ASToN

DIGITAL TRANSITION FOR SUSTAINABLE AND INCLUSIVE CITIES

EXPERIMENTS CATALOGUE

A collection of stories from nine African local authorities who have been conducting pioneering in-house experiments to test new public services within their municipalities.

NOVEMBER 2022

About ASToN

ASToN is a network of eleven African local authorities using digital transformation as a catalyst to become more inclusive and sustainable cities. ASToN members are engaging citizens and other stakeholders to co-design and test solutions that can scale up beyond the support of the ASToN project.

This flagship initiative is funded by the French Development Agency (AFD), managed by the National Agency for Urban Renewal (ANRU), and uses URBACT knowledge and tools. URBACT is a European cooperation program for cities. For 18 years, URBACT has worked with more than 1000 cities in Europe to build cooperation networks and develop tailor-made solutions to solve their local problems.

In 2018, AFD and URBACT launched a call for African local authorities to join a network of partners undertaking digital transformation projects - ASToN, which stands for the African Smart Towns Network. 11 African partners were selected and participated through the first phases of the project: Bamako (Mali), Benguerir (Morocco), Bizerte (Tunisia), Kampala (Uganda), Kigali (Rwanda), Kumasi (Ghana), Lagos (Nigeria), Matola (Mozambique), Niamey (Niger), Nouakchott (Mauritania), and Sèmè-Podji (Benin).

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Introduction

— What is this Catalogue

This is a collection of case studies from nine African local authorities, who have been conducting pioneering in-house experiments to test whether their ideas for new digital public services within their municipalities might be feasible, sustainable, and welcome amongst citizens.

Since 2019, these local authorities have been part of ASToN, a pan-African digital transformation network based on the principles of peer learning and developing the skills to implement digital transformation projects within local authority administrations.

Each case study presents how a local authority has conducted a specific experiment to test an assumption about their proposed innovation and subsequently used insights from that experiment to progress their ideas. We hope that this Catalogue informs and inspires other local authorities who are looking to experiment with digital transformation projects themselves.

— How to use the Catalogue

The Catalogue splits the case studies into four experiment "types" according to the assumption or hypothesis the local authority was trying to validate through each experiment:

- **Solution** - does the technology or service function as intended?
- **People** - will people use it? Does it fit into existing systems?
- **Impact** - does the solution reach the intended level of impact?
- **Resources** - is the solution sustainable and will it grow to the desired scale?

Readers of this directory are encouraged to dip into specific case studies using the contents page at the beginning of the document, where each entry can help the reader understand a particular way an assumption has been tested.

Each entry introduces the local authority alongside the problem they identified and the solution they wanted to test. We then include a description of the experiment in question, what the city learned, and how the experimentation informed their future plans.

The end of the directory summarises the major takeaways for what ASToN has learned about experimenta-tion within local authorities, and our hope is that they are both insightful and useful for any city practitioner. We close the Catalogue by giving practical recommendations for local authorities who wish to experiment themselves.

— What is an experiment?

An experiment is the process of intentionally testing whether something responds or acts in the way in which we expect it to. It is most often equated with the scientific method, which is concerned with an ever-improving understanding of an objective and empirical theory of our world and reality.

However, the language of experimentation has permeated more recently to other sectors, such as business and innovation. In Silicon Valley, for example, there has been a rise in experimentation being used when testing new products and services that require deeper understanding of people and the systems - physical, social, etc. - they occupy. How these different products and services are interacted with, desired, and conceptually understood become objects of enquiry.

Experimentation allows for validating assumptions about a potential solution and its systemic effects, and has supported innovations to achieve impact in the long-term, particularly when combined with rapid feedback and development cycles. The Lean startup methodology, for example, takes an experimental approach towards service or product development in order to learn fast and amend or adjust the innovation for rapid improvement. This approach can also help ensure that a team builds and tests the most crucial parts of a solution first, by focusing on learning as quickly as possible about how something might respond in "the real world". It can, therefore, help a team save time and money because it often allows for a creative way of simulating something costly and therefore, risky. Finally, when the innovation might be a new public service, testing the solution or aspects of its implementation (e.g. procurement) allows you to evaluate without committing to a service rollout that was fundamentally flawed or ill-matched to reality.

— Experimentation in local authorities

The principles of lean experimentation can be creatively applied in organisations for public good around the world, whether that's public and private not-for-profits or local and national governments, where, until recently, the paradigm of New Public Management (NPM) has dominated. This thinking, concerned primarily with performance targets and corporate, linear project management, is very good at measuring key metrics for delivery but has offered little scope for evaluating the potential fit and impact of a potential solution, and adapting existing plans in the face of such evidence. Ultimately, with its top-down approach to product or service roll-outs, NPM methods do not give space to test the underlying assumptions about how an innovation might thrive within the complex world we live in.

The current state-of-play for local authorities is one that carries a strong legacy of implementation under the New Public Management school. Local authorities often work in quite linear or "waterfall" ways, are hierarchical, and often, overly bureaucratic. At the same time, local authorities are being asked to be more agile and iterative in their approach to deliver projects for public value but their existing structures are often unmatched to these demands.

The challenge becomes even more salient as local authorities are increasingly asked to own and deliver public services that are more user-centred, apps-based, and citizen-led, in what is a very complex and uncertain time.

For local authorities to occupy an important role in meeting citizens' needs in the future, taking an experimental approach is fundamentally important. This is because of the changing nature of the solutions they now must build, the complexity of the challenges citizens face, and the desire for local authorities to work with limited budgets and achieve value for money where these solutions often "fail" in their development.

A shift away from traditional methods of project management is therefore needed, to support local authorities to embrace uncertainty and design projects that allow for acting on evidence, adapting or pivoting, and putting learning (about their solutions, their users, and other stakeholders) at the heart of their agenda.

However, it's important to emphasise that an experimental approach must come from a place of humility and openness to uncertainty, which is no small ask on public sector workers who are broadly used to existing institutional norms that incentivise certitude and "having the right answers". Accepting that most new ideas "fail" - especially digital solutions - offers little psychological safety for teams that might not have very much experience delivering digital transformation projects. For local authorities, this means that experimentation is as much a mindset shift that needs to be cultivated as it is a question of adopting new internal mechanisms or strengthening public sector capacity. The mindsets, mechanisms and methods need to be addressed together by the local authority, which requires challenging, progressive change at the organisation-level.

— ASToN Phase 3: a unique project for city-led experimentation in Africa

The nine local authorities profiled in this report have, since 2019, been engaging with each other as part of the ASToN Network, which was designed to be run in three Phases. Phase 1, Explore, was about setting the baseline and mapping the landscape. The second phase, Engage, was about moving from theory to practice and begin building relationships with people from outside the local authority, in each sector that's affected by or involved in the problem and the potential solution for tackling it.

Phase 3, on the other hand, was designed for local authorities to learn about lean experimentation and use this approach to test parts of their Local Action Plan. The Local Action Plan is the key output of the ASToN project, being a document that describes the proposed solutions the local authority has identified during the course of the network and a roadmap for their implementation. The hope was that, during the experimentation phase, local authorities would be able to validate or invalidate certain assumptions they had about the successful rollout of these solutions so that they could feed this learning back into their Local Action Plan and iterate.

During Phase 3, the local authorities were given grant funding of up to €50k to conduct their activities. They were also supported by a dedicated coach, who they met with regularly, first to construct the experiments, and then to reflect on ongoing learnings.

Local authorities ranged from having never engaged with concepts such as experimentation or testing assumptions to having already taken an experimental approach to digital projects. Some teams struggled to formulate assumptions or belief statements about their solution with their coaches, and there was often a sense that either something was apparently fully known to the city - and so didn't need to be tested - or that a crucial aspect of the solution only needed to be decided and verified further down the line.

Overall, the experience of each local authority and how they conducted their experiments was unique, and reflected the varied size, capacity, and mandate of both the local authorities and their staff leading the project through the Local Action Groups. For more information on some of these contextual differences, please consult the ASToN Baseline Study.

Each local authority created a set of lean experiments for them to learn quickly and cheaply, while working towards a more functional solution. The local authorities did this in different ways depending on their circumstances: for example, some developed a "minimum viable product" to engage with users, whereas others built a pilot of their intended solution. Alternatively, some experiments were focused more on understanding the organisational and legal parameters for future implementation.

Alongside the diversity of experiments designed during this period, Phase 3 of the ASToN project also highlighted other differences faced by local administrations, for example, in procurement practices, staff capacity, or external factors that either helped or hindered the ability for the local authority to conduct lean experimentation.

The purpose of this Catalogue is to dig deeper into these examples, to see what each local authority learned in what was for them a short time, and provide inspiration for others who may be thinking about conducting experiments themselves.

— How was this Catalogue created?

This Catalogue was written by the ASToN project team, incorporating reflections made by the local authorities as they came to the end of Phase 3 in June 2022.

In the true spirit and mindset of experimentation, we identify challenges and failures and reflect on them using a lens of learning and curiosity. We are seeing that one of the long-lasting results of this Phase is that cities are continuing to see their work through this lens, and hope that they will take this with them long into the future.

City visit in Bizerte, May 2022

02

Experiments

In this section, we share some of the experiments conducted by the ASToN cities to understand if the technology or service they envisaged could work as intended.

We have split the case studies into four experiment "types" according to the assumption or hypothesis the local authority was trying to validate through each experiment:

SOLUTION
Does the technology or service function as intended?

Will informal public transport owners be able to pay their monthly tax using mobile money?

Local authority: City of Niamey
Country: Niger

In Niamey, the management of small-scale public transport, like taxis or shared cars, faces many challenges, such as overall road safety, theft, and kidnappings. This is compounded by the absence of a reliable database for the vehicle fleet. In addition, informal public transport owners face long queues to pay their monthly taxes, which leads to a loss of efficiency and city income.

A part of its Local Action Plan, The City of Niamey therefore wanted to overcome these challenges by setting up a "digital mobility observatory", a team that would improve the issuing, collection and monitoring of administrative processes.

The first role given to the observatory was to ease the process of paying and collecting tax payments. An experiment was therefore set up to test a mobile tax payment system with a small number of taxi owners, to determine whether they would be willing and able to carry out a monthly payment using mobile money. Another goal of experimentation was to learn whether the local authority could effectively and efficiently receive and manage these incoming taxes.

> **ASSUMPTION: Taxi owners will be willing and able to make monthly tax payments via mobile money.**

— How the Local Action Group tested it

- Conducted a diagnostic study of the IT systems in the Niamey town hall to understand the needs of users and compatibility requirements
- Developed a partnership with a mobile money operator (AL IZZA) to test the viability of conducting mobile payments
- Developed a prototype of the tax payment platform, and conducted a payment simulation with 120 randomly selected taxi drivers to test it.

— What they learned

90% of the participants made successful payment through AL IZZA Transfert. A key factor in this success was the fact the number of participants having a mobile money account was far higher than expected, at more than 90%. The local team had positive feedback from transport unions, who saw clear potential benefits for taxi drivers in the ability to pay either through mobile money or at AL IZZA counters.

The local authority is able to absorb and manage tax payments. The local authority was able to ask for tax disbursement and reports of payments on an ad-hoc basis. The next step is for them to design and test a process for these reports and disbursements to be made automatically.

Choosing the right partner is key to success. The local authority had initially chosen another mobile money operator. However, in conversation with transport unions and taxi drivers, they learnt that a different operator was more commonly used. The shift to AL IZZA seems to have enabled them to achieve high participation across the randomly selected pool of drivers.

Compatibility is essential when building a new solution. The initial technical partner's proposed solution was incompatible with that of the money transfer companies because the coding languages used by the parties were incompatible. This led the team to choose an in-house agency who could use a compatible language and were therefore able to incorporate the mobile payment solution.

— Was the assumption validated?

Yes The team were able to verify:

• The ability and willingness of taxi drivers to make payments using mobile money

• That the local authority was able to receive reports and payments from the mobile money operators on an ad-hoc basis.

— What next?

The local authority now feels confident to expand the payment solution to other drivers and cab owners, along with other types of vehicles too. In the longer-term, they will:

• Scale the solution to all public transportation solutions

• Test how they can re-assign existing tax collectors to other public services

• Explore whether the solution can be connected to policing systems, and whether it can be scaled to other tax collection services

Aerial view of Niamey city center

Mobility thematic group meeting in Niamey, July 2021

Will government tax collectors be able to use the revenue collection software?

Local authority: Kumasi Metropolitan Assembly
Country: Ghana

Kumasi Metropolitan Assembly (KMA) is looking to revolutionise the way it handles local taxes, which is collected manually, done on paper, and paid for in cash. Tax collection across the administrative sub-metros in Kumasi is fragmented, with tax data stored in different offices. For KMA, these factors have clearly resulted in revenue leakages and the reduced ability of the local authority to monitor and budget effectively.

To solve these issues, the focus of KMA's Local Action Plan is to build a fully digital, centralised system for tax collection in Kumasi, including digitally-based revenue collection and automated updates as part of a centralised system. Kumasi has chosen the open-source dLRev software to do this. dLRev is a tailor-made software solution for Ghana's Metropolitan, Municipal and District Assemblies, released in 2013 by the German development agency (GIZ) as part of the Support for Decentralisation Reforms (SfDR) programme in Ghana.

The focus of experimentation was to update property and business related data in one sub-metropolitan area, to then trial the use of the dLRev software to print bills and collect taxes for property rates and business operating permits in the pilot location. Collected tax data would then be linked to a newly-created central data server, to enable the real-time reporting and centralised monitoring of the new collection processes.

> ASSUMPTION: **We believe that available data will enable supervisors to allocate and distribute revenue collectors into various locations to collect and report appropriate revenue collected from each source in the Nhyiaeso sub-metro.**

— How the Local Action Group tested it

- Chose Nhyiaeso as the pilot sub-metro and subdivided it into fifteen smaller zones to ensure effective supervision.
- Trained and sent out 60 people to collect business and property data using the dLRev software to create a more accurate baseline.
- Trained and sent out 24 revenue collectors to use the dLRev software to distribute demand notices, for both business operating permits and property rate taxes.

— What they learned

While the size of the tax database grew, the accuracy of this data can be called into question. KMA was surprised by the increase in the amount of property and business data coming from Nhyiaeso (with increases of 63% and 122%, respectively). However, the team identified some real issues with the accuracy of data collection that needed to be manually rectified. Some issues, such as the classification of certain businesses, fell down to human error from the data collector.

There were **clear challenges related to the practicalities of using the new revenue software**. Internet connectivity was spotty and unstable and, in using the dLRev application, agents found accessing maps and recording data was slow. Furthermore, whereas some tablets were provided by the local authority, the majority of data collectors were using their own smartphones, where battery life would run low. Finally, mobile data paid for by KMA was often used for private consumption by the agents.

Using the dLRev software removed the collectors' ability to leak revenue. When it came to bill issuance, some agents were less cooperative with the software, seemingly because there was less ability in the system for money to be appropriated by the agents. Some agents appeared to try and get around this by reverting back to using hand-printed bills.

There was little willingness by citizens to cooperate with data collection. This was particularly true for businesses and business owners. **Accessing the right people** was also challenging, as the relationship between where a business was previously registered and where it was based was not always the same. Night-time businesses were also seen as much more difficult to report on and some collectors didn't feel safe in particular areas of the sub-metro. Finally, there was an "affiliation problem" identified, where some citizens felt like they didn't need to pay a tax because of personal connections.

— Was the assumption validated?

Unclear. The team learned that:

- There are many practical challenges to data collection and bill issuance that question whether in the long-term, sustainable gains will be made using this approach.

- One of the initial goals of experimentation was for the Nhyiaeso tax data to be linked to a new, central data server. However, there were issues with procurement that meant this wasn't completed in time. Without the central data server running, it was not possible to explore the potential of the centralised tax management system.

— What next?

KMA wants to continue to use the method in other sub-metros, using the learnings made in this experimentation. They want to:

- Improve the training provided to agents using the dLRev software, including by adjusting the current incentives for collecting tax that reward speed over accuracy.

- Concentrate on citizen sensitisation around data collection, particularly to convey the role of local tax collection in helping to provide municipal services.

KMA employees collecting data from a business

E-tax thematic group meeting in Kumasi, July 2021

PEOPLE
Will people use it? Does it fit into existing systems?

Will citizens come forward with information to digitise the land registry?

Local authority: Sèmè-Podji City Council
Country: Benin

Sèmè-Podji has a paper-based system for land registry, which is challenging to administrate for the city as they cannot effectively secure property rights and collect taxes. Additionally, land owners cannot easily access their titles, which hinders their ability to guarantee loans.

The focus of the Local Action Plan is to establish a digital land registry and build an e-land platform at the town-level, so Sèmè-Podji can conduct secure and verifiable transactions, make land information accessible to all, and provide services to the population more easily. A key part of this plan involves working closely with the Agence Nationale du Domaine et du Foncier (ANDF), who have been collecting land documents from the Communes nationally. The hope is that the locally collected data can be entered into this national database.

The focus of experimentation was testing the willingness and ability for citizens to share their titles of ownership or presumption of ownership, which can then be digitised to build a digital land registry for Sèmè-Podji.

> ASSUMPTION: **Citizens are willing and able to contribute to the digitisation of land ownership titles**

— How the Local Action Group tested it

- Identified a partner to run the data collection process
- Ran a communications campaign in the pilot area, including local radio messaging, a town crier, and a community meeting
- Published the data collection plans so that citizens could feed back into them
- Set-up data collection points in the pilot area

— What they learned

Transparent and clear communication is key to ensuring citizen buy-in. There was an initial unwillingness to come forward and share data because citizens doubted the motives of the collectors. The team found that some citizens were coming forward and referencing old land directories that had inaccurate information, or listing land status numbers that were not real. However, a sustained communications campaign at several levels, and opportunities for citizens to feed into the overall process, drove up the participation of citizens. Overall, titles of ownership or presumption of ownership in the collection area covered 71% (552 out of 779) of plots, suggesting that people were aware of the data collection process

and were willing to share information.

Leveraging key community stakeholders can help overcome bureaucratic challenges. The team found some difficulties working within the commune from a bureaucratic perspective, and a key learning from this small-scale process was the need to engage local stakeholders. Indeed, the Local Group had to be strategic in order for the village council to participate effectively in the collection operation, working with traditional chiefs and local kings to convince the population to go out and share information. These are respected voices who should be involved in future strategies to get people to come and share information.

— Was the assumption validated?

Yes the team learnt that:

People are willing to come forward and share their land ownership documents. After difficulties, the team managed to get 71% of deeds shared in a small space of time.

— What next?

Sèmè-Podji City Council will continue to engage citizens and collect data. They also plan to keep working with stakeholders who can communicate the campaign to citizens, with the idea that eventually all will be directed directly to the town hall for large-scale sharing of land data.

Next, the local authority will need to test how to integrate the e-land service platform they are hoping to build with ANDF databases at the national level. The plan therefore is to continue data collection to build out the local platform and continue sharing data with the national agency.

Data collection and stakeholders meeting during the experimentation phase in Sèmè-Podji, May 2022

Will doctors and medical professionals want to use a new scheduling solution?

Local authority: Rehamna Province
Country: Morocco

As Rehamna Province expands and grows, it wants to reduce the social gap in the old city of Benguerir, focusing specifically on the health gap. Citizens currently have access to a national solution to make appointments, but it's not very well known and hard to access. It also does not enable them to know if appointments have been cancelled or shifted. Instead, citizens go to the hospital in person to make appointments, facing long queues and leading to a lack in efficiency and quality of care.

The Local Action Plan wants to build on the national digital application to help citizens find the nearest clinic, make appointments and remind them of consultations. A key feature of the proposed solution is the use of volunteers as community relays, which will help it reach citizens with low digital literacy.

The focus of experimentation was to evaluate the current application and booking system with citizens and healthcare staff, and share a "paper prototype" before testing a "version 0" of the new system with healthcare professionals. Finally, the team wanted to test the set-up, coordination and willingness of the "community relays" to take part.

> ASSUMPTIONS:
>   - **The solution will be used by healthcare workers (nurses, doctors, back-office) and citizens in a way that meets their requirements.**
>   - **Marginalised citizens will be willing to use "community relays" to make medical appointments.**

— How the Local Action Group tested it

- Selected and identified a partner to develop the technical solution.
- Ran a survey with citizens to understand their knowledge, usage and evaluation of the existing healthcare appointment solution.
- Co-designed the specifications of the solution with members from the healthcare workers' and patients' associations.
- The "paper version" of the application was demonstrated to doctors, nurses, representatives of doctors and citizen's associations, the Governor of the Province and the Provincial Director of the Ministry of Public Health.
- Surveyed citizens to explore the idea of "community relays" and their willingness to engage with them.

— What they learned

While there was excitement about the potential of the solution, healthcare workers wanted to see its impact before validating it. Healthcare workers who fed into the design of the specifications and feedback on the "paper prototype" were engaged and offered key feedback. However, there was a reluctance to give a "green light" without seeing the real impact of the application to meet the needs of the healthcare actors in practice.

Inaccessible digital solutions lead citizens to avoid it. When asked about the existing appointment solution, 65% of interviewees shared that they knew of the existing appointment solution, but had never used it independently. This led a majority of interviewees to skip the solution and make appointments in-person at the hospital.

Overall, citizens say that they would trust and rely on community relays, specifically if they have a certain profile. The important role of the community relay was also affirmed by participants, who insisted on the need to set up a network of proximity agents to allow this application to be inclusive, especially for senior citizens who do not master digital tools. Citizens shared that they'd prefer community relays to be young and perceived as tech (rather than health) savvy

Local representative presenting Benguerir Action Plan during a transnational meeting in Kigali, November 2021

— Was the assumption validated?

Unclear The team learned that:

• While the local authority received good feedback about the solution at this early stage, it is still unclear how it will work in practice and thus improve the experience of both healthcare professionals and their patients. The experience of launching a similar application in the past can act as a reminder of engagement and enthusiasm not translating into people actually using and valuing a digital tool.

• While citizens have spoken about their willingness to engage with a community relay, their true behaviour still has to be observed. In addition, there is no evidence yet that there are willing volunteers who'd be able to play this role.

— What next?

For Benguerir, the next stage will be a pilot phase to test the solution with real users. A key question of this next round is: what is the added value of this application, particularly compared to the existing one?

This pilot phase will also be crucial to build concrete evidence of how doctors and citizens might use and value the solution in the long term.

Meeting between the local group and the Governor of the Region, October 2022

Will citizens use an application for the reporting of traffic incidents?

Local authority: Kampala Capital City Authority (KCCA)
Country: Uganda

Kampala Capital City Authority wants to tackle traffic congestion, which has a major impact across the whole city in terms of pollution and wasted time for drivers. The causes of congestion are numerous in Kampala but a lack of reliable information for citizens on traffic activity is seen as a major factor that can be mitigated.

The Local Action Plan is focused on Kampala Konnect, which is a unifying vision for improved traffic mobility led by the local authority. One aspect of this roadmap is the development of an incident reporting tool for traffic accidents and other causes of congestion, such as flooding or potholes.

The focus of experimentation for KCCA was to develop a minimum viable product (MVP) for the incident reporting tool that would be shared directly with citizens as part of a launch campaign, to gauge how people would use the application and whether the two-way process of reporting traffic incidents could be sustainable.

> **ASSUMPTION: We believe the interface will be easy to use and that travellers will report the type of incidents.**

How the Local Action Group tested it

- Engaged a consultant who KCCA had an existing commercial relationship with. This allowed them to bypass some procurement rules and build the first version of the solution quickly, as a web portal and mobile application.
- Undertook user testing of the solution with staff members and other citizens.
- Adapted the original plan to hold off on "launching" the application following early testing that uncovered demand for key features that were deemed important to add before distribution.

What they learned

Showing citizens early versions of the solution allowed the user interface to be re-designed early. In the first version of the app, there were 3-4 forms for a citizen to fill before submitting an incident. Users requested this to be made easier, which led to an overhaul and redesign of the mobile application. Later iterations of the mobile application enabled citizens to report incidents using only one form. **Features were identified that were crucial to user experience.** With

the early versions of the application, citizens would report incidents by manually entering their location. However, the implementing team saw a fundamental need for real-time location data as a built-in feature to enable seamless and accurate reporting.

Building the application brought up questions related to the city resourcing. There was a risk identified in the responsiveness of the city authority to incidents reported by the platform, given the low numbers of city engineers who could respond to them. Specifically, there are only two engineers per division and, given their existing workload, there would likely be a delay in resolving incidents reported at a large scale.

Was the assumption validated?

Unclear. The team learned:

- Lots of useful information was gleaned about the user interface of the application, but the team has yet to test whether people would report real incidents while travelling, as was envisaged.
- Future testing might focus on how the local authority can respond to incidents in a timely manner.

— What next?

KCCA now plans to share the MVP solution with citizens in a launch towards the end of 2022.

The local authority also wishes to conduct an appraisal into what is needed to fully resource the solution financially. This follows developments such as the inclusion of the Google Maps API onto the platform, where KCCA will be charged according to the number of users. Secondly, KCCA has identified a strong need to engage the human resource department to train and equip more staff with skills on how to manage incidents reported by citizens.

Rush hour in Kampala

Local group working on the application

Will an MVP solution for paying motorbike taxes be usable by payment agents at the City Hall?

Local authority: District of Bamako
Country: Mali

The District of Bamako has identified a need to tackle how tax collection is handled by the local authority, with older methods being labour intensive, opaque and often underleveraged. The District has recently launched multiple digital tax collection projects and wants to continue to improve both citizen experiences of paying tax and the tax revenue base of the local authority.

The Local Action Plan is focused on digitising the sale and distribution of vehicle tax stickers for the approximate 500,000 motorbike riders in the city. These stickers show that drivers have paid their tax for the year and are normally sold between the months of January and March. The current system of selling stickers is strained, as the different points of sale are not able to deal with the level of demand from riders. This results in extremely long queues that often incentivise riders to buy forged copies of stickers.

The focus of experimentation was testing an MVP version of the proposed payment application, which could be improved by adding additional functionality and adapted later on. The local authority wanted to test the usability of the application and willingness of City Hall agents and citizens to use the solution, by testing the sign up, payment, and printing of duplicate stickers alongside the existing system.

> **ASSUMPTION: The technological solution is simple enough and adapted to the capacities of the tax collection agents and responsible actors across the Local Authority**

— How the Local Action Group tested it

- A technology partner designed a basic version of the solution, replicating many of the features of the existing Excel file that tax agents already use
- Training was conducted for the municipality's agents, including eight cashiers and two supervisors
- The sale of motorbike stickers was delayed because of border closures in Mali that meant that the supplier of the stickers could not receive the materials needed to produce them. This meant that testing could not be done with citizens and the regular sale period started about three months late
- During this delay, the solution was tested with the tax collection department of the municipality, to understand how the tax was managed internally so that an internal dashboard could be created. Additional functionality was then added for the platform to generate reports for the data collection agents.

— What they learned

Tax collection agents were sceptical about the solution, so it is important to work with them throughout the design process. Municipality staff were quite sceptical about the solution because they felt that it was an audit and that it would disempower them in the long run. Engaging with these stakeholders consistently enabled the team to build trust between the platform and users.

The digital solution needs to work with the existing human resources and mechanisms. Previously, the system was accessible for counter agents, the counter administrator and overall controller, who normally have different levels of access. It was important for integration purposes that the digital solution replicate this by giving each agent a unique access number, and giving different levels of access for the purposes of data security.

The solution needs to be designed to reduce intermediaries and fraud in the old system. The local authority wants to remove the role of intermediaries, who buy stickers and resell them to riders for a higher price. The digital solution designed a "flags" system which would raise when an individual has purchased a lot of stickers, indicating they might be an intermediary.

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— Was the assumption validated?

Yes the team learnt that:

• The digital solution is simple and adapted to the capacity of tax collection agents

• It is important that these agents are involved in the design and adaptation of the solution

— What next?

The local group will need to test the roll-out of the solution with citizens through the tax collection period. Specifically, they would like to install the solution at two counters of the District Town Hall for real-life testing, with both the old and new system running at the same time.

Local group meeting

Motorcycles parked by the market in Bamako

IMPACT
Does the solution reach the intended level of impact?

What is the impact of a digital tool to improve waste collection processes in the city?

Local authority: Municipality of Bizerte
Country: Tunisia

With the growing size of Bizerte and its boundaries into peri-urban and rural areas, the local authority is experiencing new challenges in the ways it conducts waste management and its ability to provide a high standard of service to all citizens.

The Local Action Plan is focused on improving the coverage of waste disposal by building a platform to help waste collectors optimise their routes, and an interactive platform that allows the municipality to both manage contracts with public and private organisations and facilitate a stronger relationship with citizens on waste disposal.

The experiment phase was focused on building a "proof of concept" to share with waste collection operators, to learn their capacity and willingness to use the application. The local authority also looked to see if the tool would facilitate communication with drivers' managers and supervisors, who will be able to track drivers' movements and receive feedback from citizens. Finally, the city wanted to see whether waste collection routes using the new system would operate more efficiently.

> **ASSUMPTION: Waste collection agents will have the capacity to use a digital solution. The use of a digital solution will improve the efficiency of waste collection.**

— How the Local Action Group tested it

- Ran a procurement process to select a partner who will design and test the technology solution
- The waste directorate did not have data on the existing rates of collection, so the team manually collected weekly data on the weight of waste collected over a month-long period
- The technology partner adapted an existing solution to the needs and requirements of the city
- The team were then able to conduct on-site testing of the proof-of-concept platform on one garbage route, to collect feedback from waste collection drivers and supervisors

— What they learned

Drivers and supervisors are motivated by the intrinsic desire to be recognised for their work. Drivers were very enthusiastic about the solution - seemingly due to the "reputation gains" and recognition of their work that it might give them. The testing was done with few drivers, but the team intentionally selected those who were less tech savvy, and the general feedback was positive and very collaborative.

— Was the assumption validated?

Yes the local authority learnt that:

- Drivers were able to use the digital solution and it received good feedback.
- It is still unclear if the tool will have any impact on efficiency of garbage collected, and what unexpected incentives it might create

— What next?

The local authority has identified the need to measure certain indicators (e.g. volume of waste collected per week) at a larger scale. They are also looking to increase the number of routes managed by the digital solution.

In the long-run, the team would like to expand the use of the solution so that citizens can use it to report issues, provide feedback, and specific requests for waste to be collected.

Municipal staff cleaning the streets

Local group working on the online platform

RESOURCES
Is the solution sustainable and will it grow to the desired scale?

Can we find the right partnerships to ensure operation of rural ICT learning centres?

Local authority: City of Kigali
Country: Rwanda

Kigali is home to a significant number of young people. However, the level of digital skills within this age group in Kigali is split. While some are digitally literate, there are groups who have an interest in ICT technologies but are at a disadvantage in terms of the skills required to meaningfully engage with them. The City of Kigali (CoK) would therefore like to tackle the digital divide and engage youth in ICT to promote civic participation and social connectedness.

The Local Action Plan for the City of Kigali concerns building a network of ICT Centres for rural communities who may not otherwise have access to computers. The ICT Centres will be situated at strategic public places, where people can access computers, the Internet, and other technologies as they develop digital skills and look for work.

The experimentation phase looked to test this approach in one specific location as a pilot phase. The local team wanted to find popular and useful training courses, see how many young people they could attract to classes, and assess the demographic composition of those attending. They also wanted to find the right business model to cover some of the operational costs, including attracting local partnerships to contribute towards costs through direct financing or in-kind support.

> ASSUMPTIONS:
>   - **We believe the Centre can find the right business model to cover operational costs (cleaning, water and electricity bills, etc).**
>   - **We believe there are local funding partners who are interested in funding the rest of operations (internet connection, training, salaries, etc).**

— How the Local Action Group tested it

- Undertook procurement for the renovation and equipment needed for the identified space in Nduba Sector.
- Took meetings with various organisations to help set up the ICT Centre. These included Internet Service Providers (ISPs), of whom the team felt confident to partner with due to recent projects they had completed together.
- Met with a youth-focused NGO who had an existing agreement with the City of Kigali. The NGO agreed to develop training modules for the ICT centre and provide staff for free to conduct the courses during the pilot phase.
- The centre was opened without a dedicated manager while discussions on resourcing continued.

— What they learned

Multiple procurement issues held back the opening of the centre. There were several interesting procurement challenges the team encountered. Firstly, the local team tried to use an existing tender contract for ICT equipment, however, only computers were listed in the contract so the local group had to start a new, lengthy procurement process later on. Another procurement challenge was the delay in the delivery of purchased furniture, because the requested items were not similar to those previously provided by the supplier. This meant the city had to re-advertise a public tender of up to 24 days for the new table specifications. Procurement issues also extended into the recruitment of security staff for the Centre, as government requirements for procurement were slow and ill-matched for the pilot's needs.

The local authority failed to form strategic partner-

ships where they were identified. The local team were confident that training modules and the trainers themselves would be provided through the existing agreement the City of Kigali had with the previously-mentioned NGO. However, later down the line, CoK were quoted a large amount to develop the training modules, and a request was also made for the local authority to provide the trainers themselves. This severely impacted the vision for delivery of the ICT Centre, and the local authority has reflected that they might have tried to formalise such agreements earlier on to learn this sooner.

Finding a manager for the ICT centre was harder than anticipated. As well as challenges related to partnerships, the City of Kigali also struggled to hire a centre manager. They had anticipated using staff from Nduba Sector after being advised that contractual staff should go through a recruitment process that would take longer than 3 months. However, it was difficult for the Sector to make this a reality and they eventually engaged an intern who was already with the Sector to manage the site and provide basic training. They are currently in discussions with the national ICT agency (RISA) to provide a "digital ambassador" as a future centre manager.

— Was the assumption validated?

No the team learnt that:

- It wasn't possible to engage prospective partners to achieve some of the cost savings they were hoping to achieve in Public-Private partnerships.

- It remains to be seen whether the local authority can pivot to provide the Centre manager, trainers and create training modules for students in-house or at minimal cost.

— What next?

The City of Kigali wants to change its strategy with regards to teaching courses, where they now want to produce modules internally via the national ICT Department and give them to selected interns to teach students.

Nevertheless, the local authority still wants to continue engaging partners and sign agreements with those willing to support the project for their corporate social responsibility aims.

Other reflections include the potential to create a separate management team who include people other than the City of Kigali staff, such as partners from civil society or the private sector. This would seemingly increase the ownership of these parties in the project.

Students participating to a training

How will the addressing system be managed in the long-term?

Local authority: Region of Nouakchott
Country: Mauritania

In Nouakchott, the absence of an addressing system used widely by citizens has a strong impact on the daily functioning and development of the city. While a system and "addressing unit" within the region's resources directorate was introduced in 2001, this has lost its effectiveness as a management tool and is not based on street names.

The Local Action Plan for the Region of Nouakchott wants to involve citizens in the production of a modern addressing system for the 70 inter-communal streets that are the responsibility of the local authority. Most individual street names are named by communes, the administrative units below the municipality, but these 70 streets will form the basis of a digital addressing system for the Region of Nouakchott, which will provide the necessary data to launch a mobile application that citizens and public services can use in the long-term.

The experimental phase within ASToN was focused on setting up a database and system for mapping the identified city streets. The local authority wished to test the institutional set-up and willingness to support the project in the long-term, as well as test the demand and supply of addressing at both the individual and institutional level in the areas mapped.

> **ASSUMPTION: There will be a process, a structure and the institutional will to maintain and update the addressing database**

— How the Local Action Group tested it

- Official email sent by the President of the Region of Nouakchott for the Minister of the Interior to launch the pilot phase, and for them to delegate power to manage addressing in Nouakchott. This was not actioned on by the Ministry.
- Decided to develop its own solution, to embed the addressing system within the remit of the internal IT team instead of the Urban Observatory, and to support the tool's integration at regional and national level.
- Developed a form to analyse the capacity and knowledge of communes in addressing and how they conduct street naming, to help the Region better assist the communes in the task.
- Created a document outlining the rules and laws related to addressing, and a document listing the roles and responsibilities of the stakeholders involved.

— What they learned

The system needs to be integrated in core team functions to be sustainable. As the team began discussing reinvestment in the Urban Observatory, they found that both under-investment and de-prioritisation was what had led to the failure of the previous initiative. Instead, they pivoted to embed the management of the addressing system in the IT systems, who are a core team to the city services, and could therefore ensure sustainability.

The legal framework can be a barrier to sustaining an initiative and so it needs to be defined. While the team believes that the communes should retain the prerogative of naming streets, they realised very early on that the legal framework governing addressing was not clear, as neither the communes nor the Region have the legal means of addressing in Nouakchott. The result of this is that the roles and responsibilities for addressing are not clearly defined. The Region has since drafted a clear framework for collaboration between the communes and the Region of Nouakchott, to lay the foundations for future collaboration between the different stakeholders.

However, the team still believes that there is a "gap" in the law that needs a new bill to pass, to provide structure at the regional level for them to complete the addressing project. To accomplish this, they believe that action is needed from the Ministry of the Interior and the Prime Minister, to lay out a decree or order that gives responsibility for addressing management to the Region of Nouakchott.

Building a solution in-house increases ownership of the solution and its pertinence to the specific needs of the city. Initially the city had looked to identify an external partner to design the solution, however, they found that no solution proposed met their needs and that deciding on an external partner would place any adaptation of the platform in their hands. The local authority therefore realised that designing the solution in-house would increase the ownership of it and facilitate its growth.

— Was the assumption validated?

Unclear

The local group embedded the responsibility for managing the addressing system within a team that could ensure its durability. However it has uncovered a complicated legal system for addressing that seems to restrict their ability to set up the system they want. This learning has reaffirmed the position that institutional will is of utmost importance for this work, particularly the belief that legal texts can be changed through the passing of a bill by the Prime Minister that gives the prerogative of addressing to the Nouakchott Region.

— What next?

For other aspects of delivery, the team has found technical solutions that are reasonable and that will allow them to continue to experiment.

The next step for Nouakchott will be political advocacy to establish the legal framework that allows them to continue the project and attract possible financing to grow the solution.

View of Nouakchott

People walking in Nouackchott

03

Conclusion

Conclusions

Four things we've learned about experimentation in local authorities

Focusing on the principles of experimentation (rather than the methods) unlocked cities' ability to test their ideas in their own unique way

Through ASToN, we learnt that working through cycles of test-learn-iterate was often not just an unfamiliar and uncomfortable premise for public officials, but went against both the mechanisms and regulations of municipal authorities. For example, when the Municipality of Bizerte was looking to source a partner to develop a minimum-viable-product (MVP) of their solution, they found that existing procurement processes required them to provide a detailed, long-term, fixed scope of work, which left limited space to iterate the product based on learnings. In short, a fixed experimentation method would have been un-adapted or irrelevant for local authorities, and would not have supported them to actually test their assumptions.

We went back to the first principles of experiments:

1 - Experimentation is a way to build certainty about an idea

2 - Local authorities are looking to develop, roll out and scale uncertain ideas

3 - Evidence is what helps us determine whether we're on the right track

Anchored around those principles, we supported cities through powerful questions or sharing varied methods to set them up for success with their ideas. In the example of Bizerte, they were able to leverage an existing Private-Public Partnership (PPP) with a technology company to develop an MVP, which would help them build clarity on the typology of partner and product they'd need to source in a later, more extensive procurement process.

Recommendation for local authorities who want to experiment: experimentation isn't dogma and can be compatible with your ways of working. Start by using the principles of experimentation to anchor what you're already doing.
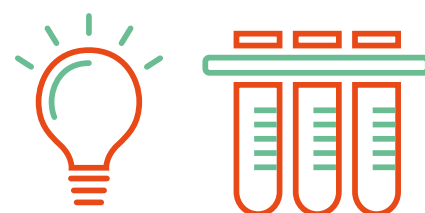
Framing experimentation as a lens through which to achieve impact can help local authorities embed it in their work

Experimentation can often bring with it a new set of language, frameworks and tools that are unfamiliar, and therefore alienating, to many. We found that this led local authorities to be defensive or reluctant to the language and tools presented, often because it felt that we were rejecting or replacing how they do things. We know through our understanding of behavioural sciences that we find change painful, and are often reluctant to reduce our confidence in a decision, even if we receive contradictory information.

We know that people, but especially public servants, are intrinsically motivated to improve things, so we tapped into their desire to make things better for their municipality and citizens, or in other words, to innovate. We ensured that we spoke about experimentation as a lens through which to achieve the local authorities' vision, and of expanding the set of tools available to local authorities to enable change and positive impact.

For example, Rehamna Province (Benguerir) has consistently used a variety of survey methods to gain insights and perspectives from citizens about its services. We worked with the local authority, not to undermine how they were surveying their citizens but rather to zoom-out and focus the survey on two key questions: what were they looking to learn through the survey, and what would they need to see to confirm it?

By reframing experimentation as a way to learn and achieve impact, rather than asking local authorities to change how things are done (or their minds!), we're tapping into a desire for curiosity, growth and learning. This intentionality helps us reinforce psychological safety.

Recommendation for local authorities who want to experiment: experimentation brings a focus on learning and impact that you can apply in the way that suits you best, and with whatever language helps you make sense of them. Start from your vision of impact (i.e. improving mobility for citizens), and use just the right amount of evidence (i.e. number of traffic accidents per week) to learn about the right path to get there.

Having clarity on the why, or the vision for the project, enables local authorities to embrace uncertainty on the how

Experimentation is the process through which we see how ideas behave in the real world. We do this by surfacing what needs to be true for an idea to work, and experiment to test whether it is how we imagined. Acting in this way requires us to start from a place of uncertainty about whether something works, and about how it works. This is often a different dynamic than the one that underpins the relationship between politicians, public officials and citizens. There is a belief that citizens expect very clear plans and ideas from politicians and public officials, which drives a desire to want to communicate with certainty at all costs.

Through ASToN, we found that local authorities were often reluctant to experiment, or engage citizens in experimentation, until they had a very clear idea of the solution and approach they wanted to take. They also believed that citizens would be reluctant to participate in something uncertain and experimental.

We learnt that framing experimentation was very important. When politicians and public officials had clarity on the vision for their project, citizens were more than willing to jump in and shape the solution with them. For example, Rehamna Province (Benguerir) hosted a meeting with doctors and health administrators to design a solution that would facilitate making health appointments across the municipality. The local authority had a clarity on their vision, which was facilitating access to healthcare and reducing inefficiencies caused by appointment making. Doctors and health administrators were more than willing to join in, shape the solution, and even asked to be more involved in designing further iterations.

Recommendation for local authorities who want to experiment: experimentation acknowledges and encourages uncertainty, which can feel uncomfortable to work with or share with different stakeholders. If you have clarity on the vision you're looking to achieve, you can use that to bring others in to learn how you can achieve it.

Fostering a peer network gave individual local authorities the courage and support to be pioneering

The local authorities we work with are often pioneers in digital transformation, or they're the first in their area to work in an experimental way. They're actively re-shaping how they work, and what that work looks like. However, this also means that they have less safety, support and security as they undergo the process.

For example, the City of Niamey was testing the process of digitising vehicle tax payment. This process is the first digitisation of a tax initiative in the city, and its insights would have wide repercussions for the rest of municipal services. However, it also meant that city officials had to learn how to design, test and roll out a digital solution from scratch - they had no examples within their city of what this could look like.

We know that thinking about the future in this speculative way is not always comfortable, so we intentionally create psychological safety by de-risking 'being wrong'. We focused on supporting cities through individual coaching, but also through ASToN's peer network. The network meant that it was no longer one city going against the grain, but rather eleven cities doing it together, asking similar questions and learning the answers together.

Recommendation for local authorities who want to experiment: experimentation can feel uncomfortable because it encourages new ways of working. Find other local authorities or initiatives that you can connect to, so that you can feel supported by others and learn from them.
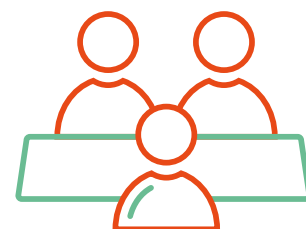
How we can continue to support local authorities

In the introduction to this Catalogue, we stressed the importance of a holistic approach to supporting cities in developing their digital transformation plans. We spoke of sharing and discussing the methods - of project management and experimentation, for example - but also the fundamental importance of the mechanisms and mindsets that allow for innovating within institutions like local authorities.

When it comes to mindsets, an experimental approach has to come from a place of humility and openness to uncertainty. Plans can be reflected on, iterated, pivoted to something different, and sometimes completely abandoned. In an environment where "failure" might not be embraced in the same way as in Silicon Valley, this is a massive ask on public sector workers who are used to existing institutional norms that incentivise certitude and value for money. We are extremely grateful for every city for their enthusiasm and approach to this project, which has sometimes brought out these inherent tensions.

In the above case studies, we've also seen some of the mechanisms or enabling environments that are fundamentally important to conducting experiments. You can have a team that is fully engaged in a method and with the openness to try things differently, but if a slow, procedural procurement system does not let you meet those ambitions, you are facing another set of challenges. How much of these mechanisms are unassailable barriers to experimentation, and how many are points for learning and discussion within a local authority will depend on the context. Nevertheless, the presence of such disabling mechanisms has been a real learning for us as a network.

We - programmes, funders, and the public - can continue to support local authorities by appreciating what public services need to thrive, but also where local authorities might be operating right now. The story of the ASToN network is one of mutual learning of the methods, mechanisms, and mindsets needed to effectively encourage local authority teams to innovate and develop bold ideas, and to co-design solutions with citizens at their heart. The work is challenging but through coaching, collective learning, the support of independent experts, and peer-to-peer learning - which is the core principle of the ASToN network - we believe that formal support can give local authorities the best opportunities to develop and advocate for the mindsets, mechanisms, and methods needed to achieve real impact. As we said in the Baseline Study:

The sheer diversity of the ASToN network and the challenges the local authorities hope to explore… is a source of strength for harnessing the potential of digital to bring positive change to citizens. With suitable institutional capacity and political will, African local authorities will be able to progressively, sensitively and thoughtfully tackle some of the biggest challenges associated with service provision through digital transformation.

We hope that the ASToN network has helped to uncover more about how best to unlock the diversity and power of African local authorities to make this change.

Each case study of experimentation is a unique story of pioneering, civic-minded professionals who are working to make their local authority one that serves its citizens better. We applaud the hard work and progress made by each local authority and can't wait to see this work inspire others in the future.

And, if this has inspired you to experiment in your institution, good luck! And please get in touch.

The ASToN project

Discover more about ASToN in
www.aston-network.org

✉ hello@aston-network.org   🐦 @aston_network