participants, to ensure the development of a close working relationship. The breadth of input from all parties is wide-ranging, ensuring a multiplicity of viewpoints and building wider community relationships between those involved.

2. Development: **co-design is a developmental process**. It involves the exchange of information and expertise on both the subject of the design process and the process itself. In this sense, co-design teaches co-design.

> *"We are not a commercial business. Those who need our services know where to find us"*
>
> **But do they? Or does this approach help those who are already doing well?**

3. Ownership and power: **co-design shifts power to the process**, creating a framework that defines and maintains the necessary balance of rights and freedoms between participants. There is equality of legitimacy and value in inputs from all those involved, whether suggestions entail large- or small-scale changes. This combination of the controlled abrogation of power by those with whom it usually rests – and the empowerment of those in a traditional 'client' role – serves to create a sense of collective ownership of the issue.

4. Outcomes and intent: **co-design activities are outcome-based**. They possess a practical focus, with a clarity of vision and direction. Methodology and implementation seek to ensure a shared creative intent between all participants.

3. Co-design within Smart Cities

There is no one clear definition for co-design, particularly for government service delivery, and co-design is just one part of a wide range of project activities such as mainstreaming, citizen engagement, participation, knowledge management and transnational activity. As a result, some Smart Cities partners were reluctant to use the term. Despite this, we could identify a consensus definition of when co-design was actually being used within the Smart Cities project:

- There is a **change in mindset**, moving from what the technological developments can do, to what the stakeholders want, AND

- a service is being **fundamentally reshaped**, AND

- there is EITHER **concrete work** (i.e. more than information sharing) with stakeholders or another partner OR the **transformation of services** involves working with end users (or the agencies that work with them).

This means that co-design involves a transformation of services through working with end users (or agencies that work with them) to produce "a wholesale change in service design". This definition is broader than normal for co-design, but has worked well in the project.

We found it useful to view co-design as having three dimensions:

Horizontal co-design – learning and working with colleagues in parallel organisations, who could be in the same region, the same country or in other countries. An example of horizontal co-design would be joint working with neighbouring municipalities.

Vertical co-design – working with stakeholders up and down the service delivery chain. This could start with ICT departments working with or involving stakeholders in a service delivery department, right though to an improvement process led by citizens and customers.

Intensity – is the engagement simply a case of fact-finding, or are the people involved in the design process able to shape the outcome together?

Working with colleagues: Horizontal co-design

This approach can be summarised as "working together with partners to deliver new services". Under this definition, co-design involves working with peer organisations – such as Smart Cities partners – or with neighbouring municipalities. Examples of horizontal co-design in this report include Leiedal and Kortrijk working with other municipalities in their region, or with other Flemish cities such as Ghent.

Working with colleagues
Smart Cities partners
Neighbouring municipalities

Figure 1 – horizontal co-design

This kind of activity is similar to mainstreaming, as both involve sharing and spreading best practices between similar organisations, regionally and transnationally. Depending on the intensity of engagement, a municipality could refer to another as a source of advice or experience, or they could jointly design a new service.

This form of interaction helps change mindsets to one of learning from and working with outsiders when designing new systems.

Working with stakeholders: Vertical co-design

Working with stakeholders

Other departments
Suppliers
Agencies
Citizens

Figure 2 - vertical co-design

Vertical co-design covers moving from the basics of opening up communication across departmental silos, to engaging with end users and customers. While citizens could be considered to be customers in their own right, in many cases the customers in the process may actually play an intermediary role in service delivery – for instance the customer may be a service delivery department within a municipality, or an agency or third-sector organisations that acts on the behalf of citizens.

A sample of relevant activities from Smart Cities partners illustrates the varied ways that co-design can be used.

Osterholz-Scharmbeck has been developing a new website for their citizens that follows best practises in understanding user needs. The city is learning to take ownership of the process, rather than contracting out service development. They are doing this work in conjunction with their Smart Cities partner Jade University of Applied Sciences – an early step towards developing their co-design capability.

The city of **Kortrijk** has been undertaking a number of local projects that focus on improving services by working with internal stakeholders. They commissioned a report on the effectiveness of integration of the IT service and the municipal organisation, expecting that citizens would indirectly benefit from improved project management and so experience better service delivery. A key recommendation of the report was for the inclusion of stakeholders – which was a different way of working – with much stronger involvement of internal users in every step that was taken to develop their ICT systems. The initial perception of these recommendations within the local IT department was that this new way of working was creating unnecessary barriers to progress. This highlights the importance of long-term engagement and commitment by senior management to support the use of co-design in service development.

Co-design with front-line agencies was behind the drive by **Norfolk County Council** to reduce unnecessary client contact and thereby contain service delivery costs. Norfolk recognises that working with end-users includes working with the agencies that either work with end-users or advocate on their behalf. NGOs/third sector organisations are most aware of their clients' needs, and as they are involved in service delivery, they are more likely to spot false economies.

Norfolk also shows how working with partners can operate on different levels, for example:

- Developing common data sets for customer profiling and common techniques, in conjunction with health and police services, that subsequently informed a number of strategic needs assessments.

- Designing individual campaigns, such as those involving health and school authorities in efforts to tackle teenage pregnancy.

(More examples of joint working can be found in the Smart Cities *Customer Insight Guide* – http://www.smartcities.info/customer-profiling)

3.1   Conclusion

Effective co-design covers many different approaches and ways of working, and not all municipalities are ready to embark on citizen-led co-design processes. The Smart Cities experience has shown that even ICT-led departments are in a strong position to encourage steps towards co-design as a process that ensures long term customer engagement, even if more effort is required at the beginning to ensure commitment from all the stakeholders.

One of the issues underlying the different levels of adoption of co-design may be organisational capability – an organisation's ability to define the process, their ability to carry out the process, how the process is actually performed and the management of process improvement. Different municipalities will have different capabilities and needs.

4. Co-design case studies from Smart Cities

These case studies illustrate a range of situations where co-design has been incorporated into service development.

4.1   Kristiansand: Building co-design into services

Kristiansand is a city of 83 000, and is the capital city of Vest-Agder county in the Sørlandet region of Norway, which has a population of 265 000. The main employers are processing industries, oil-related engineering, tourism, university/ education and trade

Background and the role of the voluntary sector

Although there are few laws and regulations requiring municipalities to use co-design *per se* in Norway, there is a general recommendation from the government to include representatives of different interested groups as often as possible: this is supported by laws covering procurement, building design and disability discrimination.

Figure 3 - A landscape designer from the Kristiansand technical department in a workshop with student representatives working on the redesign of their school-yard

The use of **universal design** approaches sets out a high minimum standard for engagement. This is not catering for the lowest common denominator; this is making services better for everyone by thinking through the needs of the most demanding 'extreme' users of physical spaces. Regulation is often associated with killing creativity and co-design - here it adds a creative constraint.

An unusually high proportion (58%) of Norwegians participate in voluntary work – compared to 30% for the UK and 16% in the Netherlands. Voluntary work is of great importance to the community and to each individual, both as recipients and as volunteers. Norwegians' reasons for volunteering include:

- improved quality of life – "a reason for living",

- personal development,

- safety and well-being in the local community,

- social capital,

- active local democracy,

- production of welfare benefits and services, and

- encouraging engagement for the public good.

It's possible to satisfy these motivations by using community organisations in co-design: the voluntary sector is used as much as possible. Kristiansand recognises the voluntary sector's need for support with administrative support and training.

"Easy to legislate, hard to deliver": Community care for those with mental illness

A governmental reform of the care of mental illness in Norway gave the municipalities increased responsibility for the care and organisation of the everyday life of affected people. The challenge was to involve people and their families and to successfully introduce the reforms.

On the surface this client group may not seem able to participate in co-design co-design: stigmatised users, with weak social networks and with low levels of insight into their own issues. The municipality's first task was to provide organisational training for a group of potential users to support their engagement in the process and to help them to act as articulate representatives of their communities. The training covered committee work, media contact, the responsibilities and roles of different government bodies, and how to run a 'local interest organisation'. The need to develop the relevant skills in these representatives meant it took 3 to 4 times as long to create the required conditions for their participation, but the resulting service was better.
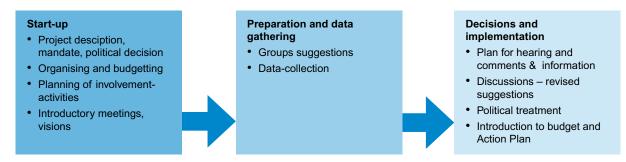
The work was managed through three phases:

Start-up	Preparation and data gathering	Decisions and implementation
• Project desciption, mandate, political decision • Organising and budgetting • Planning of involvement-activities • Introductory meetings, visions	• Groups suggestions • Data-collection	• Plan for hearing and comments & information • Discussions – revised suggestions • Political treatment • Introduction to budget and Action Plan

Figure 4 - Co-design as part of a service improvement strategy

This illustrates how a co-design approach can fit into a broader implementation strategy.

"You can, we will" – Designing a customer contact centre for social services

The Health and Social Care department in the municipality of Kristiansand uses the DuVito Centre as its main customer (citizen) contact point – it has won several awards in Norway for the way it engages with citizens.

Figure 5 - self service at the DuViTo Centre

The DuVito centre is designed to give the offices in Kristiansand a "soft" route for people seeking information about social services, housing, help for the handicapped, and much more. It serves a huge range of customers – from elderly or young people seeking information or short term help to alcoholics and drug addicts.

The centre is based on the universal design of not excluding any potential clients. The design process was based on the theme "You can, we will" and the use of joint resources from different departments. The centre was designed to be an enabler for its users.

The design team took time with existing managers to understand their approach, which was built on the values of respect, honesty and professionalism, and with anonymity for people in need of social services at its heart.

The design process for the centre spent two to three months of training and co-design with alcohol and drug abusers. Bodies representing disabled people, elderly people and the social services department were also involved. As a result, a lot of attention was paid to the making the premises as accessible as possible for wheelchair and baby buggy users, and for people with difficulties with their vision or hearing.

The result has been an open, people-facing approach. Booths are in place by the entrance for people who just need information. Staff are placed at the front of the centre where users can see and speak to them: this opens choice, because users are not faced with a machine or form before they can access services.

Figure 6 - the DuViTo Centre in Kristiansand

At the same time, the need for staff safety was recognised through an open approach to the design of the lobby, the windowed offices ("Absolutely not soundproofed") and by providing alarms to security guard (which have hardly been used). Naturally, a commitment to staff engagement and training has been important for the centres' success. Also crucial was the support of senior management, particularly for training, and throughout the design process.

For more information on DuViTo, see 'Creating Customer Contact Centres, a guide for municipalities from Smart Cities' – www.smartcities.info/customer-contact-centres

Inclusive design in recreation areas

For the last 30 years it has been Norwegian policy that all public and recreation spaces should be accessible to all, including people in wheel chairs, and those who are blind or vision impaired. This has led to 25 years of co-operation between the municipality and the organisation for disabled people in Kristiansand (FFO). In every project the FFO is invited to give their opinions and advice on the design and the use of materials for all projects involving the reshaping of public areas, be they a beach or a church.

Figure 7 - Co-design was used in the development of this building standard

The results of this are not just useful for disabled people. Kristiansand built platforms at a beach to encourage everyone to use them: after feedback from blind users they found a better decking material for the platform that was already being used for decks on ships.

The result of this joint working has been the creation of a building standard [1] by the municipality (Figure 7) that is now attracting interest in Norway as well as internationally.

While co-design in Kristiansand has been regularised with the FFO, there are also other co-design activities in the municipality that bring in a variety of contributors, including a mix of public and private bodies.

Figure 8 - co-design was used during the development of this waterfront area

The municipality owned an area of former industrial/dockland near the city centre. The development plan was agreed through joint work between the municipality, the region, private investors, representatives from local sport-organisations and the FFO. This engagement with multiple interested groups of users led to the successful design for the area which was supported by all parties and which plans to separate cars and people.

[1]   *Normaler for kommunale utearealer i Kristiansand – available (in Norwegian) from the city website www.kristiansand.kommune.no*

4.2   Leiedal: Co-design through online engagement

Leiedal (www.leiedal.be) is a regional organization that supports the socio-economic and spatial development of the 13 municipalities in the Kortrijk region of Flanders in Belgium.

Figure 9 - The Kortrijk region of West Flanders

Leiedal's experiences with citizen engagement and co-design have been mixed in comparison with Kristiansand, but there are still valuable lessons to be learned.

Phare West: Retaining talented citizens

Figure 10 - the Phare West logo

Phare West was designed as part of a strategy to prevent a brain drain of talented workers from southwest Flanders – a peripheral region in Belgian eyes – to Brussels, the capital city. A website (www.pharewest.be) was set up to engage young people and to get them to take a fresh look at the area, and to come up with new ideas or proposals for projects to make theirs a more young and vibrant region. At the same time, a parallel monthly pub night 'BUDA LIBRE' was created to invite participants to share innovative ideas with the public in an informal social setting.

There was a feeling though that the great ideas that were submitted stayed on the project website, rather than getting out and being turned into concrete action. This reflects a common experience: some of the biggest challenges that need to be solved at the start of online engagement projects like this are the mechanisms for taking online interest and either turning it into **online action** or making sure that users do something with it **offline** – for instance getting them to show up to volunteer for something.

Kortrijk: Do you have an idea?

Figure 11 - Kortrijkidee.be

Kortrijk Idea (www.kortrijkidee.be) was launched in May 2008 and closed in May 2009. It tried to encourage input from residents and searched for ideas to improve the liveability of the Kortrijk region. The web site experimented with a mobile interface which allowed the uploading of text and pictures directly to the website from a mobile device. It was also possible for visitors to respond to each other's uploads.

Two example projects ("Fixed BBQ" and "Magdalena Park Playground") were chosen and local residents were involved in planning how the projects could be delivered.

Figure 12 - Innovative ways to increase engagement and participation

This project also faced the challenge of translating a 'stunt', whether offline or online, into some form of concrete action. Experience showed that online and offline suggestion boxes do not work - people need to see, quite quickly, how their idea is being incorporated into the design of a solution that is relevant to them. If their idea is not recognisably included, or if it takes too long to move from an idea to a product, people will quickly turn off the process of co-design.

The Ei je een idee 'egg' in the streets (Figure 12) made it clear that a suggestion for improving things would not fall on deaf ears, or into the bottom of a 'suggestion box', but that someone – even if it is an egg – would hear it and do something with it.

Lelijke plekjes – mooie trekjes

Figure 13 - Lelijke Plekjes logo

Lelijke Plekjes (http://lelijkeplekjes.be/) was designed to create cheap, co-designed redesigns of ugly spots around a town. The project asked citizens to identify small scale public places that people felt were unpleasant because they are incomplete, looked strange, or lacked something. The project aimed to transform ugly spots into attractive, creative places by making use of the creativity of professional designers and creative students from disciplines such as architecture, arts or urban development.

Figure 14 - One of the sites suggested for improvement

Creative professionals were invited to a workshop to select the most suitable sites from a long list generated through the website. The 18 sites that were selected were usually neglected corners of public areas, but it was important to choose places that had enough potential for a 'creative intervention' to ensure the continued interest from the professionals and the students.

Figure 15 - Map of sites submitted through the website

A map and images on the website allowed people to see their ideas coming true, which helped to engage the volunteers and site users. The success of the project means that there are plans to repeat the process in 2012.

4.3 Edinburgh: Customer Journey Mapping

Edinburgh is the capital of Scotland. It is one of Scotland's 32 local authorities and has a population of 478 000.
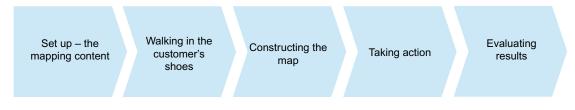

| Set up – the mapping content | Walking in the customer's shoes | Constructing the map | Taking action | Evaluating results |

Figure 16 - The customer journey mapping process

Customer Journey Mapping (CJM) is a tool for gaining **customer insight** and can be used as part of a business improvement process. It may improve the customer experience and reduce the the costs of service delivery. What distinguishes CJM from data that might be gleaned from customer relationship management systems is its equal focus on **emotional insights** about the customer's experience. CJM mixes quantitative approaches with qualitative, experiential data, providing a dispassionate analysis of the issues faced by customers.

Figure 17 - Analysing customer responses

The first use of CJM in Edinburgh came about through the Council's (successful) attempt to win a Customer Service Excellence award for improvements to the management of applications to the Council's pension plan. At the same time, it seemed logical to use CJM as a compliment to its programme of business process improvement – with the aim of improving the customer experience while saving money.

The CJM process encourages a clear focus on the depth of understanding of the issues, rather than on the sheer scale of responses. Fewer people participate in the process and discussions are more in depth, rather than collecting reams of survey results that may tell us less about the processes that are being studied. Edinburgh found that the processes they changed needed to be continually reviewed, so that any failure to deliver the promised results could be addressed. There is a need to carefully plan how the impact of any changes will be measured.

In the section on design thinking, it will be clear that the CJM goal of empathising with customers is closely linked to the immersion phase of design thinking. This can be the most 'painful' part of the process, identifying the problems and challenges from a user's point of view, so it helped that the work fitted in with the Council's objectives.

Edinburgh City also made a conscious effort to start small, and go for the 'low-hanging fruit', which is typical of the synthesis process. Low-hanging fruit and combinations that work together easily are always going to lead to more ready success, especially in the early days of co-design or design thinking.

These topics are explored in more depth in the Smart Cities guides on Customer Journey Mapping http://www.smartcities.info/guide-customer-journey-mapping and on Customer Insight (http://www.smartcities.info/customer-profiling).

5. Contexts for co-design

Work to co-design processes does not exist in isolation. Partners in the Smart Cities project have used a number of techniques to help understand their who customers and citizens are; these can then be used to identify appropriate groups to take part in work to co-design a new or improved service.

5.1 Finding the customer: Segmentation and customer insight

Successful e-government requires cities to identify the best and most appropriate ways to deliver services to particular groups, and then to use a range of channels to deliver good services.

Customer segmentation allows service providers to effectively target particular groups of customers. It divides customers into groups of individuals that are similar in specific ways – such as **age**, **gender**, **interests**, **spending habits**, and so on. (See the Smart Cities report *Customer profiling to target service delivery*, available from http://www.smartcities.info/research.)
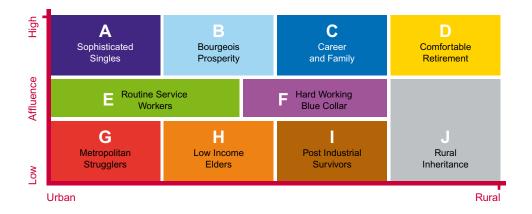

Figure 18 - Mosaic group segmentation by affluence and residence

Ideally, when segmenting populations you should aim to define a small number of groups that maximises the variance *between* groups, but minimises the variance *within* groups. This means that the people or households contained within Segment A should be as similar to one another as possible, and as different from individuals in Segment B as possible. These groups should be representative of different segments of the population, which tend to use public services in particular ways.

Segmentation allows organisations to target groups effectively, and to allocate marketing or service resources effectively. Understanding the links between eligibility, perceptions of entitlement and location will enable the accurate targeting of services to increase take-up amongst those who either need the services the most, or those customer groups who use a service less than might be expected.
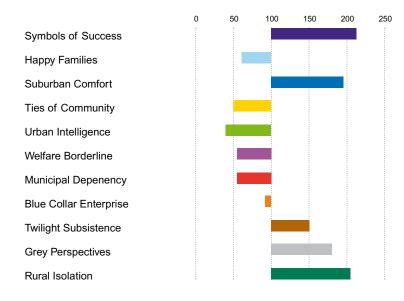

Figure 19 - Propensity graph showing which customer groups in the UK are more likely to use a services – free bus passes in this case

Commercial customer segmentation products like MOSAIC's high-level segmentation of the UK population (see Figure 18) allows service providers to use customer profiling as evidence to compare intended and actual user behaviour. These products allow municipalities to find out answers to questions like: "What sort of UK citizen is most likely to ask a local municipality for free older person's bus passes?" (bus travel is free to over 60s in the UK). A service propensity graph – like Figure 19 – makes it easier to compare the actual take up of services against the expected levels of service use, and to start planning strategies to engage customer groups who are not using the service.

More detailed information on customer profiling and how it can be used to deliver better services can be found on this in the Smart Cities Customer Insight Guide – see http://www.smartcities.info/customer-profiling.

5.2   Finding the problem: Using consultants and gathering data

Surveys provide an objective way of challenging public service employees' attitudes that are reflected in the sidebar quotes throughout this report.

"Why should we invest in user satisfaction research? We are understaffed as it is …"

External consultants can have a role at some stages of the co-design process: the challenge is to be clear whether their task is to identify the problem, to solve it, or to provide policy support or orientation. There is almost always a secondary issue of finding ways to measure the extent of the problem. But those commissioning research, as well as some participants, can have their "eyes to the past, backs to the future" – seeing only problems that they've previously encountered, and lacking the vision and perhaps the ambition to solve them.

Consultants and research institutes such as MEMORI can create and deliver great surveys and workshops with citizens to gain greater insight into their issues and to help service providers break out of this impasse.

Choice of research methods

In all cases there needs to be a clear (research) question setting out the issues to be addressed, which will determine the methodology and research design.

The starting point for any research process is to create an inventory of existing data. What do you already know? After that, the approach that is chosen should depend on the research question: diversity or intensity? Do you want to collect representative data? And if so, why? A combination of research methods will increase the validity of your findings: for instance, the process might start out with explorative qualitative research (such as desk research, interviews or focus groups), and then be supplemented or validated by a survey (population or sample based), by expert groups and perhaps by in depth interviews or by focus groups. The table below provides a quick summary of the strengths and weaknesses of qualitative and quantitative approaches.

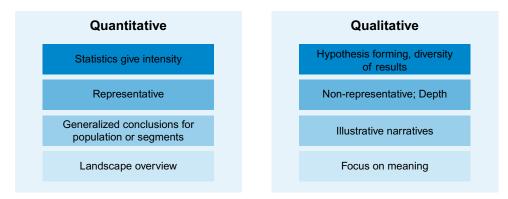| Quantitative	Qualitative
Statistics give intensity	Hypothesis forming, diversity of results
Representative	Non-representative; Depth
Generalized conclusions for population or segments	Illustrative narratives
Landscape overview	Focus on meaning

Figure 20 – Summary of quantitative and qualitative approaches to research

If you decide to do a survey, the questionnaires themselves can be co-designed – focus groups can work with statements to be tested and can be used to explore possibilities and to form hypotheses for testing. When researching innovative products, services or plans, care must be taken when asking about things people do not know about – this often includes technical solutions to their problems. As we have noted people are good at identifying problems, but may not see new ways of solving them. There is a predictable tendency towards conservatism, restraining innovations which can turn out to be very useful. The best approach is to rely on the users to identify problems, but to rely on the designers (etc.) for finding solutions.

The knowledge generated by a well designed research process is a useful addition to the co-design process – it should confirm the challenges, and helps define the focus group that can be used for identifying the agenda.

> *"Because of the digital divide we shouldn't invest too much in online services"*

Case study: digital services survey Kortrijk region

The challenge: Leiedal had no recent data showing what the citizens in their region knew about the digital channels and (e-)services that were being developed and delivered by local municipalities. A benchmark survey on the use of (digital) services in five local municipalities, received over 3 000 responses.

The survey covered contacts with the municipality and the choice of service delivery channel, covering which communication channels citizens used and which channels they would have preferred to use for informative, administrative or interactive contacts, and identifying what types of citizens used digital or traditional channels to contact service providers. This information gave the municipalities a solid basis for creating customer focussed services.

Figure 21 – The Flemish municipalities who participated in the survey

Knowing citizen's priorities can give direction for further investments in digital services, and forms the basis for selective and efficient investments and strategic development of digital service delivery.

5.3 Co-design and design thinking

The five-stage **design thinking** process provides a useful set of tools for creating a co-design process. This section gives an overview of one approach to design thinking, and shows how it can work in the co-design context. *(More reading on design thinking can be found in Chapter 8.)*

One challenge is introducing a new design process to a municipality. If the project is small enough, it may be possible to simply go ahead, working on the principle that "it is easier to seek forgiveness than it is to ask permission". Conversely, it may also be possible to get support from the top – support from Chief Executive or Director level can give the freedom to try new approaches. A safer (but more expensive) approach would be to bring in outsiders (e.g. consultants) who will have the freedom to take a problem-focussed approach and may find it easier to communicate with senior decision makers.

Here, a design thinking process is divided into five overlapping phases:
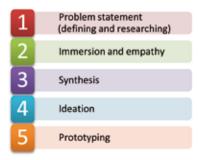

Figure 22 - The design thinking process

Problem statement: "Defining the problem frees up the mind for solutions"

Being clear about the problem is the start of the design process. The main challenge in this phase is focusing on just the problem – without trying to come up with solutions at the same time.

Problems can take a while to emerge – and will continue to emerge during the following empathy and synthesis processes. This is why ideally 60-70% of a creative project's time should be taken with understanding the problem – a fact which can be a particular problem in the public sector, where projects are defined in terms of what will be delivered, and are required to be successful.

Some cultural change is needed before this approach can be used in by most government organisations – especially if there is a fear that the process will be seen as a reason to complain or that the problem will just get bigger (both these scenarios need careful management). One way could be to start small, gaining a bit of practice locally in fleshing out already defined problems.

Immersion and empathy

This is the point at which real data gathering starts – using post-it notes, videos, blog posts, story boarding etc. for increasing the depth of understanding of the issue from the perspectives of the end users, customers or citizens. An example could be to ask the users to photograph what they do not like, and for them to then tag the photo with what is wrong.

The immersion process should identify new problems, which should be recorded. This process needs to be time-boxed with a fixed completion date, and a rigorous and consistent recording of all ideas needs to be enforced – for instance, avoiding "yes, but…" which often closes down problems too early.

The importance of empathy can turn up in unexpected places. The Finance department of the City of Edinburgh Council learned its importance using Customer Journey Mapping – which is centred on the feelings of customers at various stages in a service process (e.g. claiming Council Tax Benefit). As can be seen in the case study on the Edinburgh's experience with CJM in the *Customer Journey Mapping* report (http://www.smartcities.info/research), turning negative into positive feelings can be used as the driver for process improvement.

Synthesis

Synthesis groups together problem statements in order to help identify related themes. This is an iterative process – it is started once problems have begun to be gathered, and continues as the empathy work changes the understanding of the problems. As the members of the project team will see things differently, the synthesis process is not only grouping together the problem statements into common themes, but also coming to a consensus in the project itself.

There are two contrasting outcomes of this process: First is the rational expectation – identifying the quick wins and 'low hanging fruit' that can be prioritised for early intervention. But outliers, such as problem statements that cannot be grouped with others, can also lead to "genius moments" – unexpected ways of seeing things that leads to a whole new type of solution.

Ideation

Now that the problem has been well defined and understood, the process can move up in pace. The project team is given an ideas quota, and when looking at the suggestions, is encouraged to turn the "yes, but" into "yes, and…" – that is, shifting the focus from blocker to enablers and consequences that can be followed through.

Prototyping

A prototype is a working model of a solution. Prototyping is a great way of showing citizens and users quickly that their input has produced something – apart from anything else, this helps to prevent cynicism and to keep participants (and their friends) engaged for the future.

Prototyping works best if it starts with modest goals, and when a mixed team works on the solutions.

Co-design cannot be expected to deliver the 'right' answer every time (or first time): so it is important to plan for a step-wise process, that learns from experience and applies these lessons to improvements in the service.

The project corner

A good approach to problem gathering, immersion and empathy is to have a physical "project corner" where the resources the team needs are available: starting with a whiteboard which can be used for recording ideas and sticking notes and pictures on to. The corner should be in a quasi-public place to encourage conversation, and unexpected input.

Electronic versions are available (for instance online tools like a wiki or www.wallwisher.com (online post-it notes) could be put to use if necessary.

6. Summary & Conclusions

> *"Eyes on the past, backs to the future"*
>
> A common perspective of service users: they can see problems clearly, but do not have the tools to solve them.

The co-design evaluation exercise and the co-design workshop revealed that the Smart Cities municipalities are engaging with a wide range of partners, inside and outside the project and were open to a range of creative techniques.

'Horizontal' co-design has much in common with capacity building and both regional and transnational mainstreaming – all involve similar types of organisations learning lessons from each other.

The 'vertical' form of co-design links with the Smart Cities theme of increasing citizen engagement and participation in the services they use, and to the broader concept of co-producing services.

Smart Cities partners have used a wide range of co-design practices and capabilities, ranging from legally mandated engagement with user representatives when designing services (Kristiansand), using customer journey mapping to ensure that the customer experience is improved as part of service redesign (Edinburgh) to listening to user requirements as a web platform is developed (Osterholz-Scharmbeck).

The major theme to emerge from the project partners' co-design experiences focuses on organisational maturity – particularly don't run before you can walk. Before committing to co-design, it is necessary for an organisation to understand how to manage the required level of long-term engagement and commitment, and to be aware of the risks and the resource requirements.

This is likely to mean ensuring the process has access to skills and experiences that many traditional ICT departments may not have, and the need for internal collaboration with customer-facing departments or external agencies like advocacy groups. This will not necessarily require more money or resources, and can be expected to increase the effectiveness and success of the resulting service – as Kristiansand, Edinburgh and Norfolk amongst others have demonstrated.

The process of design thinking has to be experienced rather than learned: it involves emotions and feelings as much as pre-planning. Does this mean that project initiation documents and management processes restrict what might be possible with co-design?

Co-design should be seen as a learning process for all, including the providers, and if the providers are comfortable with their own processes, it is quite likely that attempting to incorporate new stakeholders could lead to confusion and reduced effectiveness, at least in the short term.

7. Acknowledgements

8. Further reading

Materials, notes and videos from the co-design workshop day can be found at:

• www.smartcities.info/looking-back-workshop-co-design

• www.slideshare.net/smartcities

• www.youtube.com/leiedal

8.1   Design skills

The marshmallow game: A challenge to learn, first hand, the importance of prototyping, mixed skill and facilitated team working. http://www.youtube.com/watch?v=H0_yKBitO8M

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9. Annex: Tools & techniques

The table below summarises the techniques used by the Smart Cities partners to support their co-design activities:

	Comments
Meetings	
Stakeholder meetings	Stakeholders could include citizens, or agencies that work directly with citizens
Workshops and focus groups	Subset of above, with deliverables more clearly defined
Ateliers	These have been used successfully by Leiedal to bring together Dutch-speaking colleagues to share ideas and experiences.
Surveys	Used as an alternative to focus groups
Mass survey of needs	Can be used as basis for segmenting and anticipating different stakeholders' needs or problems
On specific issues	Use of small scale surveys on specific issues – for instance, disabled badge holders' needs (Norfolk)
Engagement through a process	
Process mapping / customer journey mapping	Customer journey mapping provides another way to identify where stakeholders are encountering issues
Project board membership	This can act as a baseline mechanism for including stakeholders' perspectives in the design process

There is nothing new to these techniques: most will already be familiar to you. Co-design works through commitment from the service provider, while the intensity of co-design depends on the stage in the service delivery process in which these start to be used. If these techniques are used as part of the problem definition stage (rather than as a method of collecting feedback on proposed solutions), the process is more likely to be characterised as full co-design.

Smart Cities Guides

The Smart CIties project has produced a number of guides for municipalities and governments to help them design and deliver better e-services.

1. Customer Insight Profiling and Service Design Guide - http://www.smartcities.info/customer-profiling

2. Creating Customer Contact Centres - http://www.smartcities.info/customer-contact-centres

3. Creating Municipal ICT Architectures - http://www.smartcities.info/ict-architecture

4. Improving business processes and delivering better e-services - http://www.smartcities.info/business-processes

5. Using Co-design to design and deliver better e-services - http://www.smartcities.info/co-design

6. My City Online – making the case for municipal web portals - http://www.smartcities.info/web-portals

7. Using Geographic Information Systems to provide better e-services - http://www.smartcities.info/gis

8. An introduction to Municipal ICT Architectures for Managers - http://www.smartcities.info/ict-architectureSmart

Cities Research Reports

1. Comparing levels of internet access, internet use and e-government use in the Smart Cities countries

2. Customer profiling to target service delivery

3. Measuring levels of supply and demand for e-services and e-government: a toolkit for cities

4. An introduction to Process Modelling

5. Standards for classifying services and related information in the public sector

6. The Transformation of City portals

7. The Community of Practice as a virtual organisation

8. The Community of Practice as a virtual organisation: innovation seeking and knowledge creating

9. A Systems Perspective on Security Risk Identification: Methodology and Illustrations from City Councils

10. Making customer groups real – using personas

11. Using Customer Profiling and Activity Based Costing to inform channel shift and to increase service take-up – A practical guide

12. Customer Journey Mapping

13. What is a service list?

14. Ten reasons to use a service list

15. Evaluating e-services

16. Understanding web accessibility

17. Using email to deliver e-services

18. Edinburgh's Library App – a case study

19. BusTracker – bus information on the go

20. Using geolocation in e-services

These reports can be downloaded from http://www.smartcities.info/research

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