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RESEARCH REPORT

A GRAND CHALLENGE  
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# Doing Digital Development Differently: lessons in adaptive management from technology for governance initiatives in Kenya

Empowered  
people

Continuous  
improvement

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# Summary

Development projects don't always work as planned. This has long been acknowledged by those in the sector, and has led to several approaches that seek to solve complex development problems through enabling and encouraging greater adaptiveness and learning within projects (e.g. Doing Development Differently and Problem-Driven Iterative Adaptation).

Digital development projects experience many of these issues. Using technology for transparency and accountability (Tech4T&A) projects in Kenya as case studies, our research analysed the many different theoretical approaches to learning and adaptation, and then tested how these play out in reality.

Firstly, we conducted an extensive review of the literature on the spectrum of approaches to adaptive learning. The findings were used to develop a framework through which to analyse adaptiveness at the different layers of complexity in projects (e.g. software design and development, programme design and management).

The second part of the research consisted of interviews and focus group discussions with participants in Tech4T&A projects in Kenya. Respondents helped us identify the main characteristics of adaptiveness in their projects (e.g. who needs to adapt, and how and when) and the challenges and issues that inhibit projects' abilities to be adaptive. This process also revealed how accountability interplays with adaptiveness, and considered how better collaboration flows can enable adaptiveness.

From our literature review and empirical study, we draw several conclusions for increasing adaptiveness in digital development projects. These include simplifying the many adaptive theories that abound, increasing responsiveness to project beneficiaries and stakeholders, and for stakeholders to keep on experimenting, networking and advocating.

## Key themes

- Learning in accountable governance programming
- Implementing ICT-enabled approaches to transparency and accountability in Kenya
- The spectrum of approaches to adaptive learning to solve complex problems

*“We are what we do, especially what we do to change what we are.”*

*Eduardo Galeano (1978), Days and Nights of Love and War*

# 1. Introduction

The concept of adaptiveness refers to the capacity of an intervention to adapt to changes happening in the context where it operates, or when planned actions do not lead to the expected effect. Adaptiveness requires flexibility, reflectiveness and the capacity to learn and, even more importantly, ‘unlearn’ what no longer works.

The environments in which development institutions operate are among the most complex, dynamic and unpredictable that can be imagined, involving many different agents that interact with each other and respond to interventions in different ways (Burns and Worsley 2015; Kleinfeld 2015; Ramalingam, Jones, Reba and Young 2008). They therefore demand an extraordinary adaptive capacity, both in the short term and in the longer, more strategic term that is required to achieve institutional changes. However, the corporate culture, organisational structures, operating procedures and behavioural incentives of the aid industry typically favour a logic of bureaucratic control and predictability. As a result, development programmes are frequently planned and executed in a linear, technocratic and rigid way (Ramalingam 2014; Natsios 2010).

Practitioners and researchers in the fields of governance, environment and market systems have advocated for decades for more adaptive approaches in development, in which strategies are tried out locally and then adjusted based on early evidence (Byrne, Sparkman and Fowler 2016; Whaites, Gonzalez, Fyson and Teskey 2015; McLain and Lee 1996). They have promoted a progressive incorporation of political economy analysis as part of programming, and provided tools, frameworks and initiatives aimed at improving the effectiveness of aid, with such evocative names as Thinking and Working Politically, Doing Development Differently, Problem-Driven Iterative Adaptation, Collaborating-Learning-Adapting and Science of Delivery, among others (Andrews, Pritchett and Woolcock 2017; Learning Lab 2016a; ODI 2016; Gonzalez Asis and Woolcock 2015).

Recent years have seen an increased recognition in development policy of the need for solutions based on incremental and adaptive efforts supported by strong learning feedback loops, rather than a reliance on purely technocratic and predictive approaches (Wetterberg, Brinkerhoff and Hertz 2016). Many multilateral and bilateral organisations, including the United States Agency for International Development

(USAID), the UK Department for International Development (DFID) and the World Bank, as well as development non-governmental organisations (NGOs), research institutions and foundations, are now experimenting with adaptive approaches in their programmes, and attempting to implement internal reforms to create an enabling environment for adaptive programmes (Vowles 2013). But changing development’s long-established bureaucratic structures and habits is hard, and in order to become mainstream, adaptive approaches will have to clearly demonstrate their efficacy (World Bank 2017).

In parallel, practitioners in the field of information and communications technology for development (ICT4D) – which uses technology to support international development work – have been championing the adoption of agile and adaptive mindsets, which in the last 20 years transformed the software development industry, dramatically increasing its capacity to deliver successful projects within time and on budget. ICT4D practitioners have not only tried to adopt these methods, but have also started to adapt them to challenging development contexts (Waugaman 2016).

While the fields of governance and ICT4D might seem quite different, they are both characterised by high complexity and dynamism, and thus might potentially benefit from similar adaptive treatments. For example, both the signatories of the Doing Development Differently manifesto and endorsers of the ‘Principles for Digital Development’ emphasise the importance of creating local solutions that are sensitive to their political and socio-cultural contexts, and are developed through intense collaboration and rapid cycles of planning, action and reflection, while managing risks by means of incremental improvements and making sure that local actors are constantly involved.

The field of technology for transparency and accountability (Tech4T&A), which uses technology to enable citizen engagement and government responsiveness, sits at the intersection of ICT4D and governance. This field offers an exceptional perspective for the study of adaptiveness, as Tech4T&A projects must confront, at the same time, the complexities linked to technological innovation and those linked to accountable governance, amid very challenging development settings – a baseline difficulty that gets further aggravated by the rigidities and short timelines

often associated with development programmes (Fox and Halloran 2016).

Tech4T&A initiatives are frequently afflicted by a ‘design–reality gap’ (Heeks 2002), meaning that there are often significant mismatches between the project’s assumptions about the potential for technology to improve governance, and the contextually specific social, cultural and political factors that condition their development and use (Joshi 2014; McGee and Carlitz 2013). As a result, Tech4T&A initiatives are forced to adapt at different levels and moments – such as software development, solution delivery or project implementation – when their various ‘knowledge gaps’ and issues become apparent during the lifetime of the initiative. All in all, Tech4T&A initiatives too often promote dysfunctional interventions that have little impact compared with their ambitious political transformation goals (de Lanerolle, Walker and Kinney 2016).

This research aims to contribute to a better understanding of the role that adaptiveness and contextual embedding play in the performance of Tech4T&A initiatives. To identify the drivers that encourage adaptiveness and the barriers and challenges that make it difficult, we analysed the stories of adaptation and learning from a series of Tech4T&A projects in Kenya. This covered projects and

organisations from a range of sectors, including health, education, security and justice, whose approaches to transparency and accountability (T&A) included diverse forms of citizen engagement, anti-corruption, citizen-generated data, citizen journalism, open government initiatives and mapping. By reflecting on the perspectives and frustrations of those working on the ground, we aim to enrich current debates on adaptiveness and development. The evaluation of their adaptive practices, informed by an interdisciplinary literature review on development, complexity and adaptiveness, seeks to expose better approaches to facilitate strategic adaptiveness in Tech4T&A programmes.

This research report is structured as follows. Section 2 provides the background to the study and the research questions and objectives which motivated our methodological choices. Section 3 presents the methodology and research process followed to gather and analyse the Tech4T&A initiatives. Section 4 summarises findings from our review of the complexity and adaptiveness literature, which we used to develop an analytical framework that informed our subsequent analysis of the primary and secondary data. Section 5 presents and discusses the findings from the fieldwork, and Section 6 draws together implications and recommendations for organisations active in the field of adaptive development and Tech4T&A.

## 2. Background to the study and research questions

Making All Voices Count is a development fund launched in 2013 to support the piloting and scaling-up of promising innovations that use technology to promote responsive and accountable governance. It is an innovative programme explicitly designed to take into account existing evidence, which warns against a tendency by Tech4T&A initiatives to be driven by weak theories of change, untested assumptions, pervasive techno-optimistic hype and buzzwords (McGee and Edwards 2016). For this reason, Making All Voices Count supports capacity-building and reflective learning for the organisations and projects involved in the programme, and funds applied research to extend the evidence base on what works and what does not (Brock and McGee 2017; Brock, Shutt and Ashlin 2016; Edwards, Brock and McGee 2016).

As part of this effort, the Digital and Technology research group at the Institute of Development Studies (IDS) received a Making All Voices Count research grant to investigate the effect of adaptiveness on the

performance of Tech4T&A initiatives, considering the different kinds of challenges – technical, managerial, political – that these initiatives face. Adaptive management and learning are generally considered beneficial for Tech4T&A initiatives and programmes (McGee and Carlitz 2013), as they promote reflexivity and an early recognition of issues. But does this awareness translate into real changes in the ways projects are designed and implemented? Our research aimed to verify the extent to which adaptiveness is present in Tech4T&A projects, and investigate its drivers and barriers as perceived by practitioners.

Our research was inspired by IDS’s commitment to ‘engaged excellence’ (Leach, Gaventa and Oswald 2017), which influenced a series of fundamental research choices. Firstly, our research had an *interdisciplinary* character. Taking advantage of the mixed socio-technical nature of the Tech4T&A domain, we have striven to combine the reflections and evidence gathered by development practitioners



and researchers over the decades, with concepts and advice arising from other relevant domains, such as complexity science and software development. This is important because, as previously noted, the evidence available is not generating enough changes in the practices of programme design and implementation.

As Ramalingam (2016) has argued, bringing different adaptive movements together to create common frameworks could support the wider dissemination of adaptive development. As part of our research, we analysed the literature describing various existing adaptive frameworks (see Section 4), highlighting their most fundamental and promising elements. We then integrated these into an analytical framework which articulates key adaptive principles across the various layers of complexity, and the different stages involved in Tech4T&A projects. This analytical framework attempts to tackle the conceptual vagueness that afflicts the adaptive development field. It also helped us to read into the reflections that Tech4T&A practitioners shared with us through the interviews (see Section 5).

Secondly, our research strategy had a *bottom-up* character. We sought out and analysed the views and knowledge of those involved in Tech4T&A initiatives, from users and software developers, through grantees and public workers, to project and programme officers. Each of these groups has valuable experience of what enables adaptiveness in their projects and what discourages it. Although our analytical framework and the concepts derived from the literature review informed our analysis of the primary sources, we explicitly configured the fieldwork and interactions with our informants in a way that provided ample space for emerging topics and questioning to be raised. The bottom-up approach has enabled us to contrast normative adaptive principles with the realities experienced in actual projects, thus obtaining a better, more down-to-earth understanding of adaptiveness in Tech4T&A initiatives. By collecting and voicing the

perspectives, hopes and frustrations of those working on the ground, we aim to widen current discussions on adaptiveness and development, as well as increase their practical relevance.

Our fieldwork investigated a number of Tech4T&A projects in Kenya, examining the extent to which the underlying social, cultural and political dynamics are taken into account and how such considerations are operationalised in practice. We aimed to understand the advantages, weaknesses and enabling and disabling factors for using adaptive principles in Tech4T&A efforts, and the potential to improve its use in the future. Through a combination of semi-structured interviews, group discussions and desk research of project documentation and deliverables, we explored the following questions:

- How do Tech4T&A initiatives in Kenya adapt and respond to their social, cultural and political contexts?
- What challenges and opportunities do they typically need to adapt to, at the different layers of complexity their work involves, from the more technical to the more programmatic?
- What are the management styles in Tech4T&A initiatives and programmes, and how do they affect the adaptive capacity of projects and organisations?
- What are the effects of adaptiveness on the performance of the projects and the realisation of their goals?
- How are different layers of adaptiveness interrelated? What is the potential for mutual support and learning between them?

These questions were used indirectly to design a semi-structured interview protocol and group discussion guides for the field research, and directly to analyse data from both primary and secondary sources.

## 3. Methodology and research approach

Our research design aimed to understand the adaptiveness in Tech4T&A projects in Kenya, both projects supported by Making All Voices Count and projects with other funding sources. We took an inductive approach to understand the adaptations that occurred during the life cycles of projects. The research was carried out in two phases: desk research and case selection, then fieldwork with Tech4T&A practitioners in Kenya.

### 3.1 Desk research and case selection

Through a review of the literature on adaptiveness, supplemented by informal conversations with key experts and practitioners in the Tech4T&A field, we developed an analytical framework which articulates key adaptive principles across the various layers of complexity, and the different stages involved in

Tech4T&A projects: from the conceptual design of the project and the creation of its technical components, to the project implementation and the wider programme management. The aims of this framework were to:

- inform our analysis of the primary and secondary data
- tackle the conceptual vagueness in the adaptive development field
- serve as the theoretical starting point for the field research
- inform the fieldwork case study selection
- help us read into the reflections shared through the fieldwork interviews.

Kenya was chosen because it is a Making All Voices Count target country, and because it has a diverse and mature Tech4T&A ecosystem and a vibrant technology community. The country has a significant number of international NGOs, NGOs, local civil society organisations (CSOs), as well as a vibrant technology sector. A new constitution, passed in 2010, established a two-tiered system of government with 47 counties (IBP 2017). This devolution of government responsibilities, together with the publication of an Access to Information Act (Republic of Kenya 2016), has created a fertile environment for Tech4T&A initiatives.

The new laws have not necessarily improved Kenya's governance challenges; as one of our interviewees explained, the devolution process might have led to a 'decentralisation of corruption' more than improved accountability. And attempts to apply technology to support governance and citizen engagement have not yet delivered significant results (Salome 2016), a situation which is applicable to the wider African context (de Lanerolle 2017).

Nevertheless, Kenya offered the opportunity to explore very different projects and organisations working on a range of issues. We included non-Making All Voices Count projects to be able to observe various models of project funding and monitoring and evaluation, beyond the Making All Voices Count approaches.

The selection of cases for interviews and workshop resulted from the following process:

- an initial review of case study documentation, including project proposals, monitoring and evaluation reports, project deliverables and information found on project websites
- Internet searches for additional information on the projects and the tools they created or used
- email communication to check availability for visits and interviews with key project staff, users of the technology and wider project stakeholders.

### 3.2 Fieldwork

Using the analytical framework developed through the literature review (see Section 3.1 and Section 4), in December 2016, two researchers conducted semi-structured interviews with 35 people working on 24 different projects, 18 of which were funded by Making All Voices Count. These initiatives operate in various regions of Kenya and focus on different arenas and sectors, from tracking medical supplies, through participatory budgeting and collecting community-based poverty data, to 'hackathons' to address public service problems. Table 1 lists the themes covered by these projects.

**Table 1. Themes covered by the projects studied**

Project themes	No. projects
Citizen engagement	14
Accountability	12
Local government	9
Inclusion	8
Tools for administration	7
Health	6
Budgeting	5
Citizen generated data	5
Digital literacy	5
Security and justice	4
Open data	4
Research	3
Youth	3
Women	3
Education	3
Mapping	3
Journalism	3
Anti-corruption	2
Crowdsourcing challenges	2
Environment	1

The projects analysed involved a wide range of technologies aiming to influence diverse accountability processes around governance and service delivery. The projects were at different stages of completion, and the organisations involved included large international organisations, social start-ups, and organisations with distinct degrees of technical and social expertise. All projects involved interactions with a distinct cohort



of partners, government and community actors. The initiatives' strategies and theories of action were also diverse, encompassing most of the pathways to tech-enabled change that have been identified by the Making All Voices Count programme (Brock and McGee 2017).

We interviewed people working in various roles in the initiatives. They were mostly programme and project managers, but included developers, designers, government officers and representatives of participating communities. We held additional conversations with researchers and representatives from donors and Making All Voices Count implementing organisations. Table 2 shows the position occupied by the interviewees and their degree of proximity with the contexts where the initiatives take place (i.e. if the interviewees are locals, nationals or foreigners in relation to their initiative's location).

### Research process

We carried out the interviews anonymously, on the understanding that we wanted respondents to speak frankly about their experiences with funders and potentially negative project experiences without risking reputational damage. The interviews were semi-structured and revolved around the projects' 'most significant turning points': the stories of the project's most critical adaptation and learning episodes. The goal was to enable respondents to describe, in their own terms and based on their own experiences, what they consider adaptiveness, what favours it, what makes it difficult and what its effects are.

Using our significant turning points diagram as a prompt, we asked them to identify critical adaptive moments during the development of their initiatives, starting from the most recent to the oldest. For each turning point, we enquired about the causes of the adaptation, the actors involved, the implications, the

actions they took and the learning extracted. Our interviews frequently evolved into conversations that reflected on the role and importance of adaptiveness for a project's success.

The protocol used for these interviews was highly successful, yielding rich reflections from interviewees, characterised by a high degree of insight and consideration.<sup>1</sup> To triangulate the views on adaptiveness, we conducted separate interviews with people working in different roles, such as technology development and project management. This provided a range of perspectives and data, and illuminated the divides between the different complexity layers in any given project.

The in-country research and learning workshop was designed as a networking and collective learning opportunity for Tech4T&A practitioners, and enabled us to validate our initial understanding of the data collected from interviews (Torrance 2012). The researchers played a facilitating role, aiming to learn from and with the participants, in a workshop dedicated to the exchange of stories and experiences, building on the knowledge of the participants to explore participants' 'stories of change' collectively, identifying and discussing the most transformative ones to reflect on the challenges that make adaptiveness and learning difficult.

The research design was grounded in practitioners' capacities and knowledge, and was informed by recent studies which leverage practitioner experience to identify key issues (Byrne *et al.* 2016; Ross 2015) or document initiatives' learning journeys (Andrews *et al.* 2017; Gilberds 2017; Internews 2017).

In policy research, it is important to consider the position of the researchers in relation to donors and agencies, as "who is doing the research is a

**Table 2. Interviewees' roles and proximity with context**

Project role	No. interviewees	Local / national / non-national (%)
Programme manager	18	22 / 56 / 22
Project manager	8	6 / 94 / 0
Designer / software developer	4	0 / 100 / 0
Community representative	1	100 / 0 / 0
Government / administration	4	100 / 0 / 0
Expert / independent researcher	3	0 / 33 / 67
Making All Voices Count programme implementer	5	0 / 40 / 60
Donor	2	0 / 0 / 100

<sup>1</sup> Further details of this are published as an annex (Prieto Martin and Faith 2017) which is available online: [www.academia.edu/34704208](http://www.academia.edu/34704208)

political question which affects how the research can be done and how the results are likely to be utilized” (Thomas, Chataway and Wuyts 1998: 6). Our position as researchers affiliated with, but not directly representative of the Making All Voices Count programme team, was a strength of the research. Our connection with Making All Voices Count provided contact with ‘gatekeepers’ who were able to contact respondents. Given that a goal of the research was to explore processes of change in project design, it was important that we were able to have frank exchanges with respondents. Anonymity and a perception of

distance from Making All Voices Count meant that respondents felt comfortable discussing problems with projects, and conflicts and dissatisfaction with donors.

These experiences are often at odds with the official narratives that grantees may feel obliged to include in donor reports. It is this dissonance between the adaptations made in the complex and unpredictable environments people are working in, and the narrative given to donors for monitoring and evaluation processes, that strikes at the heart of the need for adaptiveness.

## 4. Findings from the literature

Adaptive development ideas are probably as old as the entire field of development. As far back as 1967, Hirschman’s seminal book, *Development Projects Observed*, recognised that development projects are characterised by a high degree of initial ignorance and uncertainty. He argued that the more a project is “enmeshed with nature” (p.42) and people, the more it tends to run into unplanned troubles. This means that the process of project implementation often involves “a long voyage of discovery in the most varied domains, from technology to politics” (p.35), which necessarily brings it beyond the original plans and assumptions. Hirschman also placed a strong emphasis on the importance of pilot projects, and recognised the need to adapt standard solutions to the difficult circumstances of the underdeveloped countries where projects take place.

Rondinelli’s *Development Projects as Policy Experiments* (1983) called attention to the need for continuous testing and verification within development projects, in order for them to cope effectively with the uncertainty and complexity of development processes. Rondinelli argued that the insistence of funding organisations on precise and detailed statements of objectives at the outset (e.g. to facilitate systematic planning, management and control) often leads to game-playing, phony precision and inaccurate reporting that create severe problems later. Rondinelli also advocated for strategic planning and administrative procedures that facilitate innovation, responsiveness and experimentation, as well as decision-making processes that join learning with action and increase the capacity to seize local opportunities to achieve a project’s purposes, or even to modify its goals to reflect changing or unanticipated conditions.

Korten (1980) provided another influential critique of the prevailing blueprint approach to development programming. In his examination of several development programmes in Asia, he showed that

the key to success “was not preplanning, but an organization with a capacity for embracing error, learning with the people, and building new knowledge and institutional capacity through action” (p.480). He also pointed out the need for programmes to develop different learning capacities as they evolve.

Chambers (1983, 1997, 2006, 2010, 2014) provides further critical perspectives about perceptual biases (Schoemaker and Day 2009) and dysfunctional institutional processes within the development sector, which tend to distort reality and frequently lead to misdirected actions. Chambers has consistently argued for higher levels of self-critical awareness, alternative appraisal methods that combine rigour and inclusiveness, and learning processes aimed at correcting errors as soon as experience reveals them.

In particular, the development sector’s reporting, monitoring and evaluation practices need to be improved (Ørnamark 2016; Chambers 2015; Shutt and McGee 2013), as it is becoming clear that their traditional focus on funders’ accountability needs (Ebrahim 2005) has limited the capacity to learn and adjust, which is required by implementers and users of development interventions (Reinertsen, Bjørkdahl and McNeill 2017; Kolker and Kulldorff 2013). New forms of monitoring and evaluation, which satisfy donors’ oversight needs – guaranteeing the good use of resources and operational excellence – but also provide accountability for learning and adaptiveness are increasingly being demanded (Ørnamark 2016; Valters, Cummings and Hamish 2016; Kleinfeld 2015).

Yet while the literature has pointed out the need to work in different ways, and suggested alternative approaches, translating evidence and knowledge into enhanced practices is never quick and easy; transformative ideas may ‘stew’ for decades before their times arrives. For decades, the development sector has been dominated by a paradigm based on rigid designs and centrally controlled management

procedures that aim to guarantee control and accountability (Ramalingam 2014). But recently, and partly inspired by the success of 'lean' management approaches in the private sector, the field of adaptive management has become popular, with frequent new reports, case studies and reflections, together with programmes and initiatives that experiment with its application. During the time frame of this project, the research team consulted and categorised more than 550 resources related to Tech4T&A, adaptive development and related fields.<sup>2</sup> Influential donors and development organisations are introducing adaptive management principles in their policy and guidance, thus recognising alternative approaches to doing development differently (Wild, Booth and Valters 2017).

It is therefore unsurprising that several of the development practitioners we interviewed referred to adaptive programming as something that "just makes sense". Yet being adaptive is still a challenge for development organisations, which are "talking the talk [of adaptiveness] but struggle to walk the walk" (ODI 2016: 6). This partly stems from the conceptual complexity that surrounds the new paradigm (Shutt 2016), with a range of adaptive frameworks being promoted by different actors, and many terms and concepts being used for similar ideas.

Our desk research aimed to link the different domains underpinning this conceptual complexity. We initially explored T&A literature to focus our research questions. Then, we carried out an interdisciplinary scan of resources on adaptiveness, looking not only at development sources but other sectors which have engaged with these ideas (e.g. design, software development, complexity thinking and logistics).<sup>3</sup> We aimed to integrate their most important concepts and practices, and relate them to the narratives we heard. Through this approach, we distilled a set of essential components of adaptiveness which provide us with lenses through which to see the realities involved in the design and implementation of Tech4T&A initiatives and programmes.

## 4.1 Learning in and on Tech4T&A programming

Over the last decade, several studies and programmes have assessed the problems associated with T&A initiatives, paying special attention to the role of ICTs in supporting them and considering the specific challenges linked to accountability in developing countries (Civic Innovation Accelerator Fund 2016; Wetterberg *et al.* 2016; McGee and Carlitz 2013; McGee and Gaventa 2011; Avila, Feigenblatt, Heacock and Heller 2010).

These challenges and difficulties affect initiatives and programmes at different levels, from their conceptual design to their implementation and evaluation. For example, McGee and Gaventa (2011) conclude that T&A initiatives are frequently designed without due attention to their underpinning theories of change, leading to a dependence on unrealistic expectations and unfounded assumptions which severely limit their effectiveness and impact. They also identified fundamental contradictions between the prevalent results-based mindset in the development aid arena and the messy, non-linear nature of governance programmes, which call for collaboration among diverse coalitions of stakeholders over long periods of time.

These problems become aggravated in Tech4T&A initiatives, where technological components are the key to success. Toyama (2015) argues that there are negative effects associated with the hype and haste that accompany technological developments, and the tendency to overvalue the capacity of technology to solve social problems. In fact, rather than simplifying matters, technologies frequently add complexity and unrealistic expectations to already difficult governance interventions (Smit, de Lanerolle, Braam, Byrne and Legong 2017).

Some of the main factors that make technological initiatives prone to fail are (Haikin and Flatters 2017; Crowley and Ryan 2013):

- a lack of technological knowledge among development organisations
- persistent misunderstanding of the needs and behaviours of intended users
- the fast pace of technological change
- perverse incentives associated with technology funding programmes that are frequently dominated by hype and short-termism
- difficulties in sustaining and scaling contextually appropriate solutions.

In recent years, there have been important efforts to analyse Tech4T&A experiences and derive useful learning about how to better design, implement and evaluate these initiatives (Civic Innovation Accelerator Fund 2016; McGee and Carlitz 2013; Shutt and McGee 2013). Recent research on the wider field of innovation for development provides further relevant insights for Tech4T&A programmes (Vogel, Minkley and Chowdhury 2017; Ramalingam and Bound 2016; McClure and Gray 2015; Ramalingam, Rush, Bessant, Marshall, Gray, Hoffman, Bayley, Gray and Warren 2015). There is now more compelling evidence than ever before about how

<sup>2</sup> Accessible at our research group's Zotero library: <http://bit.ly/adaptdev-library-ids>

<sup>3</sup> This review does not aim to cover all these disciplines in depth; rather, our goal is to bridge the different domains, clarifying and connecting their most essential ideas on adaptiveness while providing references for interested readers to explore them further.

to design Tech4T&A initiatives in ways that increase the chances of achieving government responsiveness. This knowledge has certainly influenced funding decisions, research agendas and practice. However, even basic insights, which have been available for years, have failed to shape contemporary practice: the same mistakes tend to be repeated in recent Tech4T&A initiatives and programmes (McGee and Edwards 2016).

This points to a gap between the generators and users of evidence and, to some extent, suggests a need to rethink the way in which researchers and academia deliver evidence to the practitioners who design and implement initiatives and to the institutions that fund them (Georgalakis, Jessani, Oranje and Ramalingam 2017). Just as Tech4T&A practitioners need to stop thinking that 'if you built it, users will come' and try to understand the capacities and needs of their intended users, researchers need to stop thinking that 'if you publish it, evidence will be acknowledged and acted upon'.

In fact, recognising the existence of a problem does not necessarily mean it can be satisfactorily handled. If the structural conditions and power dynamics that underlie the problem remain in place, limiting the capacity of practitioners and donors to react to the evidence, it will tend to be ignored. It has been argued, for example, that Tech4T&A practitioners should invest more time in validating their projects' assumptions and theories of change (McGee and Edwards 2016), but if funding keeps favouring hype-based short-term pilots, practitioners are confronted with contradictory demands which discourage the desired changes. Thus, beyond identifying issues and providing recommendations, researchers and other generators of evidence need to develop strategies that promote the wider uptake and utility of evidence (Breckon and Dodson 2016).

To some extent, this is starting to happen. Programmes like Making All Voices Count, with its extensive integrated research component (Brock *et al.* 2016; Edwards *et al.* 2016), provide opportunities for reflective learning, mentoring and experience exchanges among the initiatives that they fund (Ross 2015). In some cases, research outcomes have been turned into practical tools for designers of Tech4T&A initiatives as a way to maximise impact. For example, research on technology adoption (de Lanerolle *et al.* 2016) has been transformed into 'Alidade.tech', an interactive selection tool; and IDEO, the Omidyar Group and the Harvard Kennedy School have prepared teaching materials and organised massive open online courses to facilitate the practical acquisition of knowledge on Design Thinking, Systems Practice and Problem-Driven Iterative Adaptation, respectively (Andrews, Pritchett *et al.* 2017; Omidyar Group 2017; Samji 2017; IDEO 2015).

Among their proposals to improve the effectiveness of Tech4T&A programmes, McGee and Carlitz (2013) recommended adaptive programme management approaches, which promote the capability of practitioners and programme implementers to constantly gather, interpret and use different kinds of knowledge – contextual, evaluative and evidential (see Box 1) – to increase the impact of interventions (Ramalingam 2016). This research explores different ways to make adaptiveness work:

- Through its interdisciplinary approach, it studies other adaptive movements which were successful in evolving the practices of entire industries.
- Through its bottom-up approach, it recognises practitioners' knowledge about the problems they face and how to tackle them as our starting point to reflect on how to further promote adaptiveness.

The following sections summarise the findings from our literature review on complexity and adaptive approaches relevant for Tech4T&A initiatives.

## 4.2 Adaptiveness in different complexity layers in Tech4T&A initiatives

In our research, we identified several levels where adaptiveness is required. Figure 1 illustrates complexity layers, which relate to the increasingly complex domains of action that are typically present in Tech4T&A projects in developing countries:

- *Software design and development*: the creation of software systems that provide real value to the people, organisations and communities that will use or be affected by them.
- *Solution design and delivery*: integration of the software systems into wider technologies, services and processes that are suited to their contexts and make a difference in them.
- *Project design and implementation*: the management and execution of project activities, collaborating effectively with partners and stakeholders to bring the technology into use in a way that realises the desired impacts.
- *Programme design and management*: development programmes normally involve a variety of related interventions and projects, which collectively aim to influence a wider thematic ecosystem with a longer-term perspective. However, since our research focused on the perspectives of those working at the project level, this complexity layer was primarily assessed as the effort to maintain project alignment with the wider programmes that support them, fulfilling all requirements prescribed by the programme's management and, potentially,

### Box 1. Different types of learning for adaptiveness

The fundamental notion underlying adaptiveness is simple: to achieve a positive impact in an ever-changing world, you need to constantly reflect and learn from the evidence emerging at three levels (Brock *et al.* 2016):

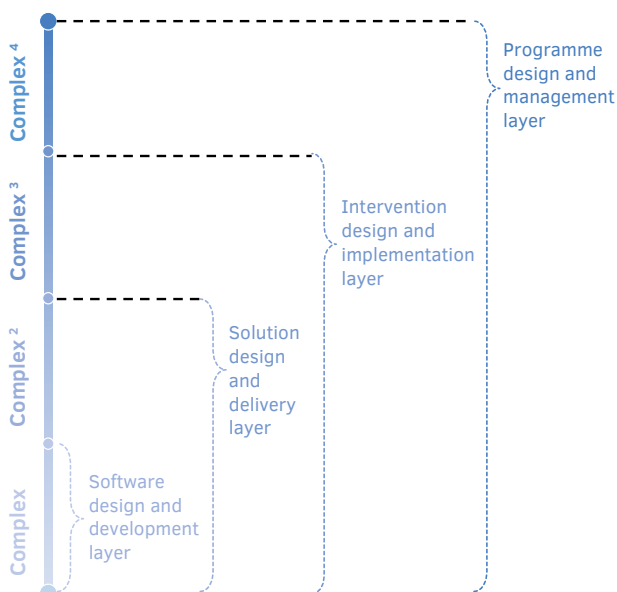
1. *Contextual learning*: you need to identify and react to changes happening in the environments where you operate, as these contextual changes may render your planned actions useless, or may offer unexpected opportunities which your initiative could exploit.
2. *Evaluative learning*: you need to evaluate the performance of your activities regularly, as well as the validity of the assumptions and theories of change that underpin them, evaluating the extent to which they contribute to your aims. If they do not have the effect you expected, there is a need to improve or replace them.
3. *Evidential learning*: you need to incorporate evidence and knowledge generated outside the project and its context. This evidence could, for example, emerge from general academic research in the field or learning from similar projects, or relate to insights and knowledge provided by one of your partners or donors.

contributing to changes and adaptations to the programme.

Each layer involves different activities, challenges and time frames, and thus demands distinct adaptations from the various actors involved. Adaptiveness in each layer refers not only to small-scale course correction or tactical adjustments within an established strategy, but also to a critical questioning of the theories of change guiding the strategies at each layer.

In the following sections, we present several adaptive frameworks proposed in the literature for each of these layers, taken from the concepts of Agile Software Development and Design Thinking to Problem-Driven Iterative Adaptation and Adaptive Programming.

**Figure 1. Complexity layers in Tech4T&A initiatives**



Source: Author's own

Interestingly, all the adaptive frameworks include three complementary dimensions:

- a *mindset* of values and principles that guide the comprehension of complexity and help to make sense of the struggle to learn and adapt in a given context, demanding a continuous reassessment of the organisational processes and systems used, and of the aims and assumptions that motivate the initiatives
- a *general method* for engaging with the challenges, envisioning compelling responses and implementing them by means of a series of processes and practices
- a *collection of techniques and tools* to be used, as required, as part of the struggle to advance solutions and keep improving them.

Our aim is not to describe the frameworks exhaustively, but to link them in a way that exposes their shared ground and identifies the elements that need to be taken into account when operationalising adaptiveness across the layers. The resulting adaptive principles could then be used to evaluate the adaptive capacity of the Tech4T&A initiatives analysed in our fieldwork. An increased awareness of the similarities existing across the layers could additionally facilitate better alignment and cooperation among those managing Tech4T&A initiatives and programmes.

#### **Adaptiveness in software design and development: agile methods and the Scrum framework**

Agile and adaptive approaches for software development (Sutherland 2014; Agile Alliance 2001; Highsmith 2000) have been in use for more than 20 years and are credited with improving the performance of the software industry, an industry infamous for its very high failure rate and high cost and time overruns (Standish Group



2015; Flyvbjerg and Budzier 2011). Agile principles and methods have been validated and refined over time, and have been applied to many other domains, including project management, product development, policy-making, enterprise management and international development (Schlatmann 2017; Faustino and Booth 2014; Haikin 2013; Highsmith 2009).

When agile methodologies started to gain momentum, the software industry was, to some extent, analogous to the current state of international development. Project planning and management adhered to engineering-inspired models, which were good for building bridges but could not match the growing complexity of software development. The dominant 'Waterfall' model (Royce 1970) assumed that most requirements and activities had to be defined up front and proceed through a pre-established sequence of phases. But thanks to the invention of the personal computer and the Internet, computer software was increasingly used in more places, to do more things, by more diverse people and it was no longer possible for a software project to predict in advance what exactly had to be built or how to do it.

To tackle this, a series of lightweight, iterative and adaptive methodologies emerged (Sutherland 1995; Boehm 1988) that promoted tighter collaboration and teamwork, greater involvement of stakeholders, frequent and early delivery of usable code to users, and reflective improvement through short feedback loops that aimed to mitigate projects' risks. The famed 'fail fast' adage is often misinterpreted by international development practitioners; it should be understood as 'learn early, fail less', a commitment to recognise potential problems while it is still possible to address them effectively.

In 2001, a group of leading software experts released the Agile Manifesto, which provided a series of principles for software development and declared that effective teamwork, collaborating with customers, delivering working solutions and responding to user feedback are of greater importance than negotiating contracts, detailing documentation and following plans (Agile Alliance 2001). Various iterative delivery frameworks were grouped under the term 'agile methodologies', which nowadays comprises a rich variety of development methods and an even greater number of supporting practices and concepts (Agile Alliance 2015; Smith 2015), many of which have become best practice in software engineering. Several agile values are especially relevant for this research:

- *small, cross-functional, self-organising, creative and collocated teams* as the essential unit of project delivery
- *extreme collaboration and transparency* within the team and with the customer, supported by tools and

processes that provide everybody with visibility of progress and enable direct, honest and fast feedback

- *small steps* that enable the early, incremental and iterative delivery of business value to minimise risks and inform continuous learning
- reducing *non-value adding waste and bureaucracy*, challenging anything that gets in the way of delivery, with management deployed to support, not to govern
- *simple tools and processes* which are accessible for newcomers and keep evolving as a result of teams' learning.

Agile methods thus recognise that things change along the way: it is not possible to predefine the final objectives or how they will be achieved. Relying on 'obliquity' (Kay 2010), these methods assume that the results will follow from good learning (van Veen and Rijper 2017) and focus on maximising the team's ability to deliver quickly, respond to emerging requirements, anticipate risks and adapt to changes. Instead of a detailed map for the whole trip, agile methods provide a compass that suggests the best direction to follow at each moment. Goals, strategies and high-level plans are established in consonance with the best available data and insights at a given moment, but they are also subject to critical examination based on accrued learning.

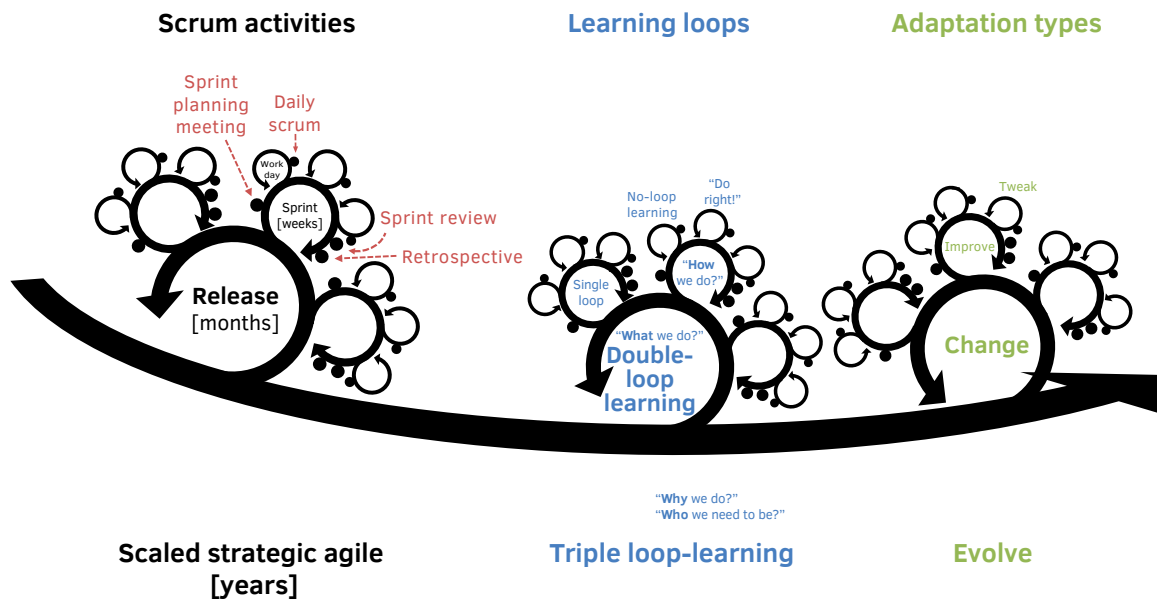
The most widely used agile framework is Scrum, a name borrowed from rugby to refer to a development team that works as a unit to reach a common goal (Schwaber and Sutherland 2016). In Scrum, small, collocated and multi-functional teams – which always include a 'product owner' that represents the product's stakeholders and the voice of the customer – work in fix-length iterations (called sprints) to develop the solution incrementally. The framework defines different roles, practices, meetings and tools, for example the Scrum coach, retrospectives, daily stand-ups, backlogs, user stories or task boards. Scrum's main objective is to guide a team towards continuous improvement, by enabling it to look closely at itself regularly – its interactions, processes and strategies – and collectively ask: 'How can we do what we do better?' (Sutherland 2014).

It is relevant to note the relationship between the Scrum feedback cycles, and the different kinds of adaptiveness and learning loops they promote among the people and organisations involved in a project (Valters *et al.* 2016; Ramalingam, Scriven and Foley 2009). As Figure 2 illustrates, Scrum methodology encourages different kinds of learning (Ørnamark 2016; Argyris and Schon 1978) at different time frames:

- By means of the 'daily Scrum' meeting, a constant micro-adjustment of the team's interactions and



Figure 2. Learning loops and adaptiveness types in Scrum



Source: Author's own

activities happens, which fixes small operational and coordination issues to keep the work flowing.

- After each Sprint, by means of the 'Sprint Review', 'Sprint Retrospective' and the subsequent 'Sprint Planning' meetings, a reflective improvement of a project's working practices and results happens. This kind of single-loop learning focuses on 'improvement', and answers the question: 'Are we doing things right?'
- Among releases, Scrum enables a deeper reflective questioning of the assumptions, theories of change, strategies and organisational processes. The double-loop learning focuses on deeper 'change', and answers the question: 'Are we doing the right thing?'
- Finally, at even longer time frames, applying an agile mindset and practices to guide the strategic positioning of the organisation (Kniberg 2016) can stimulate questioning of the organisation's goals and principles. This triple-loop learning focuses on promoting a more profound institutional evolution, and answers to the question: 'How do we decide what is right?'

Scrum's time-boxed reflective cycles provide an operational framework which can inspire adaptive and learning efforts at higher complexity layers. However, it should be noted that these forms of critical and reflective learning are not easy: for most teams and organisations, moving from single-loop learning to double-loop learning poses a big challenge, demanding organisational adjustments and important institutional culture changes (Brock *et al.* 2016; Ørnemark 2016).

### **Adaptiveness in solution design and delivery: design thinking and appropriate technology**

Within Tech4T&A initiatives, software systems are just a small part of a wider socio-technical solution which aims to improve a challenging or problematic situation. Agile methods may help you to build the software faster and better, but they cannot tell you what to build. If the software is to do any good, the design of the overall solution needs to match the problem and its institutional and social context, right from the start (Bon, Akkermans and Gordijn 2016). However, in the initial phases of planning for projects and programmes there is still a lot of uncertainty and unknowns about the problems involved and the potential solutions. For example, a Tech4T&A project typically affects many different stakeholders: old and young people, men and women, families, public workers, community organisations, service providers, government departments. There is not a single 'user' that could join the team and explain what is needed.

Design Thinking and User-Centred Design methodologies (Brown 2009) provide an iterative, collaborative and human-centred approach to deepen understanding of problems, and to develop innovative, sustainable solutions that combine desirability (i.e. the needs of the people), feasibility (i.e. the possibilities of technology) and viability (i.e. the requirements for business success). The frameworks rely on design tools (IDEO 2015; Nesta 2014; d.school 2010), participatory methodologies (Simonsen and Robertson 2013) and ethnographic research insights to develop empathy for the needs, constraints, behaviour and interests

of various users. These frameworks are increasingly being adapted to policy-making and development contexts (18F-GSA 2017; UNDP 2017; gov.uk 2016). Rapid iterative cycles of discovery, ideation and experimentation via prototypes help to select tools and develop solutions that are closer to users' actual problems.

Design Thinking allows identification, during the prototyping phase, of important conceptual, operational and design issues, which would be much more difficult to overcome during the implementation phase (de Lanerolle *et al.* 2016). However, it was originally developed to create commercial products and services in contexts characterised by social and political stability and an abundance of capabilities, resources and reliable infrastructures. Consequently, design thinking processes and tools generally assume a context that is conducive for innovation: insufficient attention is paid to the limitations that resource-poor environments pose for innovation, the 'contextual achievability' of the solutions.

Figure 3 illustrates how the design of solutions in constraining, resource-poor environments is extraordinarily difficult and needs to consider principles from the Appropriate Technology movement (van Reijswoud 2009; Darrow and Saxenian 1986). These require engagement with the environmental, cultural, social, political, ethical and economic dimensions to better understand what is needed and why, and favouring simple solutions that can be sourced and maintained in the local context: ideally, solutions that are co-created with local users and stakeholders,

through forms of socio-technical action research carried out 'on the ground' (Bon *et al.* 2016).

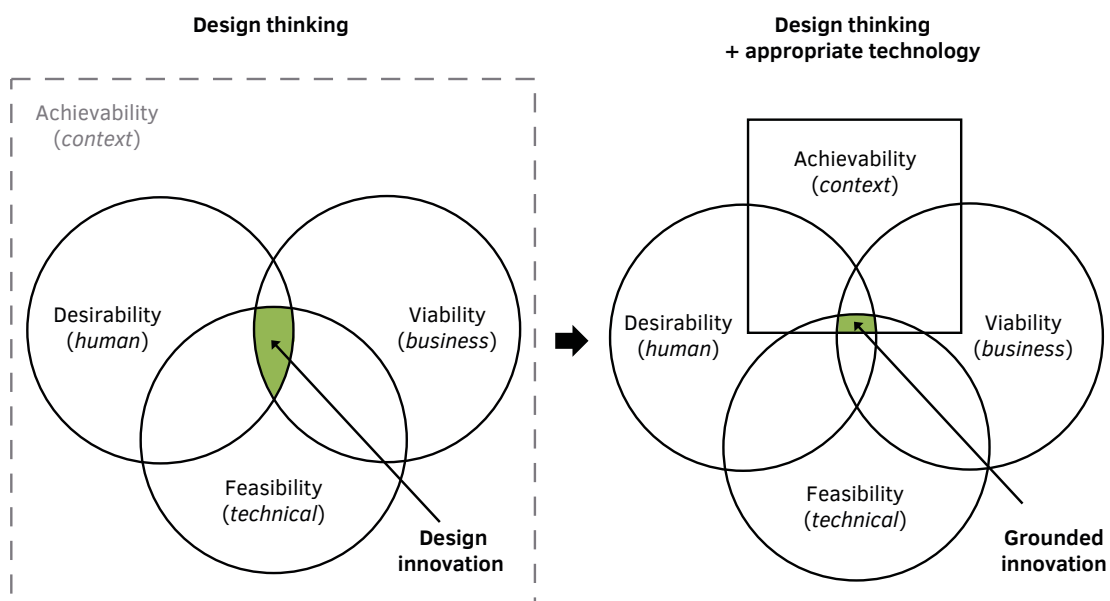
**Adaptiveness in intervention design and implementation: Problem-Driven Iterative Adaptation and Doing Development Differently**

Contextually grounded, user-centred design provides a multi-stage problem-solving process that optimises solutions based on users' need, behaviour, constraints and operating contexts. This allows for the repeated testing and refining of solutions throughout the design and development process, before implementation (Reboot 2015).

However, from the perspective of the intervention design and implementation layer (see Figure 1), this is just a starting point; implementing Tech4T&A projects also requires frequent adjustments and a constant re-evaluation of the project assumptions. The development challenges that Tech4T&A initiatives tackle demand ongoing relationships with the different actors involved, which ideally should continue even after the project ends. Starting a project with an appropriate solution is a good beginning, but adaptive pressure – to react to changes emerging from the environment, to take advantage of opportunities arising, or simply when it becomes apparent that things are not working as they should and the project assumptions need to be challenged – continues through the project's entire life.

Regular evaluation of contextual risks, project performance and the validity of assumptions and theories of change at the different complexity layers

Figure 3. Taking contextual achievability into account



Source: Author's own

is necessary because, as Figure 4 illustrates, when important issues are identified late in the project, it is much harder to mitigate their effects.

The Doing Development Differently movement encourages development projects and wider development programmes to work in problem-driven, politically informed ways, and to foster an adaptive, entrepreneurial, locally led approach (ODI 2016). Problem-Driven Iterative Adaptation is one of the leading frameworks bringing this into practice, and is guided by the following principles (Andrews, Pritchett and Woolcock 2016, 2015, 2012):

- *Local solutions for local problems:* transitioning from promoting solutions to allowing the local nomination and articulation of concrete problems to be solved.
- *Pushing problem-driven positive deviance:* creating ‘authorising environments’ within and across organisations to encourage experimentation and positive deviance, accompanied by enhanced accountability for performance in problem-solving.
- *Try, learn, iterate, adapt:* promoting active experiential and experimental learning with evidence-driven feedback built into regular management and project decision-making, in ways that allow for real-time adaptation.
- *Scale through diffusion:* engaging champions across sectors and organisations that ensure reforms are viable, legitimate and relevant.

Problem-Driven Iterative Adaptation relies on various tools and techniques from other disciplines, such as

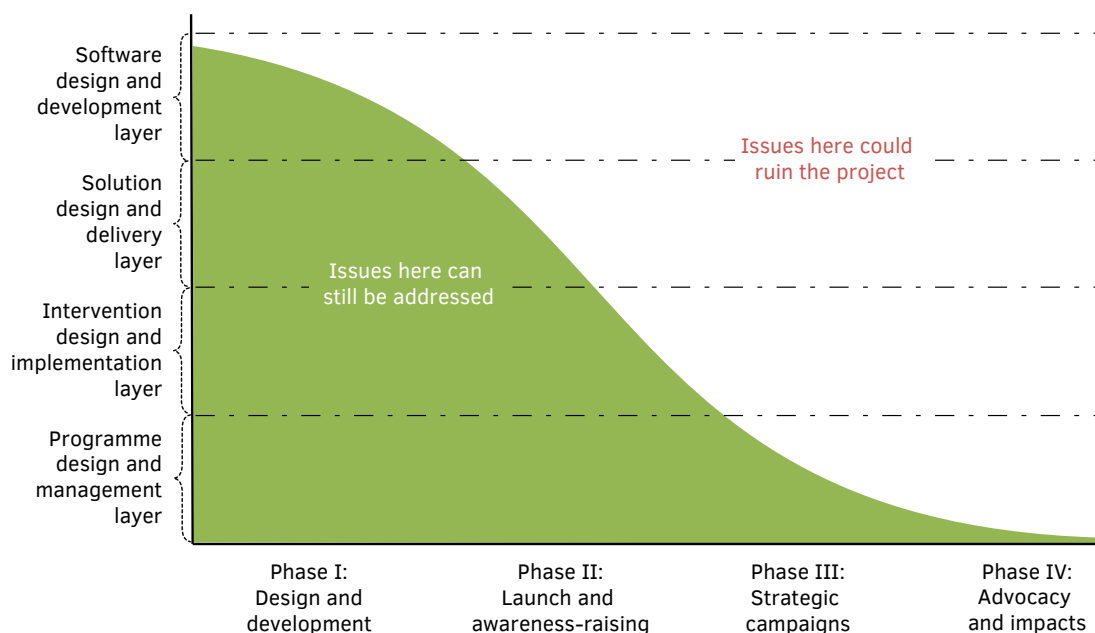
Design Thinking, Systems Thinking (Burns and Worsley 2015; Meadows 2008), Positive Deviance (Pascale, Sternin and Sternin 2010; Waugh and Forrest 2001), Political Economy and Power Analysis (Booth, Harris and Wild 2016; Pettit and Mejía Acosta 2014) and many others, which can be used as required as part of the iterations.

Consistent with its focus on local problem-solving, a lot of the learning in this field is derived from the actions of ‘positive deviants’ on the ground: people and organisations that have managed to implement very different interventions in an adaptive way. Projects from The Asia Foundation, Mercy Corps, the International Rescue Committee, Reboot, the Legal Assistance for Economic Reform (LASER) programme and the State Accountability and Voice Initiative (SAVI) have shared their learnings and operational tools, and are driving adaptive development approaches (Learning Lab 2017; SAVI 2017; Buckley and Ward 2016; Cole, Ladner, Koenig and Tyrrel 2016; Denney 2016; Manuel 2016; Algozo, Beloe, Hemberger, Hill and Proud 2016; ICT4SA 2015; Allana 2014).

**Adaptiveness in programme design and management: adaptive programming**

LASER, a recent DFID-funded programme that aimed to support eight developing countries in improving their commercial legal systems, provides a good example of a ‘positive deviant’ adaptive programme. In addition to striving to be adaptive, it produced plenty of materials to share its tools and learning, and to help development actors better understand and use

Figure 4. Complexity layers, phases and issues in Tech4T&A initiatives



Source: Author’s own, phases from Civic Innovation Accelerator Fund (2016)

adaptive programming (Derbyshire and Donovan 2016; LASER 2016; Manuel 2016, 2015).

LASER's approach is characterised by the following principles: it is problem-driven and context-specific, locally led, learning and adapting; it makes 'small bets'; it is sustainable and scalable; it has a long design phase; it puts no finances up front; and is given flexibility from donors. These not only aim to address the complexity derived from the 'contexts of implementation' of the intervention – which is the focus of Problem-Driven Iterative Adaptation – but also the complexity derived from the 'contexts of management' that surround development programmes, including their funding, reporting and accountability arrangements. As argued, the development sector is largely characterised by linear planning and reporting and accountability procedures, which do not foster experimentation or adaptive capacity (Kleinfeld 2015; Ramalingam 2014). This strikes at the heart of current discussions about Adaptive Programming: reconciling the need for donors and funders to promote accountability and demonstrate value for money, with the drive for flexibility, constant reflection and learning inspired by adaptive programming (Buckley and Ward 2016; Byrne *et al.* 2016; O'Donnell 2016; Shutt 2016).

To some extent, contemporary adaptive programming approaches represent a re-emergence of the ideas and principles that sustained previous attempts to improve the design and implementation of development programmes, such as ActionAid's Accountability, Learning and Planning System (Guijt 2004; Scott-Villiers 2002; ActionAid 2000). This demanded an integral focus on learning, better communication, participation, transparency and downward accountability in all development and humanitarian programmes (ActionAid 2001).

The situation as it stands now reflects a process of incipient social learning, where institutional inertia, cognitive bias and vested interests make dysfunctional policies survive for a while, even after it is widely acknowledged that they do not work (Ramalingam, Laric and Primrose 2014; Chambers 2010). The development sector is already aware that linear approaches frequently fail to deliver, and influential donors have shown a commitment to adaptive management by recognising its principles in important policy and guidance documents (DFID 2017; USAID 2017a; World Bank 2017, 2015). It will, however, take time for real change to materialise in practice and diffuse through the wider system.

Looking at it through the lenses of Problem-Driven Iterative Adaptation and positive deviance, the current situation corresponds to a moment of creation of the 'authorising environments' that encourage experimentation and accelerate the diffusion of positive deviance in a system. To some extent, the

most promising fixes for international development's excess of linearity emerge from the work of pioneering positive deviants: organisations and practitioners which, in recent decades, managed to be adaptive and deliver results despite the institutional disincentives. After years of silent, unconnected operation, they have now achieved enhanced visibility and recognition thanks to the creation of communities of practice such as Thinking and Working Politically and Doing Development Differently. The diffusion of new, rigorous adaptive monitoring, evaluation and learning methods (Chambers 2015, 2010; Reynolds 2015; Engel, Keijzer and Ørnamark 2007), which document increased performance and demonstrate learning while still providing accountability, should reinforce the case for further institutional support for adaptiveness.

Current literature mostly conceptualises Adaptive Programming as explorative, instrumental and top-down in character. Essentially, it aims to promote adaptiveness at the lower layers, and focuses on broadening the space for development interventions and individual programmes, without really questioning the way things are conceptualised and done at higher levels. Providing development interventions with an enabling environment that stimulates critical thinking and grants space for reflective learning and adaptation is very important, as the adaptive literature widely recognises that rigidity at the higher levels of funding and programme design is one of the main blockers of adaptiveness on the ground.

However, the consistent application of adaptive principles to the design and management of wider development programmes requires more fundamental changes in the structure and work dynamics of donors, programme implementers and development organisations. This is a difficult transition that cannot happen spontaneously, and explains why it is so important to look at how adaptiveness is operationalised in less complex settings and sectors. If the learning, processes and tools established at lower levels prove the viability and effectiveness of adaptive approaches, this could serve as a stimulus and advocacy tool to reinforce adaptive reflectiveness at higher level.

### 4.3 Adaptiveness across layers

The complexity of a problem generally increases as the number of human factors involved increases. As the previous section outlines, there are different complexity layers involved in a Tech4T&A initiative. Creating software that meets the needs and capacities of people facing difficult circumstances is already complex; integrating these software pieces within wider solutions that involve various stakeholders is much more complex; sustaining the use of these solutions within a changing political environment is even more

complex; and achieving all this while management and funding arrangements restrict your adaptiveness is the most complex of all.

The adaptive frameworks discussed provide guidance on how to address difficult and dynamic problems in different complex domains. We have argued that, even if they originate from distinct schools of thought and practice domains, they are intimately linked to each other (i.e. by having a conceptual mindset, a general method and a collection of tools and techniques). The procedures each proposes and the fundamental logic sustaining the frameworks also tend to be similar – as if they were talking about the same thing but in different dialects. This is because they all look at how to respond to complexity, even if they look at different manifestations or degrees of complexity. Figure 5 maps different knowledge streams on adaptiveness along the four complexity layers we have identified for Tech4T&A initiatives.

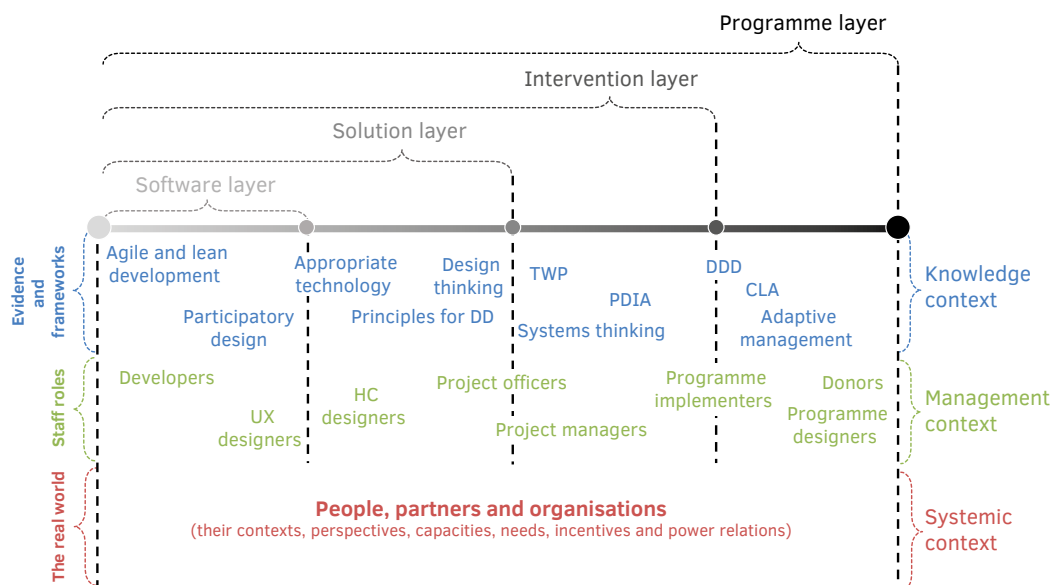
As we have argued, on the one hand adaptiveness at a given layer depends on whether or not it is provided with an enabling environment by its upper layers. On the other hand, the success of an initiative at a given layer depends on the capacity to adapt successfully at its lower levels. Adaptiveness, thus, should be understood as a relational capacity that emerges from the relationships among the layers. Each layer has to mind the challenges from the lower layers it contains, but additionally needs to consider its own specific challenges and the knowledge streams associated with them.

Coordination among the different complexity layers is difficult, because the diversity of knowledge, languages, needs and institutional affiliations involved makes communication and mutual understanding, let alone collaboration, problematic. Each layer involves differentiated challenges and tasks, which are carried out by a range of staff operating in different roles, from software developers and user experience designers to programme managers within donor organisations.

Figure 5 includes a row representing the management context, which is internal to an initiative and identifies the work positions involved in the different layers. To achieve success, people working at each layer need to keep on top of demands from higher and from lower layers. This involves a lot of communication, normally reporting progress upstream, while performing oversight and coordination tasks downstream (Lee 2016), and demands constant evaluation and learning about the effectiveness of the projects' assumptions, strategies and actions (Reinertsen *et al.* 2017; Ørtnemark 2016).

The essential challenge, however, lies in the interrelation of the initiative with its context of operation: activities and strategies at each layer need to match the complexity of the social, technical, political and economic contexts in which they operate, which is a dynamic and constantly evolving ecosystem composed of communities, organisations and institutions, each with its own perspectives, interests, capacities and power relationships. This is represented by the lower row in Figure 5, dedicated to the systemic

Figure 5. Tech4T&A initiatives complexity layers and adaptive contexts



Source: Author's own



context, which is external and needs to be regularly monitored to detect changes and opportunities emerging from the environment, so that the project can co-evolve with them.

To some extent, the three contexts identified in Figure 5 correspond to the sources of adaptive learning described in Box 1: *evidential learning* mostly relates to recognising and applying evidence, knowledge and lessons learned from similar experiences; *evaluative learning* is linked to the project's management context, which involves the collaboration relationships among the various partners involved, as well as regular evaluation of project's actions, outcomes and impacts; and *contextual learning* refers to the relationship with the operating contexts where projects are immersed, including all stakeholders, allies, beneficiaries and opponents that inhabit them.

### Core adaptive practices across complexity layers

Complexity theory suggests that, while each level of complexity has different emergent challenges, there are learnings in each layer which could be useful for the rest. Insights from one level could shed light on blind spots in the others, and hint at interesting areas to look at. Moreover, mindsets, methods and tools from lower layers could inspire responses at higher layers, while the cooperative networks of actors that emerge to tackle complexity at a given level could eventually act as a consolidated adaptive agent at the higher layers (Wahl 2016). It is interesting to note how, for example, Design Thinking, which is considered an overarching adaptive framework at the solution design layer, becomes just one of the practices or tools available to address complexity at the higher intervention design layer.

Furthermore, cross-fertilisation among different linked disciplines – such as complex systems theory, agile methods, design and public policy (Colander and Kupers 2014; Jones 2014; Meso and Jain 2006) – can be extremely productive. Agile and lean frameworks should be especially useful for international development efforts and adaptive programming, as they are already mature and refined: they have been tested for many years in commercial settings that provide a straight 'fitness function' (i.e. profit generation), which has helped to differentiate clearly what works and what doesn't. The fact that these adaptive frameworks operate at lower levels of complexity means that their components are simpler and more 'fit for purpose'. Learnings from agile and lean approaches which could inform future discussions about adaptive programming include the following:

1. Think less about contracting the 'right' staff and focus on *nurturing and sustaining multifunctional teams* that learn and evolve together. Individuals

and leadership do matter, but mostly as enablers of teamwork (Khan and Fisher 2017).

2. *Radically simplify theories, processes and tools*, making them more accessible and actionable. This enables even non-experienced staff to contribute value immediately, and facilitates more natural, gradual learning among all partners involved. Adaptiveness should not rely on heroic performers (Sutherland 2014).
3. *Think small to get more done faster*. The main predictor of failure in technological projects is size. Aim to do smaller, simpler things iteratively and incrementally to increase success rates and the quality of outcomes. Move away from a project mentality into thinking in sustained value-generation streams and strategic portfolios, driven by a backlog of evolving and prioritised goals, insights and bets (Wild *et al.* 2017; Kniberg 2016).
4. *A global shared visibility of work and progress*, by means of shared 'big visible charts' (Agile Alliance 2015), will help to satisfy the needs of different stakeholders involved (e.g. donors, programme implementers, project partners, community organisations). Radical transparency should be applied to the development initiatives themselves.
5. *Data-driven and action-oriented learning* will support an experiment-friendly and waste-repellent culture across the organisation: try things, and dump what does not work. Monitoring, evaluation and learning systems and processes should evolve towards facilitating and supporting agile work and learning, as well as providing evidence-based accountability that focuses on impact, learning and value generation (Chambers 2015; Kolker and Kulldorff 2013).
6. Explore the possibilities of *using technical tools for task automation and real-time coordination*, especially regarding data-gathering, information distribution and progress monitoring, which will support decision-making at the right time.

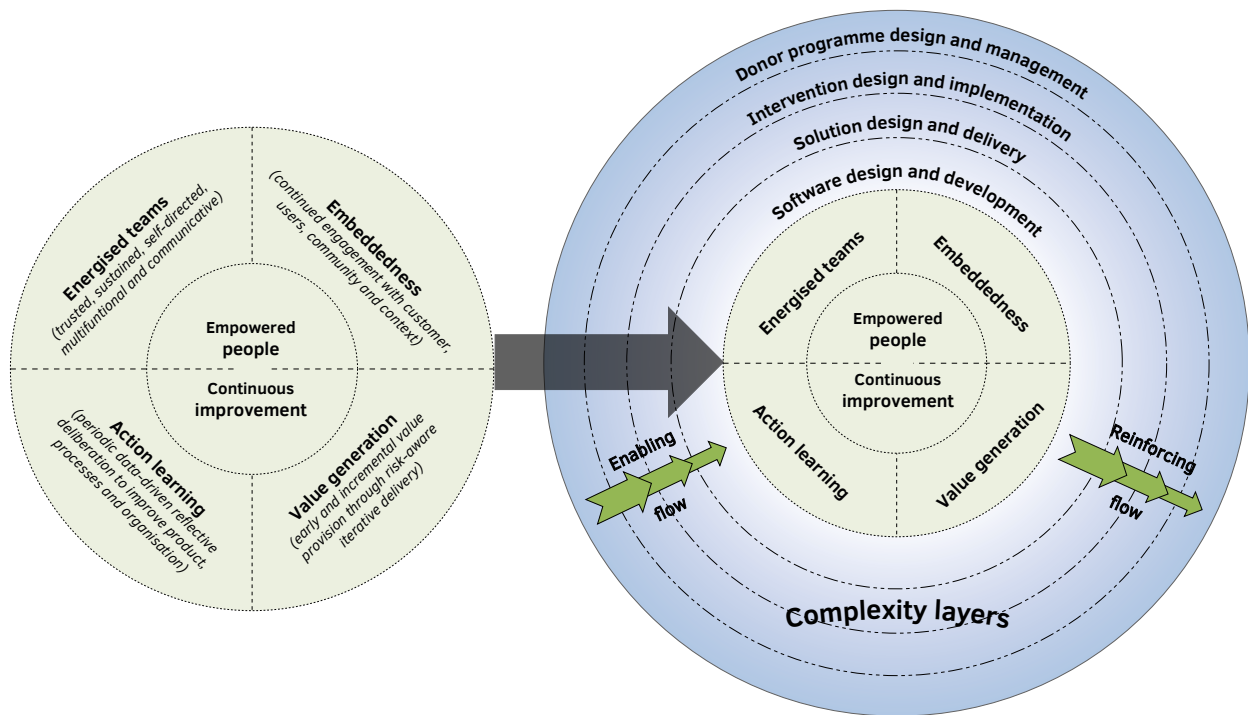
We explored the core adaptive practices across the different layers of complexity, aiming to identify a set of basic elements that could underpin adaptiveness in operation. These core practices were then used as part of our fieldwork, where we surveyed Tech4T&A initiatives for their presence or absence. Figure 6 identifies these practices.

As Figure 6 shows, two main pillars for adaptiveness emerged from our analysis: empowered people and continuous improvement. These can be further divided into four core adaptive practices.

1. *Empowered people*
  - a. *Energised teams*. These should be trusted, motivated, sustained and creative, with open and



Figure 6. Core adaptive practices across ICT4D complexity layers



Source: Author's own, inspired by Liker (2004)

honest communication, and, to a high degree, self-directed. These are the essential unit of delivery, collaboration and learning for adaptive delivery.

- b. *Embeddedness*. Build with, not for. Continued engagement with the problem-owners (e.g. customer, partners, users, communities) and with the general context of work provides the evidence-based feedback loops required to improve. To maximise embeddedness and minimise distance between makers and users, aim for work to be done locally, by locals.

2. *Continuous improvement*

- a. *Action learning*. This refers to the need for periodic, data-driven reflective deliberation among the different participants. These critical reflections promote single-, double- and triple-loop learning at different time intervals, with the aim of continuously improving the initiative and its working practices, changing the wider processes and systems of work, and constantly evolving the institutional culture and structure of the organisations involved.
- b. *Value generation*. This refers to the early, frequent and incremental provision of value to customers and recipients, by means of risk-aware and risk-avoidant iterative delivery. There should be primacy of value delivery over plan fulfilment. Meaningful and transparent metrics should be

used to track progress and measure outcomes, impact and value, rather than effort or outputs.

Such wide-ranging principles can be taken into account when analysing adaptiveness within development interventions and programmes, evaluating whether they are present and their degree of maturity, ranging from emergent, to expanding, to advanced, to institutionalised (Learning Lab 2016b). At each layer of complexity, the core adaptive practices need to be operationalised and implemented in distinct ways, using learnings from the other layers.

For example, there are various time-boxed iterations and reflective learning exercises that are central to Scrum (see Figure 2) and favour adaptiveness at the Software Development layer. These could be used at the Intervention Implementation layer in Problem-Driven Iterative Adaptation, not only for the construction of systems, but also to keep track of the changing socio-political environment that surrounds a development intervention. Problem-Driven Iterative Adaptation has explicitly adopted 'Sprints', renaming them as 'push-periods' to reflect better the type of effort required when solving policy-related issues.

These core adaptive practices can also be used to identify the strengths and weaknesses of different adaptive approaches, and thus recognise the areas where further attention is needed when applying them. For example, while Agile and Scrum have clearly excelled in the dimensions of energised teams (1a),

action learning (2a) and value generation (2b), they have not paid equal attention to the embeddedness (1b) to connect projects tightly within their contexts (Gothelf 2016; Carignan 2014). It is good to have a ‘product owner’ on the team, who represents the views of the users and customers at any time, but this is frequently not enough to ensure that the value generated is the most relevant for them.

Conversely, the principles and practices advocated by Problem-Driven Iterative Adaptation – and more generally by adaptive development proponents (Valters 2015) – cover embeddedness (1b), action learning (2a) and value generation (2b) exceptionally, but energised teams, while being central to most practical work

(Andrews, Ariyasinghe *et al.* 2017) could still receive more explicit attention and support (Khan and Fisher 2017).

Figure 6 includes arrows that represent enabling and reinforcing flows, which traverse in opposite directions across the layers. These flows illustrate the relational and dynamic nature of adaptiveness, as adaptive capacity emerges from the interactions across the layers. Each of the layers can act as an enabler – or disabler – of adaptiveness at the lower levels it contains. And conversely, successful – or failed – adaptation at less complex layers can reinforce – or undermine – the adaptive capacity at higher, more complex layers.

## 5. Perspectives and findings from the fieldwork in Kenya

This section presents findings from our primary research with Tech4T&A initiatives in Kenya. Our research had an explorative character, and focused on collecting stories of learning and adaptation as a means to understand how adaptive principles are operationalised in real life. As Section 3 outlines, the Tech4T&A initiatives analysed were very different. This diversity meant that each of them faced very different challenges and therefore had distinct stories of adaptation and learning to share with the research team. Identifying commonalities and trends among them was not straightforward, but such an explorative research approach offers valuable insights on how to improve the adaptive capacity of Tech4T&A projects.

### 5.1 Main characteristics of adaptiveness in Tech4T&A

As Section 4 showed, there is an emerging consensus in the development community about the need for Tech4T&A initiatives to be politically smart, locally driven and tech-savvy (Shutt 2016; R4D 2015). This is very much in line with the Doing Development Differently principles, which demand that initiatives remain flexible, and iterate and improve their plans and actions to respond to new information and learning as the project progresses.

Yet, despite widespread endorsement for these adaptive principles among our respondents, we found that, in reality, most projects were poorly grounded in their contexts. Their projects are in constant need of adaptiveness: most had to start altering their original plans from the moment the project started, if not earlier. More often than not, the first adjustments were followed by a series of further improvised adaptations

as new challenges emerged – part of a constant struggle to keep the project progressing towards its original objectives and within the agreed budget and timeline.

Table 3 details the most significant themes emerging from our semi-structured interviews. This reflects a ‘force field’ analysis (Ramalingam 2006; Lewin 1951), a technique commonly used in change management workshops to understand the positive and negative forces that favour or oppose a desired change, as well as their relative importance. Table 3 lists the 12 main themes which appeared in more than half of the projects analysed, as indicated by the percentage in the ‘frequency’ column. The ‘type’ column indicates whether these were drivers or blockers of adaptiveness.

#### *Main drivers and barriers to adaptiveness*

The most significant theme was ‘adapting to context mattered a lot to the project’ (#1). This reaffirms the relevance of context, and contextual changes to adaptiveness, for the success of initiatives. Our informants repeatedly reported how they came to realise that what works in one place does not necessarily work in another – a principle that applies not only to countries, but also to cities, counties, villages or even neighbourhoods. The social and political contexts in each setting are different, and will probably affect the appropriateness of the technical solution, accountability processes and theories of change that sustain the project.

There is also a time dimension that needs to be considered, which many of our respondents discovered too late: what works in a place now might stop working in some months, when elections come or an important

**Table 3. Important themes appearing in interviews**

Number (#)	Theme	Frequency (%)	Type
1	Adapting to context mattered a lot to the project	79	Driver
2	Relationships with government were challenging and time-consuming	78	Barrier
3	Previous work and relationships in the field helped the project	74	Driver
4	Insufficient resources to fulfil the technical vision	72	Barrier
5	Challenging relationships with funders and main offices	67	Barrier
6	Expected easier buy-in from project's stakeholders, gatekeepers and users	65	Barrier
7	Extraordinary personal commitment from the project team	65	Driver
8	Time frames too short to achieve project objectives	63	Barrier
9	Unrealistic expectations regarding the technology and technology use	61	Barrier
10	Lack of technical knowledge in project's lead organisation	59	Barrier
11	Important issues discovered late	59	Barrier
12	Issues with solutions not being contextually 'appropriate'	56	Barrier

supporter of the project moves to a different position. Careful piloting and constant evaluative learning and attention to changes happening around the initiative were deemed essential to keeping a project on track.

“The one thing I've learnt throughout this programme is: context! The primacy of context, especially when working on governance. Before going into any programming area, we must absolutely understand context. If we do not check our own biases it's the surest way to fail in programming.”<sup>4</sup> – Programme manager

Moreover, it is not just the context that matters, but also the relationships between the intervening organisations and the context. As shown by the third-most frequent theme, ‘previous work and relationships in the field helped the project’, this is not only because of the increased knowledge and familiarity with the technology or geographical setting, but also because of the pre-existing trusted relationships with project partners, community organisations and key stakeholders. As Table 2 indicates, most of the interviewees – and by extension, their organisations – lacked a direct connection with the local contexts where the projects take place, and therefore had to rely on partners working with the communities.

Partly because of this distance, Tech4T&A initiatives tend to face difficulties with getting buy-in from users and stakeholders (#6), which also results from the lack of contextual appropriateness of some solutions

(#12). Having to build relationships with stakeholders while technology is being created or adapted, in the very short time frames that generally characterise Tech4T&A projects (#8), proved to be too great a challenge for many of the initiatives we analysed.

“To make sure that the political leaders appreciate the political and social value of having a project like that in place ... we need to understand the fears they have ... Before anything, you need to get the government officials to agree to publish the data, and for them to agree to publish the data using technology; you have to get them to socially accept that if they publish the data it is safe, and it has political and social benefits to them. But that takes time to build.” – Designer

Relationship-building and trust emerge as a critical cross-cutting dimension for most Tech4T&A initiatives. Our interviewees found it difficult and time-consuming to maintain regular communication and collaboration with the different actors involved in their projects. This challenge applies both to relationships with government and administrative organisations, which play a central role in most governance-related initiatives (#2), and to relationships with the funders or the head offices of the implementing organisation (#5).

It also applies to relationships between the different partners involved in the initiative which, given the techno-political character of Tech4T&A initiatives, frequently have very different expertise and world views.

<sup>4</sup> Since the interviews were conducted anonymously, quotes are included to give expression to the interviewees' views and concerns, but without any indication of the project they refer to.

*“There is a constant creation of new projects, and as soon as a project becomes older, it loses the interest. And a lot of donors do not want to fund anything that has a maturity date of five years.”*

Relationships with users and community organisations – which frequently do not see the usefulness of an initiative or technology which was designed without them (#12) – also demand attention to be established, and constant nurturing to be maintained.

Another cross-cutting dimension that relates to several of the themes identified in Table 3 is knowledge, with regard to both governance process and technology. Many lead organisations lacked the technical capacity (#10) to fully understand or anticipate issues associated with a given technology. This also affects funders and, to some degree, Tech4T&A programme implementers. Respondents identified a tendency towards ‘techno-optimism’ and hype about digital technologies on the part of donors, which they saw as creating negative incentives for Tech4T&A initiatives, as well as promoting unrealistic expectations regarding the use of technology (#9).

The lack of understanding by donors and by project managers about how technological solutions are designed, implemented, supported and maintained, and about the amount of resources and time these tasks require, normally leads to a chronic underfunding of projects (#4) and unrealistic time frames (#8). From a managerial perspective, this disconnect between the ambitious scope of a project, its tight timelines, and the limited resources – what is known as the ‘project management triple constraint’ (Lehtonen 2014) – means that many Tech4T&A projects are doomed to failure from the outset.

“There is a constant creation of new projects, and as soon as a project becomes older, it loses the interest. And a lot of donors do not want to fund anything that has a maturity date of five years.” – Programme manager

When the projects did manage to achieve impact and a certain level of sustainability, this was, in our view, frequently linked to the ‘extraordinary personal commitment from the project team’ (#7). We observed a great deal of passion and dedication in our interviews, which in many cases involved investing additional personal, and organisational, resources to improve projects, with people working for free for long periods in cases where no funding could be found to sustain an initiative.

This commitment was also expressed in the openness and honesty displayed by most interviewees when sharing with us. Interviews were conducted anonymously to enable frank conversations about

people’s experiences, and honest reflections about the mistakes and problems that their projects faced. Even so, we were surprised by the level of sincerity with which fundamental mistakes, wrong assumptions and faulty designs were shared. This demonstrates a genuine desire to learn and do things better, and stands in contrast to the typical narratives written in project reports, where such admissions of failure are generally not considered appropriate. During interviews, there were constant expressions of a desire to network, to interact with other projects, to learn more from other similar experiences. The critical insights received from mentors and advisors, which frequently triggered both tactical and strategic adaptations, were much praised by our informants.

Yet we found that many projects suffered from a significant disconnect between the original project design and its implementation, between its ambitious aims and the limited capacities to achieve them. These disconnections operate at many levels, and include technical challenges, having the wrong expectations about stakeholders, and theories of change and action that are not adequately rooted in the realities of the context.

The disconnections between design and reality also relate to the way many Tech4T&A programmes are framed and run: the conditions imposed on projects, in terms of objectives, timelines and monitoring, greatly reduce their capacity to be flexible (de Lanerolle 2017; Ross 2015). While Making All Voices Count promotes an adaptive perspective for its projects, explicitly funding scaling projects and providing space for learning and adaptiveness, this has not been enough to promote deeper levels of conscious and proactive adaptation.

“One of the greatest lessons that I have learnt in the implementation of these projects [is] members of the community should be engaged right from the conceptualisation process, so that you do not appear like you are taking things to people and trying to see how it can work, but having their inputs and designing something that will fit the situation ... But we never have time for that. You see a call, want to come up with a proposal, and imagine that everyone will accept it.” – Programme manager

When we asked participants at the learning workshop about the changes that might enable greater capacity for learning and adaptiveness, they identified the following:

*“It’s a simple thing: go ahead and always ask ‘who’s doing what and where, where is the community identified?’, and build upon their need, work from there – versus coming in and saying ‘we know what’s better for you, let’s do this!’”*

- An overarching and deep engagement with the people whose needs the project aims to address.
- More horizontal and real-time communications among the different actors involved in Tech4T&A projects, from donors and programme implementers to grantees, stakeholders and community organisations.
- A real focus on learning, as well as innovative ways to share what has been learned.
- Better knowledge and awareness about the contexts the projects operate in, and their associated risks and potential evolution.
- A need for greater flexibility, on many levels, and built in the design of the projects.
- More capacity to bridge the social and technological domains involved in Tech4T&A initiatives.

### ***The how, who and when of adaptiveness in Tech4T&A initiatives***

Our analysis highlighted the value of reflecting on the how, who and when of adaptiveness in Tech4T&A initiatives as a way to deepen our understanding of them.

*How do Tech4T&A initiatives adapt?* This question is linked with most of the themes in Table 3, as most of them refer to circumstances and dynamics – such as unrealistic expectations, a lack of resources and knowledge, or short timelines – that make adaptiveness difficult. We found four different approaches to the need to adapt during project implementation:

- *Rigid:* project teams are unprepared, have little capacity to deal with unexpected events and trust that their project plan and / or log frame provide a good guide for project implementation.
- *Reactive:* project teams are aware that some unexpected challenges could impact their plans. If needed, some reactive capacity could be negotiated to deal with the issues once discovered, by applying changes to the plan.
- *Proactive:* the need to adapt is recognised in the project design, which includes plans for uncovering challenges and realising needed adaptations, both operational and strategic.
- *Adaptive:* the project is structured and funded following a Problem-Driven Iterative Adaptation

or similar approach. Goals are clear, but it is acknowledged that the best way to achieve them will be discovered during the project. Work is carried out through iterations that include reflectivity, learning and adaptation.

Though we encountered cases of proactive adaptiveness, most of the projects were fundamentally reactive, improvising adaptations to keep the project alive while keeping their funders reasonably satisfied with the project’s results.

*Who adapts in Tech4T&A initiatives?* Our interviewees mainly shared with us adaptations carried out by their own organisations while managing a project, rather than presenting a more systemic view of how the different stakeholders reacted to challenges and new knowledge that affected the project. When other actors’ activities were referred to, these were usually activities triggered by the project teams, such as cases where official ownership of the initiative was transferred to community organisations as a way to circumvent political and bureaucratic blockages.

This focus on their own actions might be a result of the interview format, but could also indicate a lack of appreciation of the capacities and agency of the wider network of participants in an initiative, or a failure to collaborate more intensively. For example, we heard very few cases where positive deviance from users or community organisations was actively sought and used to improve the project outcomes. In the few incidences where challenges were overcome thanks to interventions by these actors, their capacities tended to be discovered by chance, or out of necessity.

*“It’s a simple thing: go ahead and always ask ‘who’s doing what and where, where is the community identified?’, and build upon their need, work from there – versus coming in and saying ‘we know what’s better for you, let’s do this!’”* – Programme manager

Yet the different layers of complexity involved in Tech4T&A initiatives (see Figure 5) are all connected; challenges in one layer will have an immediate impact on others. We heard, for example, many adaptation stories where technologies had to be adapted urgently to accommodate unexpected requirements late in the project’s lifetime. Such changes meant that training materials and activities already developed were rendered obsolete, at a phase where no more time or resources were available to redo them. This shows how adaptiveness requires strong collaboration



*“[The] biggest lesson we learned [was]: how do we navigate these ‘politics’ for the sole reason of having the solutions stick and be used for the benefit of the people? But the way to navigate these politics will vary from county to county, village to village, and moment to moment.”*

among people working at different layers, which in turn demands constant interaction and communication.

Our interviewees felt that, usually, donors and parent organisations overseas did not trust those working on the ground sufficiently, and were reluctant to delegate more responsibility to them. However, donors’ understanding of what will work is frequently based on experiences with programmes elsewhere, and very often disregard the specificities of local contexts. As a result, external actors take decisions from far away, and lock in strategies ahead of time, reducing the likelihood of delivering effective results (Shinkle 2017) while limiting the agency of local actors to mitigate risks and be proactive.

“So, you have people sitting in New York and they are saying: ‘In DRC [Democratic Republic of the Congo] this is happening, we are doing everything, reaching all milestones. Why can’t we achieve similar results here?’ We are telling them: ‘The contexts are radically different! And we are still too young.’”  
– Programme manager

When do Tech4T&A initiatives adapt? In general, we found that there was more capacity to adapt actions and change plans at the beginning of interventions. But as our interviews revealed, that is precisely the moment when most of the potential issues regarding the technology solutions, the governance context or the initiative’s potential stakeholders, are still unknown. As Figure 4 illustrates, the earlier an issue is discovered, the more chances there are to address it properly and avoid negative overall impacts.

We saw that many projects started with a measured pace and strong foundations, investing efforts to get things going in the right direction. For example, one project started designing a technological solution using a human-centred iterative design process, but were soon forced to drop this approach owing to growing time constraints. Project teams frequently had to rush to implement plans without having sufficient time to validate the design, evaluate potential risks or get to know their context better.

Additionally, Tech4T&A initiatives usually need to align their activities with external events, such as election periods, which adds to time pressures. Many projects reported that key stakeholders and important issues were not discovered until late in the project, often in its final phases. A lack of explicit iterative reflection during

the project, and poor internal communication among partners, usually meant that outstanding issues were not recognised or dealt with in a timely fashion.

## 5.2 Challenges to adaptiveness in Tech4T&A

This section looks in more detail at the challenges and barriers that limited the capacity of the T4T&A initiatives to adapt and respond to operational and strategic issues.

“[The] biggest lesson we learned [was]: how do we navigate these ‘politics’ for the sole reason of having the solutions stick and be used for the benefit of the people? But the way to navigate these politics will vary from county to county, village to village, and moment to moment.” – Programme manager

All the initiatives studied can be considered cutting-edge Tech4T&A projects, contributing to knowledge on the use of technology to support transparency, accountability and citizen engagement. They are run by teams of committed professionals who are doing their best to maximise their impact and sustainability. There is no doubt that these projects contribute to positive social development and learning.

Our interviews revealed, however, that most of the initiatives demonstrated poor adaptive capacity. We did not find any case where the adaptive frameworks (presented in Section 4) were applied consistently. Interviewees knew about and favoured agile methodologies, design thinking, positive deviance and Problem-Driven Iterative Adaptation approaches, but rarely used them systematically. Neither were the four foundations of adaptiveness – team empowerment, embeddedness, proactive learning and iterative value generation – apparent in most projects.

Most of the adaptations we analysed were fundamentally reactive, happened late, and were not properly coordinated among the partners operating at the various complexity layers of the project. They were mostly adjustments made in haste in response to emergent and unplanned issues, with the aim of keeping the project going without deviating too much from the original plan. This type of adaptiveness is associated mostly with single-loop learning – answering the question ‘are we doing things right?’ – but does not fundamentally interrogate whether or



not the right things are being done. For this reason, it cannot substantially improve the project’s design or promote institutional learning that can be useful for other projects.

Our interviewees were aware of this situation, and not happy with it. As they told us about their initiatives’ most significant turning points, how they overcame difficulties and what they learned in the process, a big part of our conversations related to how difficult it is to cope with challenges, and how constrained their adaptive capacity is when implementing projects. This lack of adaptive capacity reduced their ability to achieve project goals and significantly hampered their ability to learn. Many of the essential problems that led to failures were linked to wrong assumptions and omissions in the original design of the intervention and associated technologies, which the initiatives’ teams were not able to recognise and address in a timely manner.

Since adaptiveness is inexorably linked with continuous and reflective learning, one way to analyse why this happens is to relate the challenges and barriers that limit adaptive capacity to the different kinds of adaptive learning we presented earlier: evidential, evaluative and contextual learning. As Figure 7 shows, each is linked with one of the adaptive contexts introduced in Section 4.3.

- *Evidential learning in the knowledge context* involves recognising and applying new and existing knowledge and evidence, normally acquired from external research sources or from the experience and lessons gathered by similar initiatives.
- *Evaluative learning in the internal management context* means adaptations are triggered as a result of regular evaluation of the initiative’s performance and management and collaboration processes. Influence and demands from funders, head offices

of the implementing organisation and other key stakeholders belong here.

- *Contextual learning in the external systemic context* relates to the technical, social, economic and political contexts where projects are immersed, whose evolution continuously conditions the validity of the initiatives’ actions and plans. These include a variety of stakeholders, beneficiaries, allies, users, opponents, who are connected to each other and co-evolve with the initiative.

Learning in each context needs to be understood as ‘action learning’, emerging from the interaction with other actors as part of efforts to solve concrete problems. For example, for contextual learning, insights and data about the context need to be obtained through engagement with different participants in the initiative, as they are best placed to understand what is happening and what the real needs are on the ground. For evaluative learning, explicit reflective interactions with partners and allies will be required. For evidential learning, contact with other experiences or researchers is required, which could be facilitated by mentors or donors. For this reason, the relationship-building dimension, which our interviewees constantly referred to, is a key factor for adaptiveness.

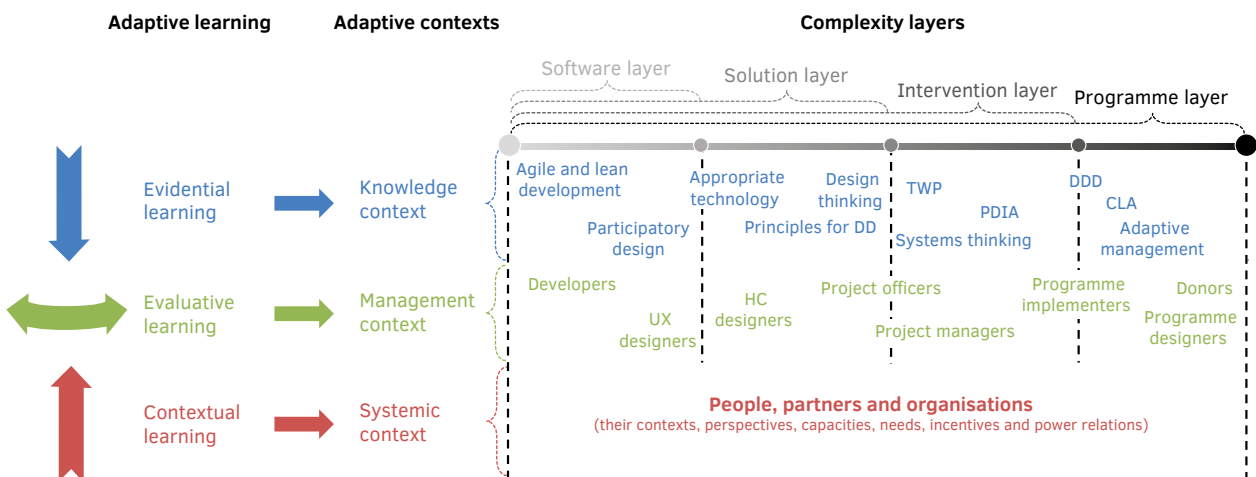
Next, we explore the challenges faced in these three contexts.

“The most critical thing [is] not only getting them [the relationships with the community, government, stakeholders, etc.], but maintaining them. However, dealing with many partners is very demanding.”  
– Programme manager

**Challenges related to the knowledge context**

Tech4T&A initiatives operate in a difficult knowledge domain: at the intersection of development, governance

Figure 7. Links among adaptive learning, adaptive contexts and complexity layers



Source: Author’s own

*“If I was ever to do any other technology project ... I’m keen, before I put pen to paper in terms of budgeting, to research what will work, and foresee what will be upcoming.”*

and technology, which are all, individually, extremely complex. The combination of social, technical and political structures and issues, which provide the background for Tech4T&A initiatives, demands a diversity of knowledge, capacities, and relationships that are rarely available. Smit *et al.* (2017) observe that Tech4T&A interventions require a deep understanding of the technology used, the accountability processes, and the people and organisations involved in or affected by the initiative. It is where these three spheres merge that Tech4T&A initiatives can expect to be successful, but as Smit *et al.* (2017: 9) indicate, “most organisations know something about one or two of these dimensions. It is unusual for an organisation to be knowledgeable about all three”.

“Deliberately, we do not specialise. We do not have people who say that I am only a researcher or I am only a techie. Because everybody, including the accountants, will be required to spend time with the community. And that goes a very long way in terms of getting people to provide quality. When the developer has been on the ground, experiencing people, they develop something for them which is much better.” – Programme manager

Tech4T&A initiatives require collaboration among very different actors, including software developers, technology providers, community organisations, CSOs with diverse thematic focus, public workers, service providers, elected politicians, and many others. In an ideal world, their knowledge and perspectives would be integrated and made accessible to the project team, but our interviews showed that this rarely happened. The domains and interest of the different actors are so different that collaboration, or even communication, can become extremely difficult.

In our interviews, we heard of several cases where there was a need to rely on ‘translators’ – people with a mix of technical and social expertise – to mediate between different partners. Social and community organisations often lack the technical expertise required even to provide technology providers with information about what they need (de Lanerolle 2017). Developers are normally unaware of the political interests at play in the setting that their solutions aim to influence. And both tech and social organisations very often ignore the conditions on the ground where the pilots will run.

The ubiquity of technology leads to the misapprehension that developing technology solutions is easy and

cheap. In fact, the opposite is true: for each app that is financially successful, there are thousands that have failed (Newton 2016), but we rarely see the failed ones. Our informants frequently complained that the sector is dominated by techno-optimism – especially on the part of funders – which demands novel and quick technological fixes for complex governance issues. There is a blind faith in the possibility of maintaining, supporting and scaling solutions at zero cost, and a widespread expectation that projects and tools that have worked in one context can be easily replicated in new places, or even new countries.

“If I was ever to do any other technology project ... I’m keen, before I put pen to paper in terms of budgeting, to research what will work, and foresee what will be upcoming.” – Programme manager

Neither funders nor proposers of Tech4T&A initiatives seem to have a clear understanding of the landscape of available technologies that could be used in a given context. Frequently, this leads to new pilots being funded that attempt to develop again, from scratch, technologies and approaches that are very similar to ones that failed before, in an attempt to reinvent a ‘flat tyre’ (de Lanerolle 2017). Naive expectations are widespread with regards to both technology and governance, and lead to unrealistic theories of change that beget unrealistic project plans: it is projects that buy into the hype and propose to achieve, in one or two years, what requires at least five, which are more prone to be funded (Flyvbjerg 2009).

The overall picture we observed was that the sector seems immature in its capacity to learn from failures, and to inform programming and funding practices with the available evidence (McGee and Edwards 2016). Changing this situation will require efforts from all actors, from researchers and funders to the organisations running the initiatives. However, we did witness some positive deviants. We observed organisations that were successfully integrating social and technical capacities into multifunctional teams, and organisations that were slowly progressing toward more iterative and agile ways to develop technology and run projects. We heard about organisations rejecting inflexible, hype-motivated funding which would have compromised the long-term impact of the initiative. We have also heard about funders that were more willing to accept that Tech4T&A projects are framed as ‘voyages of discovery’, whose map will be charted as part of the learning journey.

*“There is a need to re-evaluate how donors measure success ... we need new methodologies to evaluate success, because not all projects are ‘instant coffee’.”*

“One of the things that we have learnt is that nothing that we thought at the beginning was actually truth at the end, when you are working with the community. So now we start projects saying: ‘We do not know what the outcomes will be. We will discover!’”  
– Programme manager

### **Challenges related to the management context (internal)**

The internal management context refers to collaboration among core partners involved in a Tech4T&A initiative. There is normally a lead organisation that acts as the main implementer, collaborating with geographic or thematic partners. Funders, the head offices of the implementing organisations, and other key stakeholders are also part of the management context, as they normally set the conditions for important project decisions and influence the project’s management strategies. Adaptiveness in this context demands constant attention and reflexive learning about the effectiveness of the project’s actions and the collaborative practices of the core team.

Most stories of adaptation we heard described how project teams navigated problems on the ground, interacting with external actors to help the project advance. However, there were also stories related to internal issues, such as coordination problems among partners, delays in payments, people who left, or bureaucratic and reporting burdens. These internal issues generated a lot of frustration and the feeling that an important part of the team’s energies had to be diverted from the real work of achieving impact towards activities that do not add value.

“We had to put some functionalities on hold because the project’s time period expired. [But then] the funder is not willing to fund the project anymore, or they have changed their priorities. After the project is done, there is normally no scope to scale it up or fix it up. So we are forced to build things in two years, and it is not possible.” – Designer

Many interviewees reported that donors played a significant role both as facilitators and constrainters of adaptiveness. This is unsurprising, as funders have a high degree of influence on the management context through accountability and reporting mechanisms, project evaluations and the way deviations from the original plan are handled.

In complex domains such as Tech4T&A, where flexibility to adapt to changing contexts is a must, donors

could play an influencing role by promoting adaptive development approaches and encouraging projects to refine their activities and plans as they learn. However, our interviews showed that this is not the case at present. Several interviewees suggested that there is an unresolved contradiction between the inherent complexity of the Tech4T&A domain and the current donor focus on short pilot projects, which is at odds with the adaptive practices that they supposedly promote (Buckley and Ward 2016). Learning and adapting is an ongoing practice that evolves over years, and requires long-term commitments with organisations and their ongoing streams of work, rather than a focus on individual projects (Omidyar Group 2017). Indeed, in our fieldwork, we observed that the organisations that showed more mature adaptive capacities were those working on long-term initiatives, which had attracted more flexible funding streams. Interestingly, several of these positive outliers were initially technically savvy organisations which had progressed into the social and development domains.

“There is a need to re-evaluate how donors measure success ... we need new methodologies to evaluate success, because not all projects are ‘instant coffee’.”  
– Software developer

There are powerful pressures for donors to fund activities against strict log frame-type measures, which specify what will be done by whom and by when, what is to be achieved, and which indicators will be used to measure them. This helps them to ensure there is no malfeasance and enables them to report back on the aggregated impact of the programmes (Pritchett 2017; Tyrrel and Cole 2016). Ensuring accountability and measuring impact are important aspects that must be preserved, but if the entire budget is locked into specific activities at the beginning of a project, that leaves little room for adaptation.

A further constraint on learning in the internal management context is, ironically, related to the monitoring and evaluation processes which should, in theory, be a source of learning and adaptiveness. Top-down evaluation and accountability processes, as well as donor reporting mechanisms, are oriented towards the needs and interests of funders, rather than promoting actionable learning. Interviewees told us that they submitted reports to funders but rarely received meaningful feedback or guidance. In several cases, donors disrupted projects by imposing a course of action or refusing to accept changes to projects which were deemed necessary by the implementing team, due to challenges emerging from the context.

*“The projects that are more likely to be successful are the ones that do not have a strong preconceived notion of what the outcomes will be. They may have an intention, which is fine, but there needs to be flexibility built into every aspect of the project, in terms of how it will be developed.”*

“We don’t get much out of [monitoring and evaluation] because they typically just scratch the surface, getting quantitative data based on the indicators of the logical framework. But in terms of getting the substance of what people feel, how you can do things differently ... very often you don’t have the time or resources to go to that.” – Programme manager

These problems were exacerbated when donors themselves were going through organisational changes or experiencing their own funding issues. Many interviewees observed that funders were slow to respond to requests for support, and were reluctant to facilitate networking or promote initiatives to other potential donors. As a result, the management and coordination of Tech4T&A initiatives cannot currently be reconciled with the adaptive frameworks reviewed. This misalignment between management structures and processes, and the complex nature of Tech4T&A contexts and aims, compromises the capacity of initiatives to understand the contexts where they operate, anticipate and handle potential risks, and continuously learn to achieve the greatest potential impact.

“Every funder has their own interest. So, you always need to adjust what you are doing, not just to the conditions of the place you are working, but also to the conditions of who is giving you the funding. Everyone has different, even boring, administrative requirements, methods of reporting.” – Programme manager

Despite this, we did observe some instances of good practice in this context. Making All Voices Count grantees had seen improvements in the framing and evaluation of project plans, and useful support such as mentoring opportunities and learning spaces. Making All Voices Count also funded reflective practitioners’ research on initiatives, and facilitated networking with potential allies and government bodies.

### **Challenges related to the systemic context (external)**

The external systemic context of a Tech4T&A initiative relates to the technical, social, economic and political contexts in which it operates. This includes a range of stakeholders, beneficiaries, allies, users and opponents, and is the domain for contextual learning. It is possibly the most significant context, since an initiative’s success rests on whether it can adapt to the

characteristics and demands of the context where it operates. For example, since Tech4T&A initiatives are typically addressing issues such as transparency or corruption, there are often vested interests opposed to them from the start, making the systemic context much more challenging than in other types of interventions.

Success depends on a high degree of cooperation between different actors, making communication, collaboration and relationship-building a key challenge. Interviewees found that nurturing the relationships of trust demanded by the projects – internally with partners and funders, and externally with various stakeholders such as government, grass-roots organisations and users – was tremendously challenging and demanded careful reflection, adjustment and flexibility. Relationships are created and strengthened through sustained collaboration, but short timelines and limited capacity make this a challenge.

Our interviewees suggested that building relationships should be accounted for in the design of a project, and the incentives and agendas of all stakeholders involved should be properly assessed during the projects’ initial phases. Simpler, incremental project designs, which start small and initially require a discreet number of relationships, should be favoured.

“The projects that are more likely to be successful are the ones that do not have a strong preconceived notion of what the outcomes will be. They may have an intention, which is fine, but there needs to be flexibility built into every aspect of the project, in terms of how it will be developed.” – Programme manager

Effective collaboration among partners depends very much on their capacity to communicate and coordinate actions, but one of the issues revealed by our interviews was a lack of practices and tools to sustain agile and transparent communication between project participants. As we saw in previous sections, standard monitoring, evaluation and reporting tools and processes do not really support learning for the teams working on the ground. They frequently fail to meet funders’ learning needs as well, as they are prone to disregard, misrepresent or exclude important aspects of projects (Ross 2015).

We observed a general lack of contextual embedding in most of the Tech4T&A initiatives we studied, which is evidenced by the difficulty we had in interviewing

community representatives: just one was interviewed (see Table 2). The poor contextual embedding also explains the difficulty in getting buy-in from users, gatekeepers and stakeholders that many projects reported. Several interviewees explained how, even when the initiative had started, the project team still ignored many essential aspects about context, such as relevant stakeholders that needed to be involved, or the appropriateness of the technology to the abilities and needs of users. They were frequently not fully aware of the high degree of adaptiveness required to run such a project.

Our analysis of proposals and reports from the Making All Voices Count projects confirmed how recognition of these aspects happened gradually throughout project implementation. We were also told that distance to operational settings increases the dependence on others' local knowledge and reduces the capacity to navigate issues. Pilots running in remote counties were usually most problematic and the places where more unexpected problems occurred.

“Traditionally, government does development according to what they think [is good for the community], not what the people of the community want. We want the county government to be able to look at the needs of the community from the eyes of the community, and not from the eyes of the county government.” – Project manager

To a certain degree, ignorance about context is unavoidable: Tech4T&A initiatives have to be seen as a process that aims to discover and learn about all these contextual aspects by creating and expanding relationships with stakeholders on the ground. But it takes time to build relationships and gain insights. Several interviewees commented that, by the time the team started to have a clearer idea of the context, local needs and the appropriateness of technologies, the project was finished.

Relationships with government actors are also critical, as their cooperation is essential for many Tech4T&A initiatives. Many of the projects reported that working

with government was difficult and time-consuming, and that sometimes governments were unwilling to participate until they saw what they might gain from the interaction. Tech4T&A interventions often demand engagement with fragile and problematic institutions as a necessary step to improving and strengthening them. Our interviewees stressed the importance of striking a balance between challenging governments to become more responsive, and earning their trust by supporting them.

As part of our analysis, we assessed their level of maturity with regards to the core adaptive practices (defined in Section 4.3). Table 4 details the overall averaged assessments, differentiating among the four complexity layers identified in Section 4.2. Because of the explorative character of our research, this assessment has no statistical significance. However, the aggregated values reveal the overall low maturity of Tech4T&A initiatives with regards to different adaptive practices; initiatives that exposed 'advanced' or 'institutionalised' levels for any of the practices were an exception in our sample.

The analysis shows how different complexity layers have distinctive adaptive profiles: the software development layer is strong in 'action learning' but lacks in 'embeddedness', an area where the intervention implementation layer is comparatively strong. Embeddedness, moreover, appears to be the weakest area across the different layers. Programme management has the lowest overall maturity across adaptive areas, which may explain the overall lack of adaptiveness of initiatives, as this layer is responsible for providing the rest with an enabling environment (i.e. establishing incentives and mechanisms for accountability).

“Bureaucracy provides less and less room for manoeuvre based on context – especially in [big organisations]. Bureaucracy is just a natural reaction to [an] organisation's growth and that is why local organisations have more room for manoeuvre.” – Project manager

**Table 4. Observed maturity levels of core adaptive practices across complexity layers**

Complexity layer	Adaptive practices	Energised teams	Embeddedness	Value generation	Action learning
Programme management		+	–	+	+
Intervention implementation		+	++	++	+
Solution delivery		++	+	++	+
Software development		+	–	++	++

Maturity level:

++++ : institutionalised; +++ : advanced; ++ : expanding; + : emergent; – : not yet present



*“If you create a good enough ecosystem, when something goes wrong, it self-corrects ... If you do it right, people are invested enough to say ‘okay, let’s come back to the table, all the different partners, and let’s figure out how to make this work’.”*

### 5.3 Balancing accountabilities to promote adaptive learning

During our fieldwork, it became clear that accountability arrangements in development projects play a critical role in both enabling and, more often, inhibiting adaptive learning. As we argued in the literature review section, adaptiveness and learning in development are frequently linked to the types of accountability to which NGOs and development organisations are subjected (Engel *et al.* 2007; Ebrahim 2005). The two dominant types are:

- *Upward accountability* refers to relationships with the donors, foundations and governments which fund the organisation’s activities. It aims to guarantee that the agreed plans are followed and the money is spent on the designated purposes.
- *Downward accountability* refers to relationships with the groups and people supported by development organisations, to whom ‘services’ are provided. It may also include communities and spaces indirectly affected by NGO programmes. It is concerned with delivering meaningful interventions that achieve impact and provide real value.

The focus for many projects has traditionally been on upward accountability, often at the cost of downward accountability. This has been criticised, partly on moral grounds, considering that accountability to beneficiaries should have primacy and be applied to all organisations involved in the development chain, including donor agencies, but also because of the negative effects that the predominance of upward accountability has on the sector. As our interviews showed, most monitoring, evaluation and project-cycle management tools in place are oriented to satisfying the reporting and oversight needs of funders, seriously limiting project implementers’ capacity to learn and adjust. This also impairs donors’ capacity to learn, as these accountability models are known to incentivise misinformation and lies (Wallace, Bornstein and Chapman 2007).

*“If you create a good enough ecosystem, when something goes wrong it self-corrects ... If you do it right, people are invested enough to say ‘okay, let’s*

*come back to the table, all the different partners, and let’s figure out how to make this work’.”* – Programme manager

A rebalancing of accountability models in favour of adaptiveness is required. Accountability as a control should be complemented with new forms of accountability as support; when a problem happens, the question should not be ‘Whose fault is it?’, but ‘How can I help you? What do you need?’, and eventually ‘What can we learn?’.

Development initiatives need to show their consistent progress in action learning outcomes, as well as in deepening and widening relationships with relevant actors. Funders, implementers and other stakeholders should invest in sustaining long-term partnerships that focus on establishing shared objectives, building trust and enabling joint learning (van Veen and Rijper 2017).

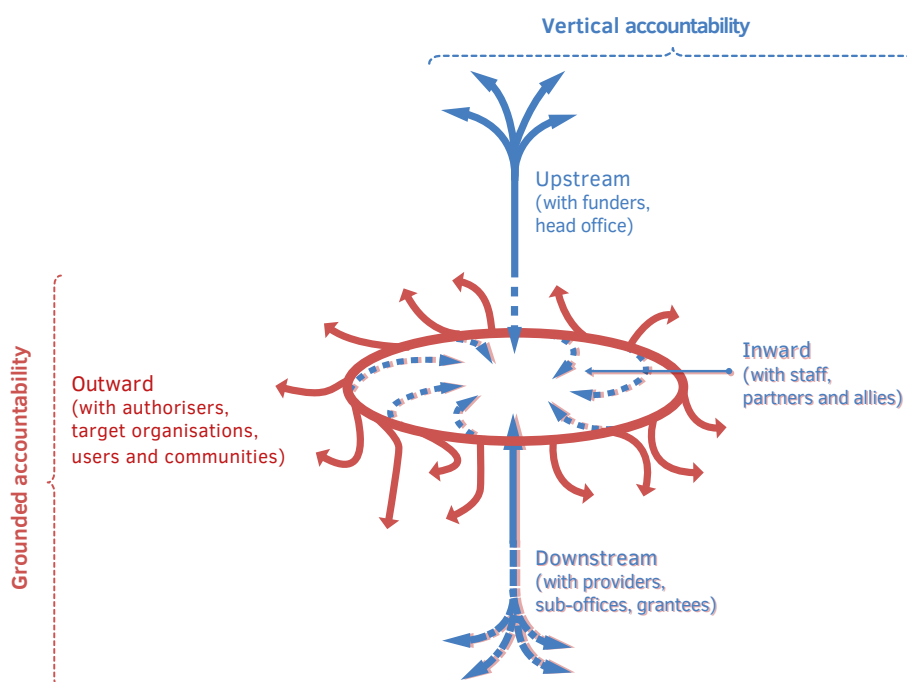
These ideas were reflected in our interviewees’ accounts of the adaptive challenges they faced. As noted, accountability imbalances not only affect the management context of initiatives, but also disturb their operational and knowledge contexts in ways that are not fully accounted for by the traditional upward and downward accountability. For this reason, we devised the concepts of vertical and grounded accountability – explained below – which complement and add nuance to traditional accountability categories.

Our interviews revealed that a network of collaborations, of mutual ‘feedback relationships’, gradually emerged around the Tech4T&A initiative, providing social spaces where accountability and learning can happen. These relationships are essential for the success of initiatives, and flourish across different places and domains of expertise, and between very different actors. The fieldwork identified four settings where these collaboration flows are established: upstream, downstream, outward and inward. Figure 8 shows how these four collaboration flows can be blended to conform to vertical and grounded accountability.

The focus of vertical accountability lies on control, support and ‘doing things right’, while grounded accountability focuses on learning, adaptiveness and ‘doing the right thing’. Both are related to traditional



Figure 8. Collaboration flows involved in vertical and grounded accountability



Source: Author’s own, inspired by interviews and Reinertsen et al. (2017), Kolker and Kuldorff (2013) and Engel et al. (2007)

upward and downward accountability concepts, but add nuance and detail when it comes to learning and adaptiveness. Table 5 shows how the different collaboration flows contribute to each. For illustrative purposes, it also shows the relevance of these flows for upward and downward accountability.

Vertical accountability is concerned with guaranteeing the appropriate use of resources, good management and operational excellence, like in the case of the traditional upward accountability. However, by means of the downstream flows, vertical accountability also aims to provide support – such as knowledge, mentoring or networking opportunities – to implementing

organisations, as a way to increase their capacity to deliver. Upstream and downstream flows can be used by donors to provide guidance and targets, and by implementing organisations to deliver their reports.

Since collaboration flows are bidirectional, they also provide a channel for a more agile transmission of information and knowledge. Donors can supply expertise, new emergent evidence, or lessons learned and contacts from similar programmes, while lower organisations can provide donors with real-time visibility about their activities, impacts and challenges. Vertical accountability therefore combines the relationships of an organisation with its funders

Table 5. Contribution of collaboration flows to vertical and grounded accountability

Flow direction	Actors involved	Vertical accountability	Grounded accountability	Upward accountability	Downward accountability
Upstream	Funders, main office	++++	+	++++	-
Downstream	Providers, sub-offices, grantees	+++	++	-	-
Inward	Staff, partners, allies	++	+++	-	+
Outward	Target organisations and beneficiaries, stakeholders, communities, users	+	++++	-	++++

Contribution levels:

++++ : very important; +++ : important; ++ : medium; + : minor; - : not considered

through upstream flows, together with the relationships with its providers or sub-grantees through downstream flows. In this way, vertical accountability promotes single-loop learning and operational course corrections within a given plan and strategy.

“We approached the county government not as an [international organisation] but as a group of partners, including local partners, so ... in meetings we would not even speak. We would let partners speak on behalf of the initiative.” – Programme manager

*Grounded accountability*, on the other hand, is all about fulfilling the mission set for the organisation or the initiative at hand, and involves deeper questioning of the programme’s assumptions. It is about achieving impact as perceived by the initiative’s stakeholders and beneficiaries. Thus, grounded accountability promotes reflective double- and triple-loop learning, identifying at each moment the most promising strategies to keep delivering value and improvement. This helps to ensure that appropriate adaptive methods are used and adjusted to local conditions, for each layer of complexity.

Grounded accountability has a relational character, and aims to promote embeddedness and facilitate

evidential, evaluative and contextual learning for all stakeholders involved in an initiative. This is achieved by convening networking opportunities downstream, by collaborating inwardly and outwardly, and by advocating critical reflection in all directions (Haikin and Flatters 2017). This is why the outward and inward collaboration flows have primacy.

Vertical and grounded accountability have strong potential for mutual reinforcement. An organisation could, for example, nurture the adaptive capacities of its providers and stakeholders by providing them with opportunities to network and reflect on the project. By doing so, it would not only build trust and reinforce its connections with the lower levels, but also increase the value it can provide to the higher level: its reinforced relationships enable the organisation to bridge the upper and lower levels better, providing both levels with increased mutual visibility, upwards and downwards, which none would have otherwise.

“As the number of organisations involved in the initiative grew, it went from very difficult to much easier [to engage organisations] to almost impossible for organisations to refuse to engage.” – Programme manager

## 6. Conclusions and recommendations

“We have still important issues to solve ... but we are winning!” This was the closing remark at the ‘Implementing the New Development Agenda’ workshop of the global Doing Development Differently community (Teskey 2017). It may seem a bold claim, but the truth is that the adaptive development space has become very lively in recent years, with frequent reports and case studies, networking events, courses, and launches of adaptive programmes, and with donors increasingly committing to adaptive principles in their policy and guidance documents.

At the conceptual level, adaptive ideas are winning ground: there is a growing awareness on the part of donors, researchers and practitioners of the need to incorporate adaptiveness into the whole cycle of development programming. Adaptive ideas have gained traction as a way to improve development interventions, recognising that strategies, project designs and implementation plans need to be altered as new learning emerges or the context shifts.

However, there is still no clear answer on how to operationalise the adaptive agenda for the different actors involved, and the wealth of adaptive ‘brands’ that exist does not facilitate the application of adaptive principles. For example, a recent USAID (2017b)

concept note that requested ideas for a new adaptive programme included links to resources on System Thinking, Thinking and Working Politically, Problem-Driven Iterative Adaptation, Doing Development Differently, Collaborating, Learning, Adapting, complexity-aware monitoring, evaluation and learning, positive deviance, working with the grain, and politically smart / locally led approaches. This is overwhelming, especially as all these concepts are aligned and propose similar mindsets, methods and tools.

This research project attempted to help clarify ideas around adaptive development, with a focus on the Tech4T&A sector. This sector offers a rich scenario to spot emergent issues and trends, as it engages with both complex governance and complex technology issues. We examined the perspectives of the professionals working in different areas of Tech4T&A initiatives, to contrast adaptive principles with the realities of adaptiveness in actual projects. Additionally, we engaged critically with different adaptive literatures from technical and sociological domains, looking for essential concepts that could help to structure knowledge in the adaptive development field. Our insights from the ‘agile’ and ‘lean’ domains shed light on grey areas of current adaptive development frameworks, and could improve adaptive programming practices.

This report synthesises the most important issues, challenges and barriers that currently limit the adaptive capacity of Tech4T&A initiatives. Adaptive capacity was identified by our interviewees as essential for the success of initiatives – there were many cases that demonstrated that a lack of adaptiveness is an important factor behind the failure of Tech4T&A initiatives. Overall, we observed widespread low maturity in adaptive practices among Tech4T&A initiatives, partly resulting from short project timelines and the lack of enabling environments for learning and adaptation. Programme accountability arrangements also emerged as a major barrier to adaptiveness; balancing accountability is one of the central issues that need to be addressed to enable higher degrees of adaptiveness.

Distinct conceptual contributions resulting from our desk research and fieldwork include:

- an analytical framework (see Figure 7) that allows Tech4T&A adaptiveness issues to be categorised within a series of layers of growing techno-social complexity, and which links challenges to several adaptive contexts – knowledge, management and systemic contexts – and to the corresponding adaptive learning sources – evidential, evaluative and contextual
- identification of four core adaptive development practices (see Figure 6):
  - a. *energised teams*: trusted, sustained, self-directed, multifunctional, creative and communicative teams
  - b. *embeddedness*: continued engagement with partners, customers, users, community and context
  - c. *value generation*: early and incremental value provision through risk-aware, iterative delivery
  - d. *action learning*: periodic data-driven and reflective deliberation to improve product, processes and organisation
- a conceptual framing (see Figure 8) that links vertical and grounded accountability in development programmes and interventions with the various collaboration flows that sustain adaptiveness – upstream, downstream, inward and outward.

None of these contributions is purely theoretical. Our primary research (interviews and study of project documents and deliverables) informed our analysis of the literature, and influenced and field-tested all the conceptual models developed in our research.

Our fieldwork findings are consistent with the principles and concepts that sustain current adaptive management frameworks. Most of the issues we identified in the Tech4T&A initiatives are aligned with those described in the literature, and the strategies proposed by our interviewees resonate with the

practices and methods recommended in adaptive frameworks. However, our research provided evidence of a big divide between the theories of adaptiveness and its practice on the ground. Donors, programme implementers and those directly involved in Tech4T&A initiatives may be willing to be adaptive and to encourage others to be adaptive, but the reality is that they are struggling to achieve it.

The big question, therefore, is how to extend adaptive programming practices further: how to socialise and operationalise existing knowledge into actual projects and programmes, and translate this knowledge into a series of accessible practices that can be applied by more people in more settings. Simplifying adaptive theories and making them more accessible and actionable could be more important than further elaboration (Pascale *et al.* 2010). Since Problem-Driven Iterative Adaptation is the most robust and practice-oriented framework, its use in different settings should be promoted as a way to generate a default standard, which can then be adapted to the needs of different sectors and actors. There are growing numbers of Problem-Driven Iterative Adaptation courses, case studies and teaching materials that could help to extend its use (Andrews, Ariyasinghe *et al.* 2017; Andrews, Pritchett *et al.* 2017; Samji 2017).

Overall, our research suggests that the most appropriate strategy is to keep trying things: to keep experimenting, networking and advocating, as in recent years. As suggested in Section 4.2, the current situation in the development sector corresponds with the consolidation of ‘authorising environments’, which in turn encourage experimentation and accelerate the diffusion of positive deviance in a system.

The diffusion of new adaptive monitoring, evaluation and learning methods that document increased performance and demonstrate learning, while providing accountability, should reinforce the case for further institutional support for adaptiveness. Important actors such as USAID and DFID are already seriously pursuing this agenda. They are about to launch a Global Learning for Adaptive Management programme (DFID 2016), which will examine the effectiveness of adaptive approaches and propose new monitoring, evaluation and learning tools and methodologies that support a more balanced relationship between vertical and grounded accountability.

A final important question is to consider the implications of adaptiveness for different development actors. Does ‘being adaptive’ mean different things for different actors, who operate under different constraints and time frames, and aim to generate changes at different scales and strategic levels?

This question links with the final, overarching conclusion from our work. Our interviews mainly involved people

implementing Tech4T&A initiatives, but we also held conversations with Tech4T&A experts, programme implementers and donors (see Table 2). The analysis of these dialogues led us to an important realisation: many of the aspirations, challenges and frustrations that we identified for Tech4T&A initiatives are, to some degree, shared by other actors and levels involved in the development chain. The same seems to apply to some of the remedies and changes required to improve adaptiveness: they are relevant at multiple levels.

Let's look, for example, at some of the problems that typically affect a Tech4T&A initiative's implementing team: coping with strict reporting pressures, difficulties in coordinating work with project partners, their lack of awareness of what is happening at the lower, community level. The same problems are experienced by wider programme implementers, who have to deal with even stricter reporting and forecasting requirements from donors, coordinate their work with other programme implementers, and fully depend on grantees for information about the progress made. The same could be said about donors (Natsios 2010) or local partners operating on the ground. Each actor is held accountable for its results and its use of resources, and has to coordinate its work with others.

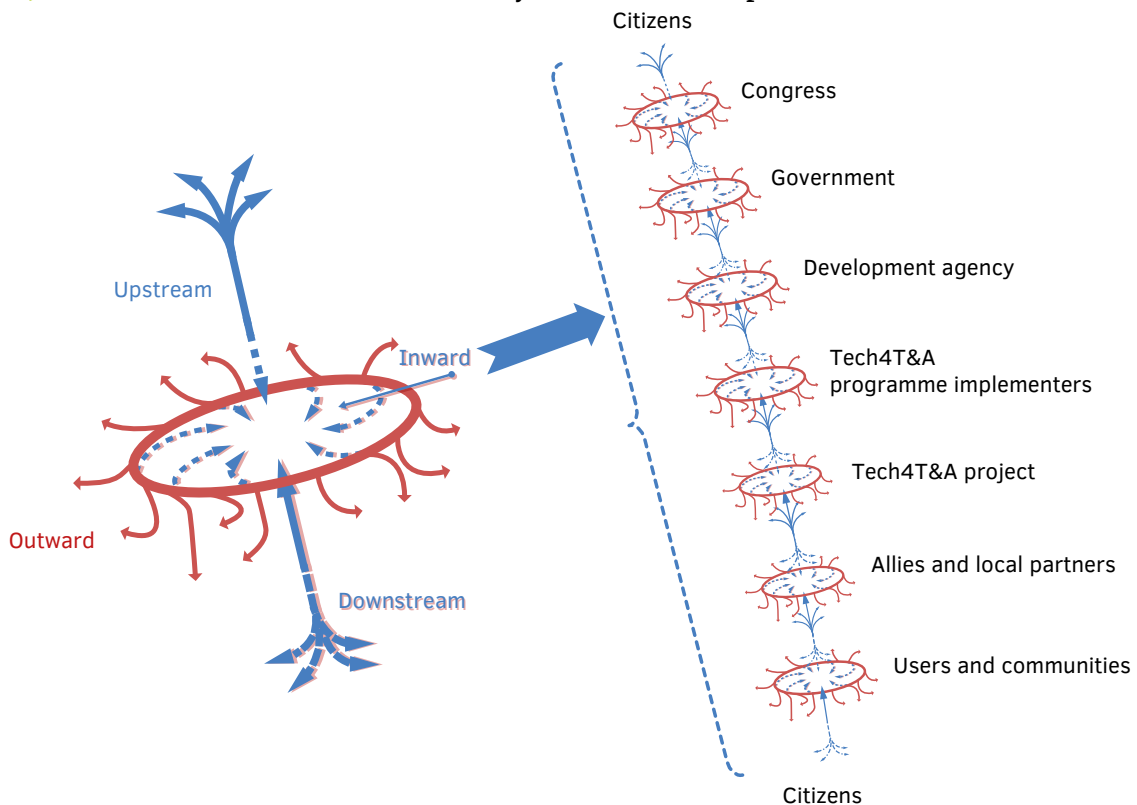
Figure 9 illustrates how, regardless of the level where an actor operates, its adaptive and learning capacities depend on a network of upstream, downstream,

outward and inward collaborations and feedback relationships with other actors, which extend across levels. Fox (2016) has argued that to improve governance through transparency, accountability and participation, systemic strategies are required which take into account different scales of action and involve coordinated monitoring and advocacy activities performed by different actors at multiple levels.

Something similar can be said about adaptiveness in development. Improving the adaptive and learning capacity of the development sector ultimately means increasing its responsiveness to the needs of its beneficiaries and stakeholders. Such a change requires systemic and concerted actions at various levels. When vertical and grounded accountabilities are balanced, they reinforce each other and enable information and trust to flow from the bottom up, as well as from the top down, increasing the reflexivity and adaptive capacity of the system (Roe 2016; Waldrop 1993). Figure 9, while an oversimplification, aims to highlight the fractal nature of the system along its vertical dimension; a more realistic diagram would include many interconnected actors at each level.

A shared awareness among development actors about the similar challenges and constraints they face could lead to better collaboration. The tools and practices used at one level – for example, to improve communication – could be applied or adapted to other

Figure 9. Collaboration flows and accountability across the development chain



Source: Author's own

levels, and a lot of mutual learning could be leveraged. Very similar recommendations could be applied to the different actors involved in Tech4T&A initiatives and programmes; they just need to be adjusted to the characteristics of the agents involved, and the characteristics of the contexts and complexity layers in which they operate. Applying similar actions in parallel at different levels can result in a more effective

handling of challenges. Such an alignment has the potential to engender empathy, and can reduce the tendency to blame those at the top, or those at the bottom, for problems. When you understand that others are subject to similar pressures, and when you realise that you are replicating these pressures onto actors down your line of accountability, different attitudes and relationship dynamics can emerge.

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## About Making All Voices Count

Making All Voices Count is a programme working towards a world in which open, effective and participatory governance is the norm and not the exception. It focuses global attention on creative and cutting-edge solutions to transform the relationship between citizens and their governments. The programme is inspired by and supports the goals of the Open Government Partnership.

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## Research, Evidence and Learning component

The programme's Research, Evidence and Learning component, managed by IDS, contributes to improving performance and practice, and builds an evidence base in the field of citizen voice, government responsiveness, transparency and accountability (T&A) and technology for T&A (Tech4T&A).

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