

CHATBOTS FOR SERVICE DELIVERY MONITORING: A CIVICTECH PILOT IN MADAGASCAR

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Growing evidence confirms that citizen engagement is key to improving the delivery and quality of public services, management of public finances, and promoting social inclusion, tangibly improving people's lives (World Bank Group 2014). The advent and availability of innovative technologies provide new opportunities to reach citizens, aggregate their "voice" and demands, help governments respond, and partner with citizens to find and implement solutions collectively. With the right approach, CivicTech enables citizens to overcome income, social, and geographical barriers to interact with governments and participate at the local or national level.

Launched in February 2019, the CivicTech pilot in Madagascar supported the development of a Facebook chatbot to enable third-party and citizen monitoring of service delivery operations for the Madagascar Public Sector Performance Project (PAPSP). This *Governance Note* documents the experience gained and lessons learned. A similar approach can potentially be replicated for operations through community-driven development and local government and decentralized service delivery operations that benefit from third-party and citizen monitoring with a multi-channel engagement structure (e.g., engagement offline and with mobile and web resources).

COUNTRY CONTEXT: DECENTRALIZED SERVICE DELIVERY

Madagascar is the fifth largest island in the world with a population of 25.6 million. In spite of its considerable natural resources, it is one of the poorest countries in the world, with an estimated poverty rate of 74.1 percent in 2019—far exceeding the regional average of 41 percent. The country's human capital index ranking is among the lowest worldwide with an estimated 1.4 million children having dropped out of primary school in 2012.² The government of Madagascar adopted a national development plan to address the country's development challenges, focused on three pillars: (i) improving basic social services; (ii) strengthening governance and democracy; and (iii) promoting economic growth. Decentralization is identified as a core feature to improve service delivery nationwide. The PAPSP supports this vision by helping to improve revenue management—boosting the government's revenue mobilization efforts and public financial management effectiveness—and local service delivery nationwide as well as in the education sector within selected regions (World Bank 2016).

Madagascar's decentralization framework establishes three levels of government: provinces, regions, and communes. Communes are the level of subnational government led by elected officials that is closest to

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² For the overview, see the World Bank website at <https://www.worldbank.org/en/country/madagascar/overview>.

citizens in urban and rural areas. In September 2014, the government adopted new decentralization legislation that increases the responsibilities of communes for service delivery, particularly the rehabilitation of education and health facilities and investments in small-scale infrastructure, such as rural roads and markets. Yet local governments have limited capacity for revenue mobilization, and the budget remains highly centralized. Only 5 percent of total government revenues are channeled outside the Analamanga region, where the capital city is located, despite these combined regions accounting for 90 percent of the country's population. In addition, funds being transferred to local governments often experience significant delays.

To alleviate these challenges, the PAPSP provides grant transfers to rural communes nationwide through the Local Development Fund (FDL). The FDL was created in 2007 by the government to support sustainable socioeconomic development through subnational government capacity building and funding for local public investment projects. The PAPSP grant transfer program is designed to encourage citizens to engage in the process of budget allocation decision-making through local participatory budgeting. While this engagement constitutes a significant landmark for decentralization in Madagascar, the central government and FDL are unable to monitor the allocation and use of these funds in over 1,700 remote communes. This ultimately poses a threat to the credibility of the decentralization process and the effective delivery of public services.

The CivicTech pilot for third-party and citizen monitoring aimed at addressing this concern by engaging with citizens—and youth in particular. The chatbot was designed to be linked to the PAPSP's grievance redress mechanism, composed of an "issues-tracker," in which citizens' reports were uploaded. These reports were then sorted and sent to relevant institutions, which were tasked with formulating a response that would be reported back to citizens. An existing toll-free "3-2-1" automated hotline, which delivers information on a wide range of development topics, was leveraged to direct callers to the PAPSP hotline to find more information about local government investments through the FDL.

The rollout of the toll-free 3-2-1 hotline and participatory budgeting mechanisms have been successful in increasing access to information on development issues and engaging citizens at the local level.

FACEBOOK CHATBOT FOR THIRD-PARTY AND CITIZEN MONITORING

Understanding the local context is important to design suitable and sustainable CivicTech approaches and tools. A key element is deciding whether to explore using an existing open source solution or developing a customized solution. For this pilot, the team took into account the following elements: types of communication and interaction needed on the CivicTech tool, cost and time required to develop it, and uptake. The project identified the Facebook Messenger chatbot as a tool to explore third-party and citizen monitoring of decentralized service delivery and civil works (see box 1).

Box 1. Identification of a Suitable CivicTech Solution for the Pilot

For this CivicTech pilot for third-party and citizen monitoring of decentralized service delivery in Madagascar, the following considerations were made:

- *Built-in chatbot functions.* Chatbots can support very targeted and personalized interactions with users. They use a self-learning process to monitor user interactions and preferences, and adapt their responses accordingly. This allows them to offer relevant services to the user and proactively approach them on a regular basis.
- *Cost and timeframe.* Building new applications, and promoting their uptake, is more costly than building on an existing, popular platform such as Facebook.
- *Why Facebook rather than a customized solution?* Many internet users in developing countries are familiar with the Facebook interface. Sixty-five developing countries worldwide benefit from Facebook's "Free Basics" program. It allows users

equipped with a smartphone to access a range of free basic services, including chats. The majority of their internet users—and particularly those who cannot afford data plans—navigate the internet exclusively through Facebook. This is the case in Madagascar. While a customized solution may provide a more versatile CivicTech application that matches the scope and scale of grant activities in over 1,700 communes, it would run potential risks of higher cost and longer solution development time frames together with uptake challenges.

- *Uptake of CivicTech applications.* Many users in developing countries have limited Wi-Fi connectivity, access to mobile data, and on-board memory, which makes it difficult to introduce and install an entirely new CivicTech application. Users might not see any value in downloading an unfamiliar new app. Evidence suggests that a quarter of all downloaded apps are abandoned after a single use. The already existing user population and uptake were considerations addressed by the project team.

Given the context, mobilizing the user base of the Facebook Messenger chatbot for content generation and diverse engagement on service delivery appeared to be a more convenient way to target participants for third-party monitoring. Users are more familiar with the Facebook interface and more likely to be responsive if asked to download a new app.

Source: World Bank.

Note: There are an estimated 2.4 million Facebook users in Madagascar, out of 2.6 million total active internet users, with a quarterly growth of 4.3 percent in January 2019. For more information see the Digital 2019 Madagascar [website at https://www.slideshare.net/DataReportal/digital-2019-madagascar-january-2019-v01](https://www.slideshare.net/DataReportal/digital-2019-madagascar-january-2019-v01).

ACHIEVEMENTS TO DATE AND CHALLENGES

The CivicTech pilot in Madagascar was rolled out in two phases: (i) development of the chatbot and integration of the issues-tracker function; and (ii) deployment of targeted outreach campaigns on Facebook. The total pilot budget was \$80,000,³ which was supported by the PAPSP and the GGP's Citizen Engagement ASA. Once the product is fully developed, additional deployment of the chatbot in another project is estimated to cost \$10,000 per project.

Under the pilot, the chatbot was prototyped, developed, approved by Facebook⁴ and tested by the client (the Public Sector Reform Unit within the Presidency of the Republic of Madagascar) between May and August 2019. It was implemented in a Facebook page and compatible with Facebook versions on any device, browser, and handset, including on Facebook Free Basics.

The platform supporting the chatbot interacts with the Facebook application program interface to automatically respond to the feedback of end users, i.e., citizens, in real time. End users access the chatbot in the Facebook Messenger app on their smartphones. The interactions take place through text commands or by selecting predefined menu options, and the chatbot answers with text, voice, and visual or audiovisual content. It prompts Facebook users to monitor public works in their area, allowing users to:

- Receive information about public works projects in their area to be monitored (e.g., type of work, cost, timeline);
- Submit information about the status of public works;
- Anonymously report potential irregularities;⁵ and
- Invite other Facebook friends to join the monitoring efforts.

The chatbot provides user-driven interaction flow along a predefined decision tree. Users are walked through the decision tree and can opt into different options, responding to the chatbot by typing text or numeric answers (“I want more info”) or clicking on menu options (“More info”).

³ The total cost includes two contracts for the development of chatbot, the integration of the issues-tracker function, and the deployment of outreach campaigns; a World Bank short-term consultancy; and World Bank staff cost.

⁴ Chatbots must go through an approval process by Facebook to ensure that the chatbot meets the platforms' standards and terms of use.

⁵ Information can also be provided through a hotline that is integrated with the issues-tracker.

A two-week promotion effort in May 2019 used the 3-2-1 hotline to encourage users to receive more information from the PAPSP hotline. More than 46,000 users heard the promotional message, and 83 percent (more than 38,000 users) expressed an interest in receiving a call back from the PAPSP hotline. This overwhelmingly positive response was unexpected and resulted in a budgetary shortfall with so many users to call back. As a result, only a sample of 1,863 call backs were made, of which 40 percent were successful. Of the successful calls, 40 percent asked to speak to an operator. More than half of the users called were between the ages of 18 and 24, and overwhelmingly male (see tables 1 and 2).

Table 1. Feedback from the PAPSP Hotline Promotion, May 15–31, 2019

Feedback		Number	Percentage
Would you like to receive a call back from the PAPSP hotline?	Yes	38,682	83%
	No	7,854	17%
	Total responses	46,536	100%
Call-back statistics	Unsuccessful call (no response)	1,094	59%
	Successful call	769	41%
	Call not completed	470	25%
	Call fully completed	299	16%
	Total	1,863	100%

Table 2. Demographics of Successful Call Backs

Age in Years	Female	Male	Total
18–24	296	720	1,016
25–34	54	201	255
35–44	23	84	107
Over 44	9	34	43
Under 18	138	304	442
Total	520	1,343	1,863

Despite these achievements, the chatbot is not yet entirely operational. Delays were caused initially when the tech team struggled to make information available for the more than 1,700 communes, sometimes with several ongoing or closed projects within the same commune. The off-the-shelf product required further development. In addition, in June 2019, Facebook unexpectedly disabled the “share your location function” for all chatbots, which underlies the commune look-up feature, and allowed users to obtain more information on the PAPSP-funded projects in their vicinity. This complication contributed to delays while the tech team tried to develop alternative proposals to make the look-up feature work.

Once this stage is finalized, the government plans to organize testing and feedback sessions with users and civil society. They will focus on highlighting any context-based improvements in the overall design and deployment of the chatbot as well as highlighting any technical challenges that might prevent the user from having a seamless experience. The tech team will integrate possible adjustments to the chatbot as required based on the participants’ feedback.

LESSONS LEARNED

Six key lessons learned during the implementation of this pilot have important ramifications for replication in other projects and countries.

Creating accountability requires leadership and coordination to close the feedback loop. Transparency through access to information is essential, but not sufficient to achieve accountability. Projects must focus on closing the feedback loop by ensuring the government’s responsiveness to citizens’ concerns through the chatbot or other third-party monitoring tools. Establishing the right institutional framework is key and requires high-level leadership. This can help ensure the allocation of adequate resources to respond to citizens’ concerns. It also signals to civil servants that they are given sufficient latitude to respond transparently to citizens’ feedback. Full or partial outsourcing of services to professional call centers is an option. Coordination with anti-corruption agencies is essential to

follow-up and investigate any allegations or anomalies. This requires allocation of dedicated resources.

Conducting user testing is essential to deploy user centric CivicTech solutions. User testing was done using task scenarios, where users were expected to accomplish specific tasks, in this case requesting information or reporting a case to the authorities. This is only one of a series of tests that should be continued as the tool is refined and released to the wider public. User testing is recommended for future development of any CivicTech solution in different settings. Testing user experience and flow of engagement is essential to create a successful experience for the end user. The design aspects of modifications and user testing should be an ongoing effort, with several iterations to make needed improvements for the overall user-engagement experience. This is particularly important since chatbot experts are not user and content experts, and the government tends to adopt an institutional approach that does not promote uptake of CivicTech initiatives, especially among youth. In addition, it is essential to test the product within the target user's familiar environment, where natural constraints (e.g., connectivity) can be assessed and they will feel comfortable providing candid feedback.

Factoring in the complexity of multiple points of sale is critical to design, plan, and roll out the CivicTech activities. Projects should take into consideration the complexity of designing digital technology with a large number of points of sale. Madagascar's PAPSP targets more than 1,700 communes. The scale—the number of points of sale—was an unexpected challenge for the technical team and generated delays given the off-the-shelf solution initially discussed lacked the capacity to manage such a large volume of information. Such complexities should be factored up-front into project planning and budgeting.

Leveraging a successful point of interaction works but be prepared for the demand. The common practice in the private sector is to use a successful point of interaction with users to promote another service. Yet, this approach is rarely used in the public sector and for

CivicTech in particular. The pilot has demonstrated that this approach can be highly effective, with promotions on the 3-2-1 hotline generating many more calls than initially foreseen. However, they also generated significant subsequent work to respond to the sudden and unexpected demand, for which government was unprepared. When adopting such a mobilization strategy, projects should be ready for the response and sudden rise in demand. Training should be conducted before the launch, and financial and human resources adequately allocated.

Relying on an off-the-shelf CivicTech solution can have drawbacks. While it is most useful to rely on a platform that already has a strong audience such as Facebook, the project should be prepared for possible changes in the policy of the solution provider(s) over which the project has no control. This is the case, for example, with the “share your location” function that was withdrawn by Facebook, which can lead to very costly alternative development. Budget should be allocated during planning for unforeseen development costs.

Allocating the maintenance and update costs up-front can contribute to the sustainability of CivicTech activities. Even with an off-the-shelf solution, digital technology is a living product that should not be considered simply as a capital cost. It also requires recurrent costs for maintenance and constant updating. This is especially the case when leveraging other platforms (such as Facebook) and facing possible changes in policy over which the client has no control. Solutions should be considered during project planning and budgeting for the financing of recurrent costs to ensure sustainability.

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