

Nesta...

INNOVATION FOR INTERNATIONAL DEVELOPMENT

NAVIGATING THE PATHS
AND PITFALLS



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This essay looks at the opportunities of digital technologies and the potential problems of over-reliance as a development panacea. It uses M-Pesa to highlight the potential benefits and challenges of digital development, and argues that the effective scaling of digital tools will involve disrupting traditional development efforts, enabling communities to do work on their own terms and in their own interests.

Horizons or mirages: exploring the potential and limits of digital innovations

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Digital technologies have become popular in development and humanitarian work. It seems impossible to go a single day without a new app or platform or innovation being announced, with high expectations for how they will transform the lives of people in developing countries. Evidence suggests that digital technologies are central to the new innovation movement described by all of the contributors to this volume: over half the applications to various innovation grant funds are said to be for digital technologies. The Principles of Digital Development,⁹¹ laid out in 2015, and now signed up to by many international organisations, are increasingly being seen as synonymous with the principles of innovation for development.

One of the enduring questions posed to digital development efforts is how much they truly transform the nature of and approach to development taken by international organisations. There is a surprising amount that we still don't know in this area.

Work on information communications for development (or ICT4D) has a history spanning several decades, but practitioners have been described as ‘intellectually jogging on the spot’.⁹² One of the leading scholars in the field, Richard Heeks of Manchester University, has described most projects as resulting in “*partial failure, sustainability failure or complete failure*”. And a founder of Microsoft Research in India has argued that much work in this area is ‘empty sloganeering that collapse[s] under critical thinking’. And the recently published World Development Report⁹³ on Internet for Development has shown that while digital technologies are spreading, the benefits are not, and in fact there may be aspects of the digital revolution that heighten inequality. Our own work on innovation within international development organisations has left us questioning the extent to which the truly radical implications are being explored: instead, digital is being used in incremental ways, to enhance efficiency, or to streamline existing business models, but rarely to question them.

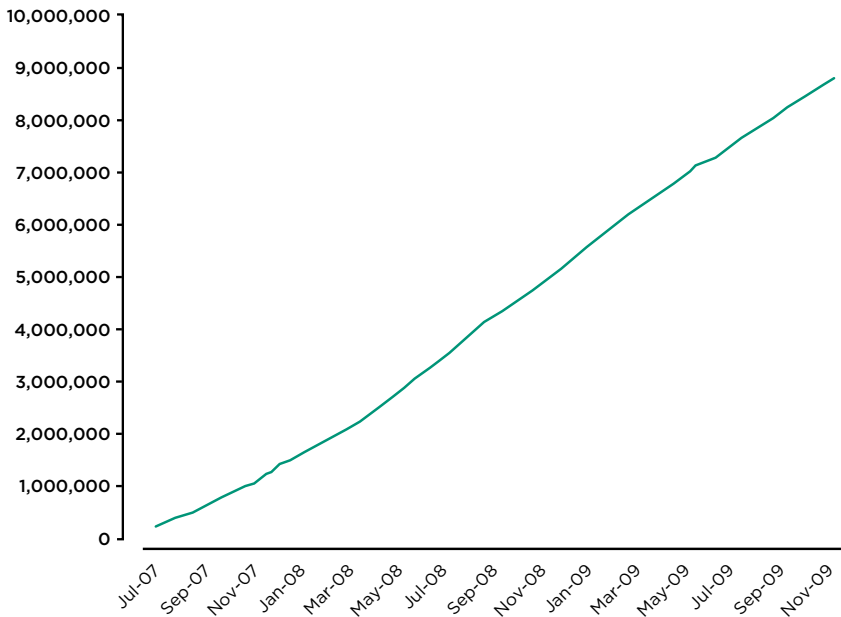
As a UN/Vodafone Foundation report found that digital approaches tend to reinforce existing bureaucracies and power structures, and the development sector tends to use these approaches in vertical and hierarchical ways rather than tapping into their horizontal, empowering potential.⁹⁴

Given this fairly comprehensive set of criticisms, why should anyone put any faith whatsoever in digital development initiatives? It appears that, unlike recalcitrant schoolchildren, where the few give the rest a bad name, in ICT4D there are a few successes that give the rest a good name. These approaches have been developed in parallel to mainstream digital development efforts, but typically do not originate within international organisations. Instead, they grew from locally-grounded, contextually-specific processes of technological adaptation to enduring problems that affect large parts of the population.

Take M-Pesa, one of the developing world’s genuine digital success stories. The story begins in 2007, when Kenya’s largest mobile phone operator, Safaricom, launched a new system called M-Pesa (‘pesa’ being the Swahili word for cash). The original intention was for M-Pesa to be a platform for customers to receive and send money and for microfinance organisations to improve their process and repayment efficiency. Subsequently, it was seen as having potential as a peer-to-peer payment service provider. The rest is innovation history.

Within two short years, the user-base had rocketed to almost nine million people nationally (Figure 4) and in 2013, M-Pesa transacted \$22 billion, amounting to 50 per cent of Kenya’s GDP. It completes more transactions in Kenya each year than Western Union does across its entire global network.

Figure 4: MPesa Growth



M-Pesa has become a model for mobile money applications around the world, and has brought financial services to a vast segment of the Kenyan population that would not otherwise have had access to a bank account. At the time of writing, M-Pesa agents in Kenya outnumber ATMs by a factor of ten. The perspectives of customers are clear: *“almost all [customers] surveyed [responded] that the service was quicker, faster, safer and more convenient than any alternative money transfer method; 84 per cent of respondents claimed that losing access to M-Pesa would have a significant negative impact on their life.”*⁹⁵

However, M-Pesa has not achieved the same degree of success in other countries – although other mobile money systems have taken off. The reasons why this is the case underpin a key message for digital innovation generally, and for digital development efforts in particular. Analysis of the factors behind the success of M-Pesa identify that although the design, delivery and socio-cultural contexts were all crucial, it is the latter that are least often mentioned or considered. It turns out that its success was attributable more to its fit with existing behaviours and relationships in Kenya, with its societal patterns of close-knit family life and urban-rural migration. There were in fact informal money markets in Kenya long before M-Pesa, through networks called halawa, which enabled agents to communicate with each other across long distances and provide cash brokerage services.

Over time, this system evolved to meet the needs of a highly dynamic, urban-rural population. By the year 2000, people were using mobile phone airtime as a proxy for cash transfer. As one review of the M-Pesa approach found, the system doesn't offer a structure in its own right, but instead a flexible tool that can be used in a whole range of different informal transactions across individual social networks, revealing the vast range of interpersonal transactions Kenyans undertake that are endemic

to their financial lives.⁹⁶ The review found that M-Pesa's success was directly attributable to the fact that its use was embedded in and profoundly shaped by social relationships and behavioural patterns.

Today, it is used in a dizzying variety of ways: to pay school fees, send pocket money, pay for drinks in bars, make informal loan repayments, send money for weddings and other social funding drives, pay for public transport, and more. This is a testament to the power of the tool to harmonise with the self-organised, networked and dynamic transactions that characterise Kenya's informal economy. But M-Pesa has also brought things the informal economy didn't have: security, connectivity and volume.

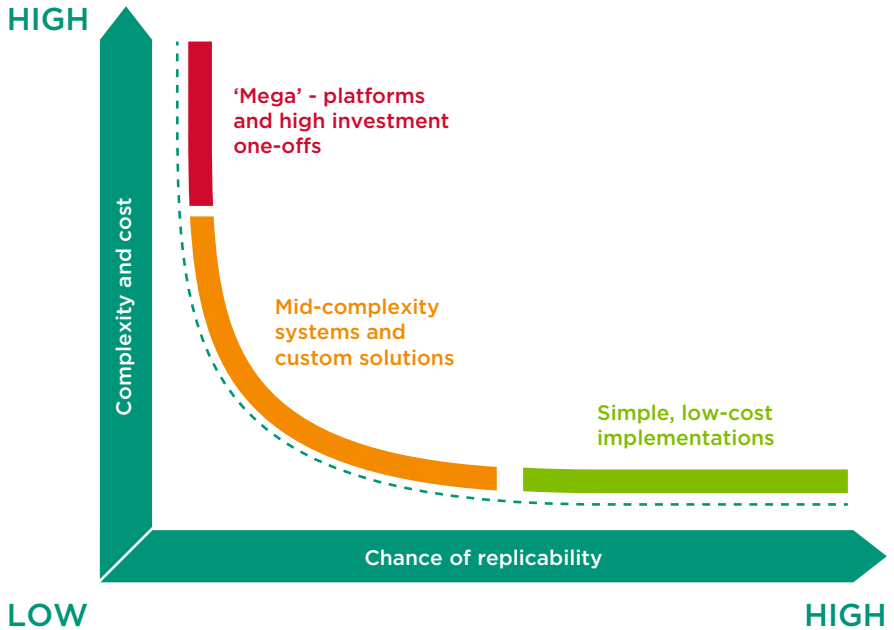
Interestingly, M-Pesa received £1 million in matched funding from an international agency, DFID, and a commercial mobile operator, Vodafone, to get going, but once the process had started it became self-sustaining.⁹⁷ Could DFID have anticipated this success upfront? It seems unlikely.



Another example is FrontlineSMS, developed by one of the authors. The earlier desktop version is a free open-source piece of software that can be used to distribute and collect information via text messages. Or to put it another way, if you have a laptop and a phone (or a USB modem) you can create a two-way group-messaging hub anywhere there's a mobile signal. Importantly for many development efforts, it can work without an internet connection, and was originally developed by Ken Banks in 2005 to help conservationists keep in touch with communities around Kruger National Park in South Africa. While that particular implementation stumbled, at the time increasing numbers of people were beginning to recognise the power of the mass-messaging functionality. FrontlineSMS has since spread to over 170 countries and has been used in everything from reporting human rights abuses, monitoring elections, crisis mapping and disease response. Like M-Pesa, FrontlineSMS's power comes from its ability to tap into basic social dynamics, and its potential to be adapted to different contexts and needs.

Indeed, it is that flexibility that has been at the heart of its success, borne out by the fact that a platform developed with conservation in mind has been used in almost all other sectors of development since. It was also squarely aimed at the 'long tail' of mobile users: the many grassroots non-profits and social actors – many in the developing world – who didn't need outside expertise or help, but did need a tool to allow them to implement their own projects and solutions based on their own deeper understanding of the problem.

Figure 5: Social mobile's long tail



Source: www.kiwanja.net/wp-content/uploads/2009/03/socialmobilelongtail.jpg

FrontlineSMS was also built around an appropriate technology ethos, not only making use of the technologies people had in their hands but also a data channel they were most comfortable with – SMS. It was based on a ‘pull approach’: users driving the whole process based on their thoughts about how the platform could best help them. Through their collective use of the platform, tens of millions of people – their own target audiences – have benefited. That all said, despite its success it is revealing that few tools, if any, have been built since with any of this in mind – but more on that later.

Further examples can be found outside the realms of corporations or activists. In India, a digital biometric identification system has been rolling out since 2009, providing every individual with a unique ID. Academic research prior to the launch of Aadhaar found similar projects to be *“too complex, technically unsafe, overly prescriptive and lacking a foundation of public trust and confidence.”*⁹⁸ This scheme, which now covers 92 per cent of the adult population, has been used in a wide variety of ways: to open bank accounts, to purchase mobile phones, to prove identities and addresses and, most significantly, for the disbursement of social welfare payments. It turned out that many people wanted to be registered because it gave them official recognition and conferred citizenship status, offering protection against state official corruption and other potential vested interests. The World Bank estimates that Aadhaar-linked disbursements of fuel subsidy payments has saved India a billion pounds annually through efficiency savings, reduced corruption in the welfare system, and addressed other forms of financial leakage.⁹⁹

These transformative digital technologies have some common qualities.

First, they all focused on appropriateness and relevance to culture and context, and to specific human needs that were grounded in that context – the addressing of which had the potential to generate development gains.

Second, they can be used by poor people and communities to meet their needs directly. Third, they are not controlled by any single organisation, nor do the benefits accrue disproportionately to any one organisation. Fourth, they often have empowerment and inclusion as key goals, or at the very least, a means by which to achieve their goals. Fifth, they are all platforms which

enable the development of an infinite number of solutions, rather than just a single, specific solution. This means they can enable adaptation and iteration by those seeking to solve specific challenges using technology, often taking the tool in new directions and to meet new needs. Sixth, and finally, these are all tools that have quite clearly grown to considerable scale, nationally and globally, and in doing so, have led to changes in whole systems.

It seems clear that making systemic change happen through digital development requires these kinds of approaches to become the norm and not the exception. But achieving this will not be easy. Although the formal system can support such approaches from a distance, as DFID did with M-Pesa, there is an irony that many larger development institutions may feel threatened by genuinely empowering tools and may resist or hold back on their development as a result. Behaviour change is inherently more challenging than the technology ever is.

Indeed, issues of power and control abound. As noted above, traditional development bureaucracies have struggled to deal with the potential for more open-source, distributed, contextually-relevant approaches, enabled by digital technologies. By contrast, the most transformative and scalable successes are precisely those that are open source and contextually grounded.

So what might it take to make such approaches the norm in digital innovation?

The lessons are, in fact, evident in many of the other essays in this volume.

- There will need to be changes in how such efforts are funded and supported by donors, with more of a hands-off, enabling role, rather than a directive, contractual relationship.¹⁰⁰

- There will need to be much more attention paid to bringing local and national voices and perspectives in at the outset, not just as data sources but as active partners and primary users of digital innovations.
- There will need to be much more attention paid to how new ideas are brought in from outside the sector, from unusual suspects.
- There will need to be a reduction in the sector's obsession with innovation, and a realisation that more often than not older, less 'innovative' solutions might be better at solving certain development challenges.
- Finally, there will need to be approaches to scale that considers social, behavioural and cultural dynamics as the central challenge.

This last point is the one that stands out as most prominent and significant, and is worth expanding upon in closing. The work of Brian Arthur suggests that successful innovations start with observations of natural phenomena, whether physical, biomedical, or social.¹⁰¹ Innovations then seek to replicate or mimic the power of these phenomena – in a process that is referred to as 'deep craft'. Deep craft on particular issues cannot be easily taught; it needs to be absorbed through in-depth, long-term engagement and mutual learning. This of course demands all of the other enablers listed above are also in place. One of the authors of this paper has regularly argued that we need more anthropologists in international development, specifically because their approach encourages and provides the deeper, socially-focused, longer-term, more meaningful learning that we require.

As Bill Gates has argued, *"If technology is going to improve the lives of the world's poorest, it must be grounded in a deep*

understanding of human behaviour and an appreciation for cultural differences."¹⁰² This understanding and appreciation is indeed the deep craft described above, and it may well be the most necessary capability to strengthen if digital development efforts are to succeed. On the basis of the work and lessons to date, the sooner the development sector takes on board this message, the better.

What you should take away from this...

- Digital innovations should be seen as flexible tools that enable the development of an infinite number of solutions, rather than single, specific solutions. They should enable adaptation and iteration by those seeking to solve specific challenges using technology, often taking the tool in new directions and to meet new needs.
- Attention needs to be paid to bringing local voices and perspectives in at the outset, not just as data sources but as active partners and primary users of digital innovations. Users should be driving the whole process, based on how they believe the tool could best meet their needs and allow them to develop and implement their own solutions.
- There needs to be a realisation that more often than not, older less 'innovative' solutions that are built around an appropriate technology ethos might be better at solving certain development challenges.
- Approaches to scaling digital innovations must tap into and be embedded in social relationships and behavioural patterns. Such appreciation for cultural differences and context requires in-depth, long-term engagement and mutual learning, and is crucial if digital development efforts are to succeed.



About the lead authors

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