ASToN

DIGITAL TRANSITION FOR SUSTAINABLE
AND INCLUSIVE CITIES
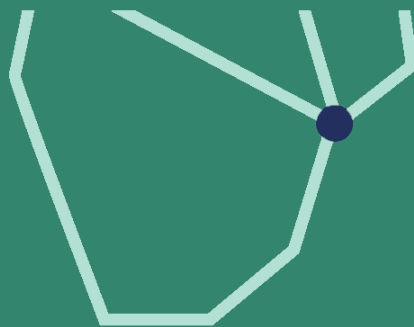
CASE STUDY
LAND MANAGEMENT

How can digital solutions for land management contribute to making African cities more inclusive?

This case study is one of four thematic case studies demonstrating how digital solutions and technology can create sustainable transformation in African cities. These themes illustrate the different areas of urban digital transformation addressed by each city - citizen participation, mobility, e-taxation, and land management.

___ **Acknowledgments**

Inspiration from ASToN projects in Nouakchott (Mauritania) and Sèmè-Podji (Benin)

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ASToN has been the perfect framework for our team to build an authentic project based on our own needs and our own ideas. This is the particularity of ASToN." Farid Salako, ASToN local leader, Sèmè-Podji

Land management is a critical factor for decision-makers in African countries working to advance their economies and improve the lives of citizens. Population growth combined with an absence of land policy initiatives has turned access to land into a serious challenge, especially – but not only – for poor and marginal groups such as women and young people.

This case study looks into two initiatives led by the municipalities of Nouakchott (Mauritania) and Sèmè-Podji (Benin). As partners in the ASToN network of 11 African cities from 2019 to 2022, they shared experiences and explored digital solutions for local land management in order to promote sustainable and inclusive local development.

What Nouakchott and Sèmè-Podji learnt during their ASToN experiences can now provide valuable insights for other cities. Their projects highlight the elements that contribute to successful land management initiatives, and why they matter within the African context. The ASToN cities found it was essential to: strike a balance between local expertise and political support; ensure that digital solutions are adaptable; and communicate constantly about the project.

ASToN represents a network of 11 cities in 11 African countries, all focusing on advancing their digital transition to become more inclusive and resilient. Convinced that digital tools can be a means to change, the cities embarked on a three-year learning journey to build sustainable solutions for their citizens.

Running from 2019 to 2022, the ASToN pilot programme gave local authorities in each of the 11 cities a framework to test and build a roadmap for digital transformation. This included an experimentation phase where each local team trialed possible solutions, collecting data and insights to identify successful – and unsuccessful – approaches, and gain a better understanding of how to scale up their ideas and improve their work. In this way, ASToN acted as a catalyst for lasting change, providing a foundation for cities to continue learning and improving their own digital solutions.

For Nouakchott, the capital of Mauritania, ASToN was a chance to focus on creating a new digital addressing system – a city-wide database of all street names and house numbers, associated with a new street signing system. Meanwhile, Sèmè-Podji, a town in the Ouémé department of south-eastern Benin, took the opportunity to develop its own secure digital tool for registering land titles – and collecting various further revenues from the land titles once they are registered.

What is land management within the African context and why does it matter?

Land management in the framework of ASToN covers the "administration, use and development of land resources in the urban environment, including addresses and land registry."

"An ineffective management of land resources 'creates significant instabilities and inequalities in society and severely limits citizens' ability to participate in social and economic development'." (Chigbu et al., 2021)

However, when processes of determining, recording, and disseminating information about ownership, value, and use of land are absent, implementing land management policies for socioeconomic and environmental development becomes an immense challenge.

Nouakchott and Sèmè-Podji understood the stakes and chose to concentrate on projects where digital tools can improve the management of their land resources, and create better conditions for their citizens.

"I believe Nouakchott's project can respond to many changes throughout time because, first of all, it provides access to emergency services, but also the delivery of services to the population. It can help the growth of small businesses and it can help people that lead small economic activities to develop themselves." Khadijetou Hamed, core team member, Nouakchott

Nouakchott - urban landscape

What land management challenges are the two ASToN cities tackling?

Nouakchott and Sèmè-Podji defined their land management projects after a preliminary research phase in which a local ASToN group of relevant partners in each city analysed the local context as well as their own strengths and weaknesses. Group members include staff from government IT and land departments, elected officials, local incubators, civil society organisations, start-ups and universities.

___ Nouakchott

Nouakchott's municipality wanted to consolidate various sources to form a digital, participatory addressing system. The aim was to crowdsource addresses from local operators, providers, or other partners that had already started creating their own address databases, from taxis and delivery companies to postal services and city waste managers. A reliable addressing system will help the local municipality provide better public services – such as water supply, energy distribution or waste management. These are all key in ensuring sustainable and inclusive urban spaces. Nouakchott saw its new addressing ecosystem as a way to create a synergy between quality of life for citizens and the technologies that can enable it.

___ Sèmè-Podji

Sèmè-Podji's municipality focused its ASToN project on the challenge of providing digital ownership titles to land owners. The local ASToN team decided to set up a new digital land management system that would allow municipal services to have an overview of land ownership, and increase land tenure security for citizens, while collecting 100% of revenues – compared with just 20% in the previous system. The aim was also to create a digital land database for Sèmè-Podji's neighbourhoods, accessible to all public services. By improving land tenure security, Sèmè-Podji city is working towards reducing conflicts and litigations over land, enabling investments for public infrastructures, and accelerating the local digital transition.

> " *In Benin, the State issues property titles based on the information and documents that exist at the local level. Therefore if the city of Sèmè-Podji does not have a functional land management system, the State has a lot of difficulty issuing titles to our citizens,"* says Farid.

Sèmè-Podji's municipality focused on providing digital ownership titles to land owners

What are the governance frameworks in Nouakchott and Sèmè-Podji?

Developing successful land management solutions requires an integrated institutional approach, where different levels of authority and expertise work together from the beginning. This is why ASToN encourages project partners to work across sectorial silos, look for support at all levels and ensure their initiatives fit in with national, regional and local frameworks and strategies – involving relevant parties throughout the entire process.

___ Nouakchott

The governance for Nouakchott's ASToN project was assured by Nouakchott's Region who brought together a working group of relevant partners from all levels: national, regional, local, private stakeholders and civil society.

Before the ASToN project was launched in 2019, the Mauritanian public authorities had already initiated several projects where digital tools aimed to improve urban management services by integrating addressing databases that could be interconnected.

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Similar projects were already tried in Nouakchott, but they all failed due to a lack of strategy and good understanding of the addressing topic." Mohamed Lemine Bakayoko, Regional councillor, Elected representative for Nouakchott's ASToN project.

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These are all people who are not used to working together, but fortunately we were able to meet this challenge through our core team who was able to bring everyone around the table and we all worked together." Aminata Lo, Director of Planning and Urban Development and local leader, Nouakchott
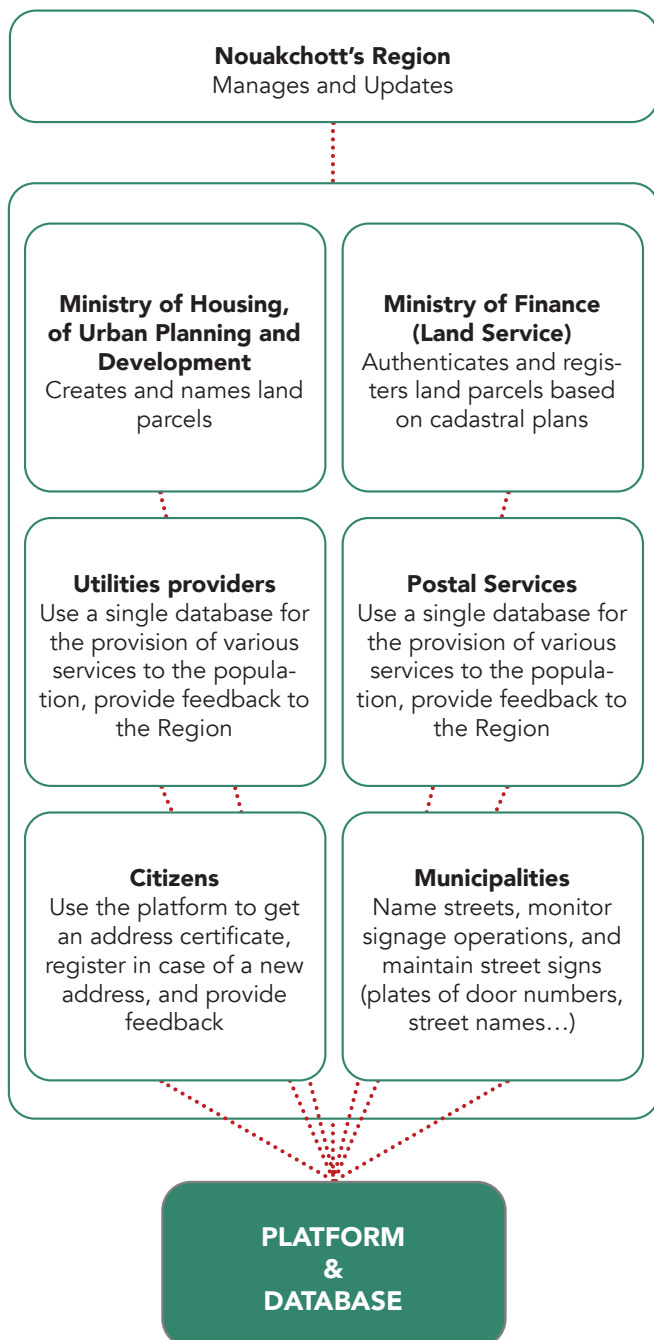

Aminata Lo, Director of Planning and Urban Development and local leader, Nouakchott

As ASToN project partner, the Nouakchott Region built its initiative around its role of coordinator between the municipal level – and the national authority in charge of land management. The project aimed to regroup, connect, and improve existing regional databases in order to make them available online both for municipal services and for citizens.

During the three-year ASToN project, Nouakchott's role in managing its addressing system was reduced due to a legislative change.

In the course of the work we realized that we are working on a topic that is not part of our transferred competences - so this remains a challenge for us. So in addition to the experimentation, we also studied the legal framework for the region to be empowered to manage the addressing system," says Mohamed.

At the moment of their ASToN application, the project partner was the Urban Community of Nouakchott, which had the addressing prerogative. But following this, in 2018, a legislative reform meant the Community of Nouakchott became a Region that was no longer assigned the addressing responsibility.

Nouakchott's Region
Manages and Updates

Ministry of Housing, of Urban Planning and Development
Creates and names land parcels

Ministry of Finance (Land Service)
Authenticates and registers land parcels based on cadastral plans

Utilities providers
Use a single database for the provision of various services to the population, provide feedback to the Region

Postal Services
Use a single database for the provision of various services to the population, provide feedback to the Region

Citizens
Use the platform to get an address certificate, register in case of a new address, and provide feedback

Municipalities
Name streets, monitor signage operations, and maintain street signs (plates of door numbers, street names…)

PLATFORM & DATABASE

Governance framework for Nouakchott's ASToN project

Mohamed Lemine Bakayoko (left) discussing with Adama Sangaré, Mayor of Bamako (right) during the ASToN all-partner meeting in Kumasi, November 2022

Nouakchott's core team during Kumasi all-partners meeting, November 2022

> " *As we were already involved in the project and we could not go back, we were sure this aspect would be corrected later as it was an omission. But three years later it is still not the case. I think this is due to the fact that no steps were taken. Today, we don't want to drop everything because of this aspect, especially since it's a good way to advance this subject. So we are doing everything we can to get the prerogative back. Things are moving forward, in the right direction,* " shares Aminata.
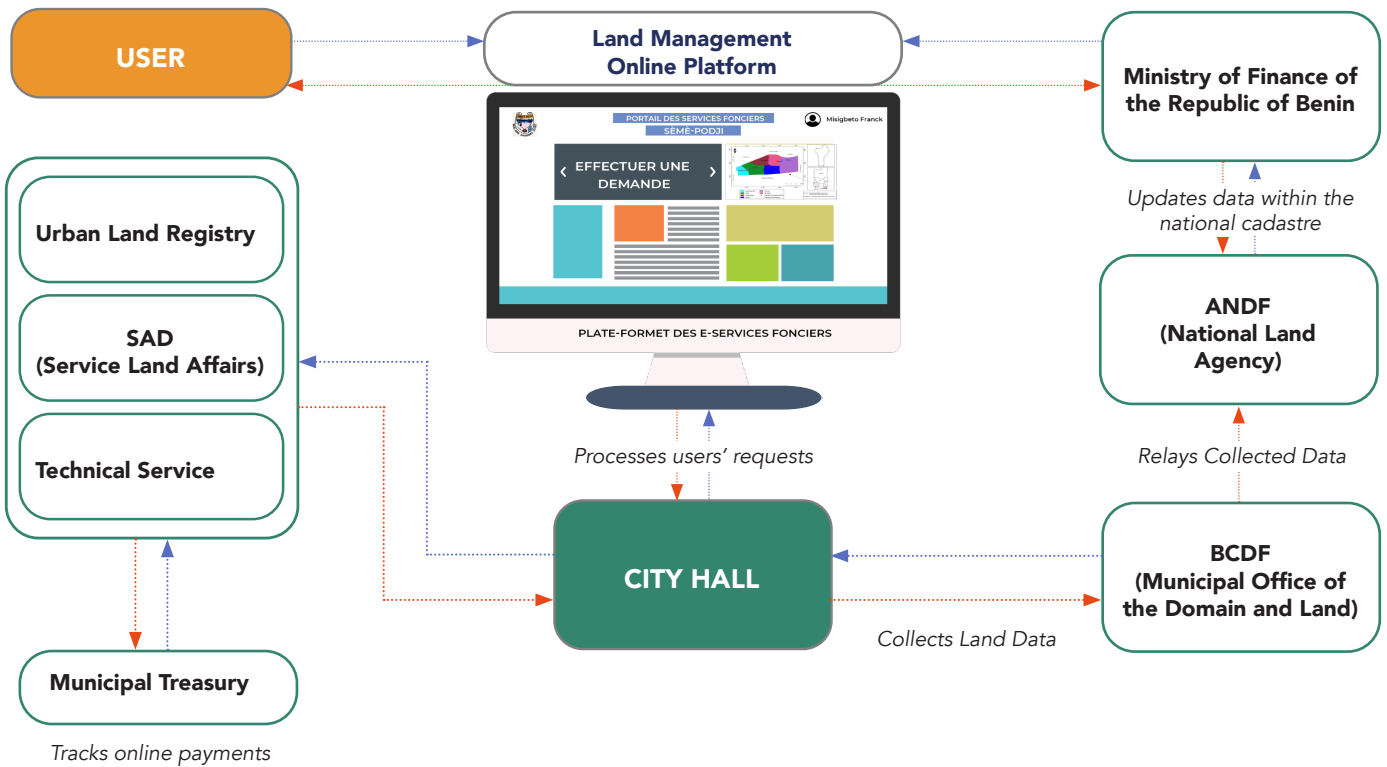
__ Sèmè-Podji

For Sèmè-Podji's initiative, the project partner is the City Hall, represented by its mayor Jonas Sèdozan Gbenameto. As leader, he issued a communal order establishing a Local Support Committee (LSC) whose role is to implement and monitor the ASToN project. The local group partnered with the Sèmè-City Innovation Agency, focused on supporting an inclusive digital transition, and the National Land Agency (ANDF), the technical arm for issuing land titles. Throughout its activities, the core team also involved other local actors such as: elected district chiefs and heads of neighbourhoods and villages, associations of land purchasers, law and order forces, technicians such as surveyors and urban planners, and civil society leaders.

Jonas Sèdozan Gbenameto, Mayor of Sèmè-Podji (left) discussing with Hamidou Djibo, vice president of Niamey's Municipality (right), ASToN all-partner meeting in Kumasi, November, 2022

Core team in Sèmè-Podji together with Jonas Sèdozan Gbenameto, Mayor of Sèmè-Podji (right) during ASToN all-partner meeting in Kumasi, November, 2022

Architecture framework for Sèmè-Podji's land management online platform

Experimenting land management solutions on the ground

To gain a better understanding of their cities' land management challenges, Nouakchott's and Sèmè-Podji's core teams tested potential solutions in real life situations over a six-month 'experimentation phase'. Bringing their projects face-to-face with citizens and local partners, even on a relatively small scale, enabled core teams to collect data and provide a clear understanding of what works, or not, get feedback from users, and consider scaling up the solution to benefit more citizens. It also gave teams insights into how to tackle their own limitations in terms of budget, local skills, political backing, or support from citizens.

__ Nouakchott

The Region of Nouakchott decided to try building a prototype of their addressing database and system. Planning this new prototype prompted the local AS-ToN group to reduce their requirements and initial technical expectations due to a lack of budget. They went on to define realistic specifications for their service, and contracted a demo of a potential future platform so it could be tested on a specific area.

Nouakchott team presenting the addressing tool to elected officials

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For the experimentation phase we chose a pilot area of about 100 blocks where we wanted to deploy our solution, but due to lack of funding we couldn't build a complete solution. So in response we chose to test the demo option to which we've added some new features that can be deployed once the service will be fully functional. This allowed us to see that by having reliable data we can develop and implement an efficient addressing system," observes Aminata.

Nouakchott's local team during the ASToN all-partner meeting in Kigali, 2021

Expectations vs reality: lessons from experimentation in Nouakchott

Expectations
- Have a clear understanding of the costs of building an addressing system that covers the entire city
- The technology behind the database is accessible for everyone (citizens, local services)
- There is national support for assigning the responsibility and ownership of the addressing system to the Region of Nouakchott
- There is institutional intention/ desire to maintain the addressing database updated

Lessons learnt
- Finding a service provider with suitable operationalisation and technological skills is not an easy task
- In order to ensure that the database is accessible to everyone, it is important to develop it internally, so that local services can update it as necessary
- It is vital for all involved to understand the roles and responsibilities for owning, managing, and implementing the addressing system, especially when responsibilities are not clearly assigned
- The Region of Nouakchott needs to have legal responsibility for managing its addressing system in order to consolidate all efforts that are being made

___ Sèmè-Podji

During the experimentation phase, when Sèmè-Podji decided to test their land title registering system in one neighbourhood, their core team met with strong opposition from civil society. The core team had planned to register plots onsite with the help of land owners who would share their land titles. However, the locals initially showed very little cooperation as they lacked a clear understanding of the project goals and the local group's approach to digitising land titles. The solution? Improving communication, and working more closely with neighbourhood leaders.

Enagnon Etienne Gnonlonfoun member of the core team in Sèmè-Podji remembers: *"There was a lot of resistance; but we have overcome this by communi-* cating with the population through the village chiefs, their councils, and the wise men who are much more listened to by the population. Additionally, it was the rainy season and our agents couldn't work. Another difficulty was that people in the neighbourhood were going to work during the day, so no one was at home. So the town criers were also brought in to help us."* He adds:

> **We managed to overcome all the problems by diversifying our communication channels and making sure our message was heard by all citizens."**

For Sèmè-Podji's core team, the experimentation phase also tested their own capacity to run and manage the process of registering land titles.

Sèmè-Podji's core team during the experimentation phase

Expectations vs reality: lessons from experimentation in Sèmè-Podji

Expectations
- Local services are willing to engage in the collection process
- It will be possible to collect the majority (80%) of land titles within the selected area

Lessons learnt
- The expected number of land titles were not available (only 71% of land titles were collected)
- Local public services are willing to engage in the process of digitising land titles

What are the key elements for successful land management initiatives in African cities?

The experiences of Nouakchott and Sèmè-Podji as partners in the ASToN network provide valuable insights for any city navigating the complexities of digital land management initiatives. Here are three key lessons:

1. Find the right balance between local expertise and political support

For local initiatives to advance, it is key to have political support at local, regional and national level, however this aspect needs to be combined with local expertise. This point proved fundamental for local ASToN teams and thematic experts in Nouakchott and Sèmè-Podji, as well as all nine other cities in the ASToN network.

While political support can sound very broad, this specific detail can involve multiple parameters. Here are some of the suggestions made by ASToN thematic experts and participants:

- include the project within the local development strategy;
- ensure the project is part of the city's annual budget;
- synchronise the project timeline with political calendars;
- find supportive political leaders and engage them in the project;
- encourage political leaders to promote the project.

For Sèmè-Podji having the valuable support of the mayor helped the local team gain the support from citizens.

"The mayor of the municipality of Sèmè - Podji quickly signed a contract with the local radio station in order to broadcast more details about the project. Throughout these local shows the project team was answering and addressing questions and concerns of the local population," shares Etienne.

Sèmè-Podji's core team during the citizen engagement events

Sèmè-Podji's core team presenting the ASToN project at the local radio station

As part of his support, the mayor of Sèmè-Podji also promoted the ASToN project at national levels. This helped obtain backing from the national authorities that now want to adapt the land management platform at a larger scale.

"The government, through Dutch funding, has been able to help us with the data collection process within three other districts. The commune of SP has six districts, and the national government took charge of three of them," says Farid.

" *What is important is the continuity of the project, and this continuity cannot exist without the involvement of the city hall to perpetuate the achievements of this project."* Sèdozan Jonas Gbenameto, Mayor of the city of Sèmè-Podji

Following a different organisational structure, the Region of Nouakchott chose an elected official to accompany the core team and act as the project's focal point.

"This shows the region's willingness to follow the project itself, because it has put an elected official on the team to accompany the coordinator. So the region has a great interest in this project that it supports from the beginning to the end. And for the next step, the region will bring the project to the level of other authorities," declares Mohamed Lemine Bakayoko, Regional councillor and elected representative for Nouakchott's ASToN project.

Pedro De Oliveira, ASToN land management expert, advises: *"While political support is essential, this can also become a block when timelines don't align, or political leaders don't have a clear understanding of the required resources or skills to advance the projects. The danger then is that local teams will not have the necessary skills and resources to run the project, whether from a technical or managerial perspective. Even if the goal is good, when mayors or political leaders don't know how to run the project the local teams will struggle to move forward. (…) It is very important to be humble and say when you don't know, and ask for help and look for the right skills and resources. Skills and competences are crucial to run the projects, and not having them is one of the reasons why projects run by public teams can die."*

Jonas Sèdozan Gbenameto, Mayor of Sèmè-Podji presenting the local media the ASToN project

Training session on the addressing platform for the core team in Nouakchott

Having a good understanding of the entire process of the project is key – including both operational and technical aspects. Otherwise, the project will encounter hurdles, slow down and may stop altogether. For this reason, it is essential to identify the right skills and team members from the beginning. On numerous occasions, teams in Nouakchott and Sèmè-Podji struggled with technical aspects, which slowed down project activities.

Aminata Lo is fully aware that sharing reliable data is essential for the project's progress, but she admits that this is a big challenge.

> *We can say that the technical means are lacking and to ensure that our technicians can do the necessary work, it requires a lot of time and resources,"* confesses Aminata.

For Sèmè-Podji the technical and operational aspects of the land management platform are also a challenge.

> *We are questioning who is going to manage this digital solution that will be linked to other city's services once the implementation phase is over,"* as Farid shared.

2. A good working method and clear understanding of the process

The ASToN initiative was about giving local teams the method to run urban development projects, while testing assumptions and experimenting in real life context. This included how local teams can build supportive institutional frameworks for their projects. Land management practices require supportive organisational structures, resources, and institutional networks.

"It is necessary to harmonise all this and to involve both municipalities and regions throughout the development strategies. Because if we put a strategy at the national level and the implementation is at the local level, but the involvement doesn't exist, there will be a problem," says Aminata.

Supportive resources also involve allocating an internal budget for project management. For this purpose, a proportion of the revenues generated by the project can be set aside for running and operationalising activities. This reduces the project's dependency on external financial resources like local budgets, local or international funds or donations. This was important as the two ASToN projects had the characteristics of a study, so it was a challenge to integrate them into the annual local budgets beyond the end of the project itself.

The city of Sèmè-Podji aimed to connect its ASToN project to other municipal services. This would increase efficiency and reduce spending on privately run services, thus allowing the local municipal team to continue financing the next steps of their land management initiative.

Local ASToN group meeting in Sèmè-Podji

Farid mentions: *"Until now, issuing land titles was done by a private operator, but the database that we are creating can help the municipality to offer this service by itself, and therefore collect and keep these revenues at the local level. In this way we can recover funds for financing our project."*

Based on his collaboration with Nouakchott and Sèmè-Podji municipalities, ASToN land management expert Pedro De Oliveira advises cities:

"

Start with something that you have the entire ownership of, so you won't be stopped."

In terms of next steps, a coordination team should be set up, and "not let only one person lead the project", as this might put the initiative at risk in case of organisational changes. Charismatic leaders who understand the project, have a good human connection, and know the local organisational structures can push projects forward. After grasping how the aspired service, platform, or database should work for citizens and governmental users, the experience of the two ASToN cities proved that involving all local services is a must. Technical, financial, administrative and procurement departments should work together to ensure the project runs smoothly.

Sèmè-Podji's local team meeting

3. Ensure that tech solutions can be used by everyone

Land management solutions rely heavily on tech tools that can easily become an obstacle for citizens, and governmental or municipal services. Nevertheless, digital tools can also provide links between different project stakeholders, creating a collaborative working environment that serves citizens' needs. The two ASToN projects recognised that land management activities are not a one-off task, but rather a process in constant flux that requires updating, upgrading, and incremental improvement whenever necessary for fulfilling land aims and objectives. Being flexible with your digital solution can bring new partners onboard, and help your project grow, while responding to citizens' needs.

"

Our project will not be frozen in time. It is a project that is in eternal evolution because in terms of addressing it never stops, every day there are updates to be made," observes Aminata.

"There is a complementarity between our two platforms - the national and the local one. In addition, we would like to extend this digitisation to other services such as the issuing of building permits, civil status, technical services…," notes Farid.

What's next?

Using participative methods discovered through ASToN, as well as learnings from partner cities, Sèmè-Podji and Nouakchott are set to scale up their work on improving land management for their citizens, in a way that boosts social inclusion and local economic development. Next steps for both cities include finding financing for advancing their projects.

Sèmè-Podji has set aside funding from the local budget to roll out its land management tool, which will facilitate the approval of land titles by the National Land agency across the city. In this way, once the platform is fully available, with plots registered in a secure database, citizens will be able to manage procedures online, and the authorities will be able to collect taxes more efficiently.

As for Nouakchott, city staff are discussing their plans with the state to make their new addressing app available to the public, as part of a global strategy to modernise the entire city. In the meantime, training is underway for technicians at the regional level, and the aim is eventually for municipalities to use the solution to improve and harmonise tax collection and related services for citizens. The city's action plan, launched during ASToN, continues to provide a strong basis for Nouakchott to manage the project throughout its implementation, with a clear vision at each step.
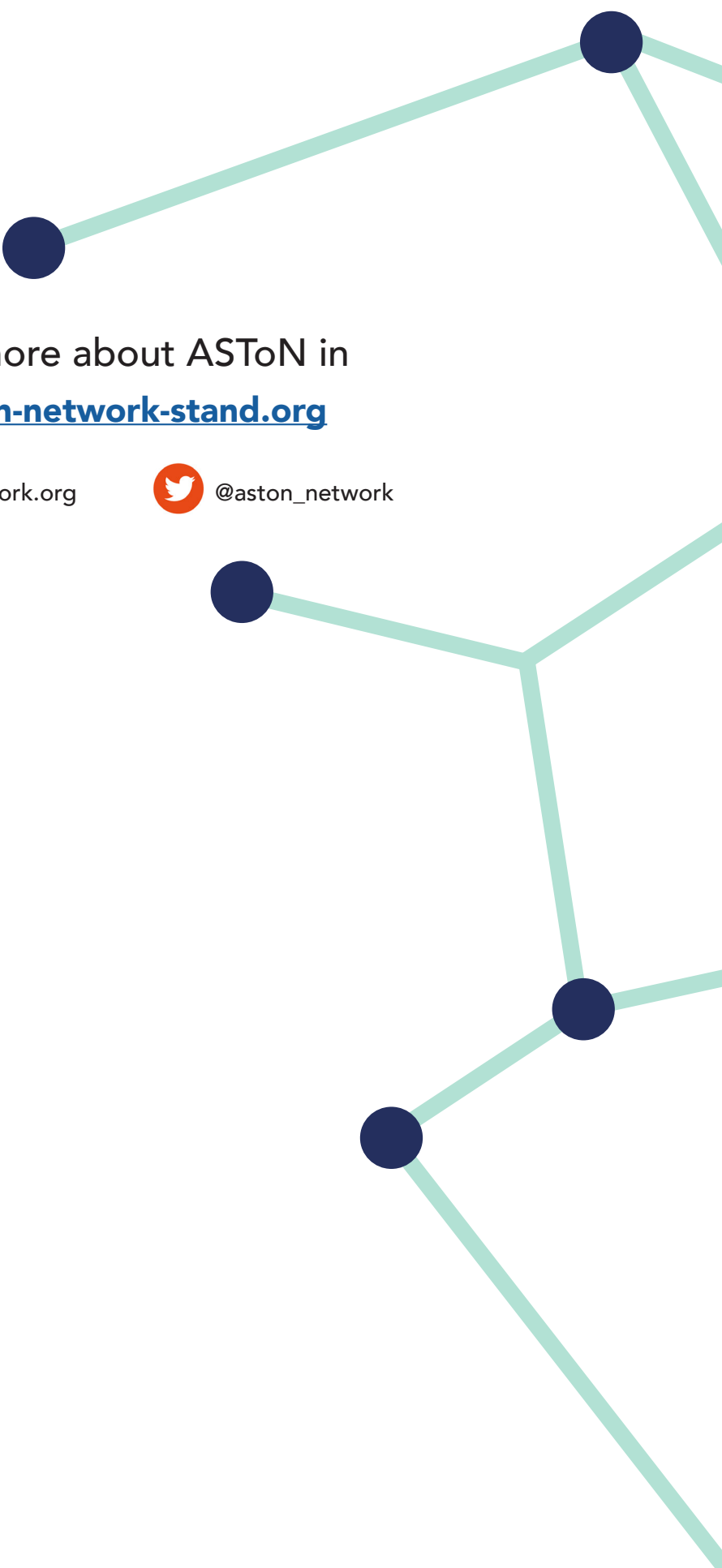

Aminata Lo and Mohamed Lemine Bakayoko during the all-partner meeting in Kumasi, 2022

Local teams from Nouakchott and Sèmè-Podji discussing during the ASToN all-partner meeting in Kigali, 2021

ASToN local leaders discussing about next steps during the ASToN all-partner meeting in Kumasi, 2022

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