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PROTOTYPING PUBLIC SERVICES

An introduction to using prototyping in the development of public services

Innovation Unit

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INTRODUCTION

Prototyping in Public Services describes an approach that can be used to help develop new and innovative services by testing ideas out early in the development cycle.

NESTA has produced this guide for policymakers, strategy leads, heads of service, commissioners and anyone else in a public service looking for new methodologies that can help them to better meet the needs of their communities. It sits alongside the *Prototyping Framework: A guide to prototyping new ideas* which provides examples of activities that can happen at different stages of a prototyping project.

The guide and toolkit are early outputs from our prototyping work and are based on work NESTA and its partners have been doing with several local authorities and third sector organisations. We will continue to learn about prototyping as an approach that can be used to develop public services, through our practical programmes.

We hope these outputs are useful to you and if you decide to test out some of the ideas, we would love to hear how you get on.

For further information about our practical programmes, prototyping and other innovation methods that you could use, or to feedback on your experiences, please contact the Public Services Lab at: **information@nesta.org.uk** or visit our website **www.nesta.org.uk**

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PART 1: INTRODUCTION TO PROTOTYPING

1.1 Introduction

In the current economic climate the need for radical transformation of services is greater than ever, but the risk of failure is higher than ever. Innovation can be seen as a luxury or an add-on at a time when spending cuts are kicking in. However innovation is crucial if we are to deliver better services for less. Prototyping is one of the methods that can help in this context. It is an approach to service development that encourages low-cost, low-risk, iterative experimentation.

In recent years we have seen a growing number of public service practitioners embrace prototyping as a new way of working. Supported by organisations such as the Design Council, NESTA and the Innovation Unit, as well as a number of service design agencies, third and public sector organisations have been using prototyping as one of a new set of innovation methods to help develop new services. Many of these organisations are now working to embed prototyping in their current practice, changing cultures and building the capacity of their staff to work in this new way as a matter of course.

Ellie Runcie from the Design Council talks about the importance of prototyping for public services *"An important insight from our programme is the impact that prototyping is having on public service providers. Often, what doesn't work is just as important to understand as what does work...rather than constrain, prototyping has in fact helped to broaden possibility."*

This guide provides an introduction to prototyping, explaining when you might do it, how and why.

1.2 What is prototyping?

Prototyping is an approach to developing and testing ideas at an early stage before large-scale resources are committed to implementation. It is generally used at the early stages of the service development cycle where you have something that you want to find out more about or test relatively quickly, in practice, and with others. It therefore, generates more upfront activity than traditional service development processes. In the commercial sector the idea of developing early mock-ups of potential products is a familiar one. It allows alternative ideas to be seen, felt, and experienced before choosing one (or more) for further development.

Prototyping grew from the practices of design, engineering and science. Perhaps the most famous example of prototyping is the Dyson vacuum cleaner – the first version of which was made out of a traditional vacuum cleaner adapted using cardboard, this went through over 5,000 iterations before going to market.

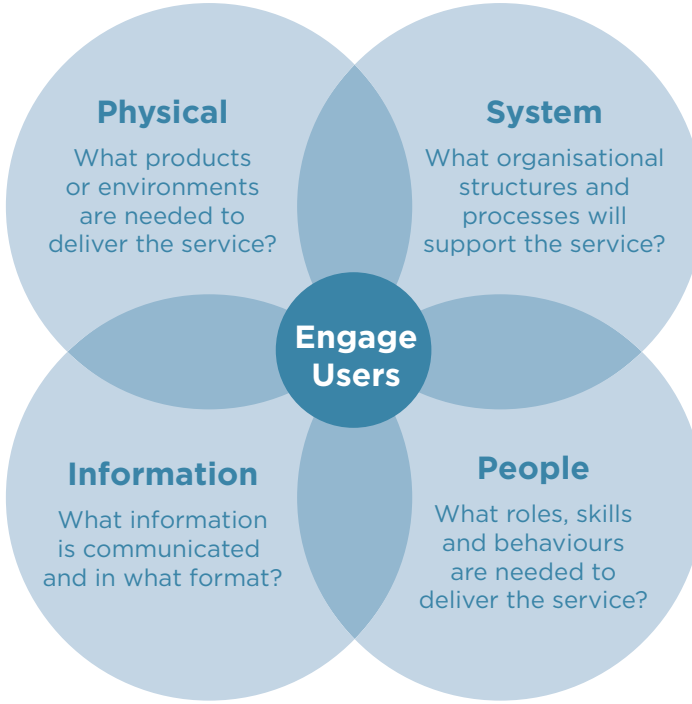
Software, website and engineering design has broadened the use of prototyping beyond that of physical objects, to the design of online services and systems. Websites often test in 'beta' to allow their target users to try out an unfinished version of the service and get valuable feedback. There is also a rapidly growing pool of evidence on the use of prototyping in the development of services, and the techniques are used by some leading companies to test out new ideas, usability and potential. Prototyping can be used to test services as they are being developed. Service ideas can be brought to life and tested to give insights into usability, desirability and viability.

Prototyping can be applied in the same way to public services. Prototyping of public services might be a way of testing early-stage ideas with service users to help choose between alternatives. It can also be used to think through key aspects of how a service would run and test it with people. Prototyping is a flexible methodology, it can be used to develop new services or improve existing services. It can be applied to the development of simple or more complex services and, depending on the level of depth required, it can be low-cost and quick or it can be more complex and take longer.

As well as testing the overall viability of an idea there are three key aspects of services that prototyping can help to test and develop with potential service users, including physical content/ context, information giving, systems and processes and human interactions – as illustrated in Figure 1.

Deciding which parts of your service to prototype is important as you may have limited resources and time. You may need to prioritise the elements which are most important to service delivery or where your biggest assumptions about how the service will work are.

Figure 1: The parts of a service that prototyping can help to test and develop with users



Prototyping can also be undertaken as part of service review activities (e.g. best value, whole systems or lean reviews) through which new service models may need to be considered. As Kari Manovitch, Strategy Manager at Barnet Council explains *"...it can be difficult to get improvement right the first time... there's nothing like doing it to know whether it's going to work."*

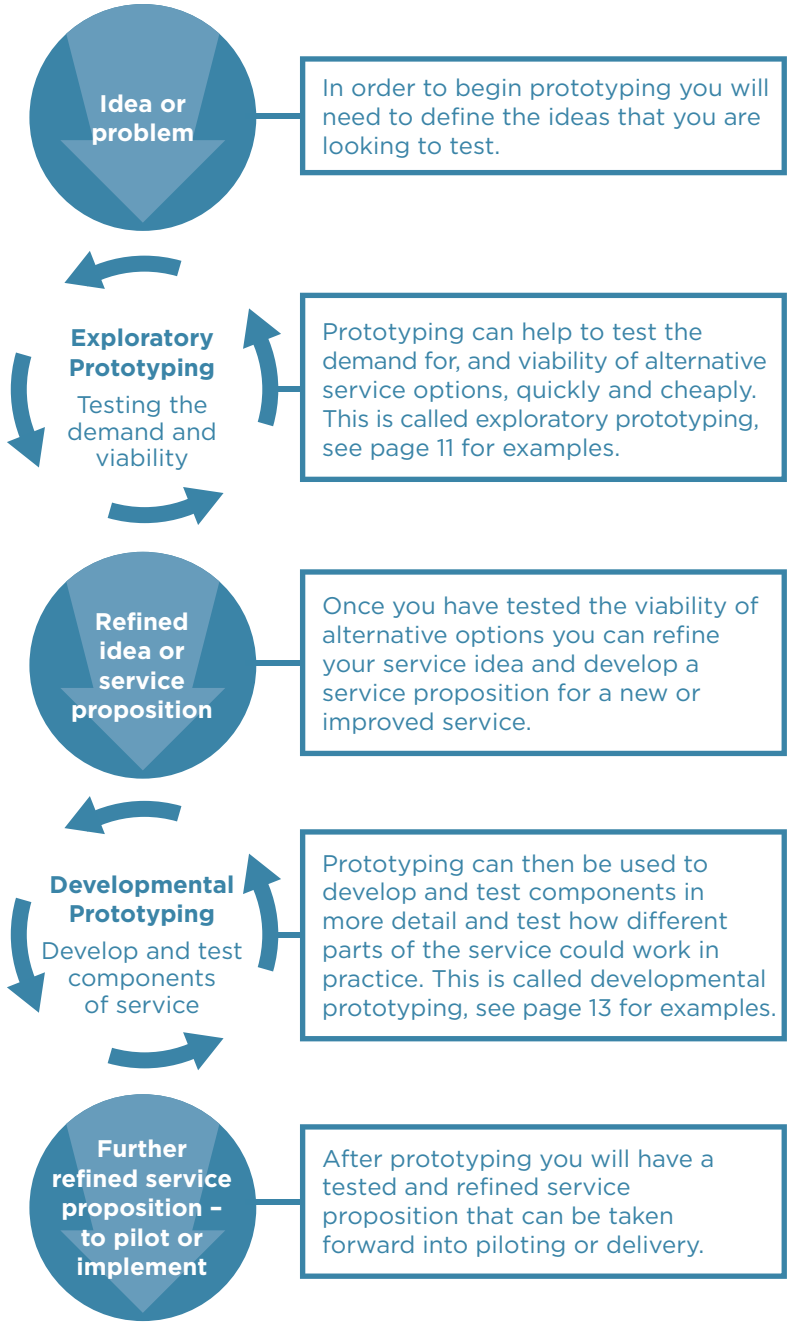
Prototyping is also a valuable means of communicating with and involving stakeholders – be they providers, staff or service users. By making something visual and tangible, people reach a greater level of clarity – they 'get it' – especially when it comes to complex service areas which are difficult to visualise in one's mind. Prototyping helps stakeholders and users, who may not possess the domain knowledge or know the jargon used by professionals, to contribute meaningfully. In this way prototyping can be used as a method for community engagement or market research, in which proposed ideas or products are visualised or modelled to get feedback from users or stakeholders. By involving a wide range of stakeholders, via prototyping, in the service development process it is easy to get a good understanding of how ideas will work in practice, and, when done well, a ready group of service advocates are found.

1.3 The difference between prototyping and piloting

In general, prototyping tends to occur before, or in preparation for a pilot. So, whilst there may be an overlap between prototyping and piloting they are not the same thing. Prototyping in public services is about developing, rehearsing or testing parts of a service, or a whole service idea. Piloting should be more focussed on the final testing stages of service development – smoothing out minor issues, and measuring outcomes of a relatively well-specified (although still new) service. So, prototyping helps with aspects of early service development and modelling while piloting builds the conditions for wider implementation, scale and rollout. Mat Hunter, Chief Design Officer at Design Council explains: *"You shouldn't really go out to pilot until you are certain that the service is going to work, and the only way to do that is to try it out."*

PART 2:
EXPLORATORY AND DEVELOPMENTAL PROTOTYPING

Prototyping takes place as part of an innovation process to develop or improve a product or service. There are two main ways that prototyping can help with service development: it can help you to test demand and viability of ideas (in exploratory prototyping) or to develop and test components of a service (in developmental prototyping). The diagram on the following page shows these stages and their inputs and outputs. These stages should form part of a wider service development process.


Idea or problem
In order to begin prototyping you will need to define the ideas that you are looking to test.
Exploratory Prototyping
Testing the demand and viability
Prototyping can help to test the demand for, and viability of alternative service options, quickly and cheaply. This is called exploratory prototyping, see page 11 for examples.
Refined idea or service proposition
Once you have tested the viability of alternative options you can refine your service idea and develop a service proposition for a new or improved service.
Developmental Prototyping
Develop and test components of service
Prototyping can then be used to develop and test components in more detail and test how different parts of the service could work in practice. This is called developmental prototyping, see page 13 for examples.
Further refined service proposition – to pilot or implement
After prototyping you will have a tested and refined service proposition that can be taken forward into piloting or delivery.

2.1 Exploratory prototyping

Exploratory prototyping can be used as part of the research into a problem. It uses creative techniques to bring ideas and potential solutions to life and engage with users and stakeholders to assess what might work in practice. This type of prototyping allows you to test the demand and viability of ideas, and generate new possibilites. The following examples illustrate the application of exploratory prototyping:

Example 1: Letting the people decide, the beginning of Innocent drinks

The founders of Innocent Drinks used prototyping to help test the market for their idea of fruit smoothies. In 1998 they had developed their first smoothie recipes but were still nervous about going into business full-time. They bought a lot of fruit and set up a stand at a little music festival in London selling fruit smoothies. They put up a big sign saying 'Do you think we should give up our day jobs to make these smoothies?' and put out a bin saying 'YES' and a bin saying 'NO'. They then asked people to put the empty bottle in the bin that represented their views. At the end of the day the 'YES' bin was overflowing. It gave the founders the confidence and evidence that they were onto a good thing, and shortly afterwards Innocent was born.

Example 2: Bringing early ideas to life with residents and staff

Engine, a service design consultancy, used exploratory prototyping to explore local residents' and health workers' responses to a range of possible new services, aimed at tackling childhood obesity in Southwark. The team developed and prototyped a number of service ideas using models made from Lego, and sketches. It showed a group of stakeholders what future service ideas could look and feel like. The group modified the Lego models and redrew the sketches several times to change and improve them. A series of relatively refined ideas for development of new and innovative services emerged from this exercise. The idea of a remarkably different notion of health support was defined, one that shifts the emphasis from providing support by health professionals to providing platforms that let residents support themselves in different ways. The local authority used the learning from this activity to plan their health services going forward.

2.2 Developmental prototyping

Developmental prototyping can help to further develop ideas for a new service, or improvements to an existing service, following some early testing. In some cases this might involve testing specific elements of the service such as a new role of technology in more detail; in others it might mean bringing together multiple parts of a service that have been developed and trying to simulate how it would run in practice. This may involve testing an idea or improvement to one part of a service, running several slightly different iterations of the service at once, or running one short cycle of the complete service on a very small scale. The following examples illustrate the application of developmental prototyping:

Example 3: Recruiting and supporting patients into volunteering

Portsmouth Diocesan Council is developing a new prescribing volunteering service with their local GP surgery, to get people with low-level health conditions to volunteer in local community groups. They have been testing how elements of the service will work on a small scale, testing out the referral route for volunteers, testing the type of information that needs to be given to volunteers, healthcare professionals and volunteer groups, and how best to support volunteers. With the support of Nonon, a design and innovation agency, they have been testing out individual aspects of the service quickly and inexpensively and in doing so have ironed out many of the problems they would have encountered later down the line – such as managing the expectations of different stakeholders and tackling initial resistance from some GPs to refer patients into a model on the basis of limited evidence. This service is in its second stage of prototyping, and if successful, it is expected to be rolled out across Hampshire.

Example 4: A short, full-cycle test of a community-led service

Barnet Council has been developing a Community Coaching service to support vulnerable families in their borough. Initially they undertook some exploratory prototyping which helped them to prioritise their options and define a specification for the service. There were several different parts of the service that they wanted to test in the developmental stage of protoyping. With the support of thinkpublic, a social design agency, they undertook a whole-service prototype, recruiting a team of volunteers to deliver life coaching to members of the community over a six-week period. Through this prototype, they were able to test out various referral pathways, supporting tools for coaches and technical aspects of setting up and running coaching sessions. This has resulted in a refined service which is undergoing another round of prototyping to develop parts of the service in more detail.

2.3 How do these phases link to NESTA and thinkpublic's Prototyping Framework?

The activities involved in both exploratory and developmental prototyping are explored in more detail in the *Prototyping Framework*. For exploratory prototyping see *Prototyping Phase 1*, for those involved in developmental prototyping, see *Prototyping Phase 2*. In order to help you explore what tools and techniques you might use, refer to the various options within the Framework. Before you begin any activity you might also want to fill out the checklist at the start of the Framework to make sure prototyping is right for you at this stage.

PART 3:
THE VALUE OF PROTOTYPING

This section aims to shed some light on why more people in the public sector have become interested in prototyping and how it can help to solve some of the current problems facing public services. We hope that this detail will help you to think about why you might use a prototyping approach and what benefits it could bring your organisation, especially in the current financial climate.

3.1 Better services

The most important reason for prototyping is to develop better services by testing the viability and functionality of services in advance. Prototyping allows service developers to generate and test out multiple service models and service components that might not be possible using other methods. It avoids fixing on a single option too early, before the practicalities have been worked through. The result can be a better quality service than one that has been developed without prototyping.

3.2 Minimising risk and easing pressure

An important reason for prototyping is to reduce the risk of expensive failure. Prototyping is about experimentation. Trying things out early on in the process in a trial and error environment can be a way to reduce the pressure on staff to feel that 'all ideas need to be successful'. When prototyping, error (or even failure) is legitimate and encouraged – the point is to test things out before large amounts of resource

are invested, avoiding more costly failure. Jacinda Kemps, a Project Manager at Barnet said: *"It's about testing things more thoroughly at the beginning so that when you roll it out you get more success and less failure."*

3.3 Engaging people

By engaging multiple stakeholders in the development of services, prototyping helps to stimulate better communication between users, frontline staff and senior managers. It can help make complex ideas real so that that many people may contribute to the development of a service, and allows the quick generation of feedback around ideas with the people that will be running or affected by the service.

3.4 Value for money

Prototyping can help to deliver better outcomes for lower cost. Prototyping can reduce the cost of developing and running a service and ensure that investment is wisely targeted to solutions that are more likely to be successful. It is an approach that front-loads effort, ensuring that there is more focus on research and development before a service option is selected and significant investment is made. This can reduce the whole-life cost of developing and running a service, as costly errors in systems and processes that might appear down the line are avoided.

Piloting a project too early in its development (without prototyping) can be costly. Last year a local authority in Yorkshire piloted a new service for recycling waste. The pilot cost almost £200,000 covering a significant area. Unfortunately, the pilot demonstrated that the service was not going to achieve the desired outcomes. The person who led the project said that had they prototyped this service on a single street they would have learned just as much and saved nearly all of that money.

Prototyping may also improve long-term organisational and service user outcomes. As yet the cost benefit evidence for prototyping is limited – but as we see more prototyping activity

in the public sector we are starting to gather more evaluative evidence. A recent analysis undertaken for the Design Council estimated that design and prototyping work for their Public Services by Design programme resulted in efficiency savings of £26 for every £1 spent.[1]

3.5 Challenges

Whilst there are significant benefits to prototyping as a way of working to develop services, there are some challenges that may be encountered in applying this way of working to public services. Lack of capacity and dedicated resource for prototyping, short-term commissioning cycles, and a lack of permission to experiment can make it difficult to get prototyping off the ground. In the next section we explore some of the conditions and enabling factors that can help you overcome these challenges.

1. See: http://www.designcouncil.org.uk/our-work/support/Public-Services-by-Design/

PART 4: MAKING PROTOTYPING WORK IN YOUR ORGANISATION

There are some key factors that will help prototyping to take off in your organisation:

Making the case for prototyping

Skills for prototyping

Culture: permission to prototype

4.1 Making the case for prototyping

Strong leadership is often cited as the most important condition for bringing any new approach to service development successfully into public services. Strong leaders can empower those working on important projects, enable risk-taking and experimentation in a 'safe' environment; they can insist that the right questions are answered before jumping to solutions, and openly test new ideas with the public, without fear of failure. They can avert traditional ways of devising strategy and opt for more open, creative, collaborative and enquiry-led approaches such as prototyping.

"There are big challenges around injecting creativity in the organisation; making space for people to experiment. [Through prototyping] the project team's passion has been built with a small investment of time and money."
Stephen Evans, Barnet

In some cases however, leaders can be difficult to get on board and even if they are, there may be other key stakeholders who you need on side to take prototyping forward. In these scenarios it will be important to make a good case for prototyping – this may just mean winning support to try prototyping out to see how it works. It is important to make sure the case you develop fits with the priorities and the issues affecting those you want to influence, and we hope this guide is useful in this respect.

4.2 Skills for prototyping

There is growing demand amongst public services for greater internal capacity for prototyping – in order to minimise the external support that they require. Simple prototyping activity does not necessarily require external expertise and can be done by confident and skilled-up teams working with the community and relevant stakeholders. Providing tools, examples and advice are great ways of building interest and staff capacity.

Even technical design skills that may be useful for visualising or building 'mock-ups' can often be found in most large organisations.

Where there is already a good degree of senior commitment to prototyping, a number of methods can be used to further embed prototyping within existing systems and build capacity within an organisation. Which of these is most suitable will depend on the culture and practices prevalent in the organisation. Knowsley and Kent councils have developed toolkits that support staff in prototyping and other innovation methods. These have been successful in raising awareness of these methods as part of service development processes and activities. Barnet Council has also developed a toolkit, and in addition they have appointed a prototyping champion who is responsible for leading and spreading the practice across the Council. It is early days, but this may help to embed and support more prototyping activity. A number of larger charities such as Cancer Research UK and Scope have innovation teams helping to embed prototyping into organisational processes.

The *Prototyping Framework* provides a guide to activities that you can follow to get started on prototyping. Your team may also need some support to prototype, either to develop the skills needed internally to prototype, or to plan your prototyping activity or to undertake complex projects. This support could help to ensure that prototyping activity is effective. In order to help ensure that you have the correct roles and resources to prototype please refer to *Who to Involve* in the *Prototyping Framework.*

4.3 Culture: permission to prototype

As well as making sure that the correct skills and roles are present on the project team, prototyping is also about the mindset of current staff. Do they feel empowered to 'just try it out'? Will they feel they can bend or break protocol, even for just one day, without having to change the whole system around them? Providing these permissions (along with some resources such as space and people's time) could be the biggest obstacle. Teams working on prototyping need to be freed up to adopt a new working culture, including a different pace and style of working, temporary permissions to do things, involving people in new ways and using new methods and processes.

In addition to leadership, and making the case, it is important to ensure that prototyping projects are adapted and link into existing systems and processes for service development and review. Stakeholders need to know how it fits, and how it can work within wider organisational processes.

CONCLUSION

This guide has focussed on what prototyping is, why and when you might consider using it. We have also looked at the value of prototyping and what you might need to put in place to make it successful in your organisation.

As public services look for new solutions to social problems, and look to redesign services to achieve more for less, the relevance of this approach is growing. Whilst prototyping is still the exception rather than the rule, we are seeing increasing numbers of public services adopting prototyping within their service development processes. So far, it has been down to individual managers and leaders who have been exposed to this way of working in industry, or who are curious and confident enough to push this through as a way of working, often working against the grain of the system. We hope this Guide and the accompanying Framework is of help to everyone who would like to try prototyping. You can find copies on the NESTA website **www.nesta.org.uk** or get in touch via **information@nesta.org.uk**

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