The real stories behind ICTs in the water (and other) sectors

As the billion dollar award in the lawsuit brought by the world’s largest company – Apple – against its Korean rival – Samsung – has reminded us, one of the hallmarks of our time is the rapid spread of mobile phones and the explosion in communications and information sharing that they have permitted.

INTRODUCTION

Whilst much of this activity is limited to the social sphere, one of the early trends of this decade is how ICT (Information and Communications Technology) tools are changing the way that other fields work, including public services. Indeed there are hopes that harnessing ICT intelligently can bring about radical improvements in the way that health, education and other sectors function, particularly in developing countries.

The water sector has not been as quick as some others to take up these new tools, but as the field matures somewhat, interest is growing. The use of cellphones to read meters, pay bills and report faults is of great interest to water utilities specifically – whilst regulators, governments, donors and NGOs are all interested in how ICT can help them better understand what is happening on the ground, react to changing situations, to plan and invest better.

To explore these issues and capitalise on experience, an event was hosted at the University of Cape Town in June 2012, bringing together 30+ practitioners in this field. Water sector professionals from across Southern Africa were joined by their colleagues in health – a sector that has been quick to innovate, try different approaches and learn lessons. The event was co-convened by two organisations with a keen interest in the topic: Seaworx, a social enterprise that customises ICT to support sanitation and water providers and iComms, a University of Cape Town research unit (Information for Community Oriented Municipal Services).

ICT systems in the water sector are being used to achieve the following:

- Strengthen revenue collection
- Manage assets more productively
- Build more productive relationships with customers
- Measure and report technical performance
- Allow for improved or more effective financing of the sector

"ICT isn’t a panacea, but it does create opportunities. Ultimately, its real value may just lie in the fact that it finally gives citizens in otherwise inaccessible areas a voice when they didn’t have a way to be heard before.”


OBJECTIVES

The event - called ‘But does it float?’ – had three key objectives:

1. To help practitioners and policymakers better understand the circumstances in which ICT usage can be effective in supporting public service delivery (and highlight when they are not).
2. To get practitioners from different organisations (civil society, government, private sector, academia) and different sectors (health, water, education, etc) to talk through real-life case studies involving ICT tools to examine the impact that they have had and to unpack the incentives and disincentives to adopting such systems.
3. To help practitioners cut through much of the complexity and hype surrounding ICT usage, giving them a robust set of principles with which to plan and negotiate partnerships and projects.

The event was designed to cater for all perspectives, from those experienced in technology solutions with valuable experience to share, to recent users who needed to troubleshoot, through to those keen to utilise the technology but still needing to learn more about ICT and its potential.

Whilst the range of tools that are available is growing by the day, there is some consistency in how these are being used so far. Tools such as SMS are speeding up communications between different groups, making it easier to source information from the general public. Information tools such as Google Maps are helping organisations map their operations and identify patterns of activity. The growth of ‘mobile-money’ is bringing more people into the formal banking system and helping to digitalise the system of water payments.

“In talking openly about how we can use ICT to improve services, we need to discuss some of the visible and not-so-visible challenges that are currently blocking service delivery. We need to focus on practical improvements that can be rolled out widely and, importantly, be sustained over time.”

David Schaub-Jones, Seawarx

All of these systems allow stakeholders to collect, transmit and analyse information of increased quantity and quality within a shorter period of time. Seawarx has scanned the range of innovations taking place, revealing what appears to be an underlying pattern. This suggests that there are three main drivers for stakeholders to adopt ICT in their operations:

- It improves access to information,
- It can bring immediate and long-term financial benefits; and
- It allows confidence-building between stakeholders, which contributes to greater responsiveness, mutual accountability and trust.

As in this diagram, confidence-building tends to underlie the more tangible objectives of access to information and financial benefits. The boundaries between the categories are however not hard and fast and the usage of many ICT tools can be said to contribute to more than one of these at a time.


"But does it float?" took this premise (information, financial gain and confidence building) as its starting point. Alex Nash, Seawarx co-founder, gave an introductory presentation that explained this in more detail and referred to some of the global trends taking place around the use of ICT in the water and sanitation sector. Professor Gary Marsden of UCT, delving into his two decade-long experience in the field, talked about the general role of ICT in service delivery, with specific reference to health-focussed projects in the Eastern and Western Cape.

ICT HAS OPENED UP A NEW WORLD OF OPPORTUNITY

Whereas the typical systems existing in the water sector have a very linear and closed flow of information, the new ICT tools allow radical changes. Traditional systems tend to rely on their data from field staff of the water service providers (often municipal staff) – who would then submit this – at the end of the day or week – to the provider’s IT system. From there the data wends its way via the accounting and engineering departments to management (often with significant delays). Providers then submit a ‘prepared brief’ to the regulatory or policymaker – perhaps monthly, or more often quarterly or less often.

The rapid evolution of ICT tools allows ‘new systems’ to radically depart from this practice. New avenues for collecting data and failing transmission costs have led to an explosion in the amount of data that can be practically collected (and turned into useful information). This can also be done now in almost real time, with the rapid collection of a range of data in both higher quantity and quality now possible. On top of this the source of the data is no longer just the field-staff of the water service provider – but information can be collected from the public directly (either customers or concerned ‘members of society’) as well as other organisations, such as NGOs or community-based organisations (CBOs).

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This focus on concrete case studies continued, Professor Ulikle Rivett of iComms talking about the Aqueduct experience where mobile phones were used to relay water quality data from often remote rural areas in six countries. Kieran Sharpey-Schafer, now of Dimagi South Africa, shared his experience in working with Unicef to harness ICT tools to improve primary healthcare, including tracking drug stocks in Malawi and empowering frontline health workers in Zambia.

The event was also designed to give those at the beginning of the journey into ICT an opportunity to share their perspectives, hopes and concerns. Two members of Mozambique’s water regulatory commission were present; Clara dos Santos asking participants how “an ICT system could help them regulate water and sanitation in Mozambican small towns”. Zekeias Abdo, of World Vision-Zimbabwe followed this by giving an overview of Bulawayo’s Water Supply & Sanitation Emergency Response project, describing a nascent partnership with eThekwini in South Africa to promote citizen engagement into service delivery. Teddy Gounden, representing eThekwini Water & Sanitation, spoke of their interest in getting the public engaged in reporting on sanitation and river quality.

“Whilst ICT may empower people with the information to hold service providers to account, this doesn’t mean change will automatically follow.”

Alan Nash, Seesaw

The event also focused on some of the technical & programming challenges that arise in such schemes, a topic ably discussed by Tim Nichols of Mothers2Mothers, Kieran Sharpey-Schafer of Dimagi and Michael Chambson of iComms, all based in Cape Town.

A particular focus for many participants (including the Department of Water Affairs and the Water Research Commission) was how to institutionalize such systems into government processes. The event addressed this by looking separately at the perspectives of three different groups; i) field-agents; ii) the public, and iii) managers and decision-makers. This allowed the differing incentives and barriers of these groups to be discussed, revealing that there are often contradictory pressures on any new system that is introduced.

KEY TAKEAWAY MESSAGES FROM ‘BUT DOES IT FLOAT’?

Putting in place an effective ICT system can make a visible impact on the ground. It can pay for itself quite quickly in terms of efficiency gains and even cost savings. Yet a fair amount of thought must go into designing to the system to fit the local context – just transplanting a system that has worked in one place to a new environment is generally a recipe for trouble. A big plus is that the effort taken to design a responsive system forces stakeholders to reflect more closely on the existing structures, process and current information flows – which can have significant benefits even if no system is later built.

ICT can be very empowering to individuals or groups who are already ‘stuck’ in a non-responsive system. It can enable them to reach out more widely, to effect change at a greater level. Finding and nurturing these champions as systems are designed and then rolled out is an important step – they may be taking certain risks as the situation evolves, so supporting them through this is also a wise investment.

It is vital to grasp the difference between information and data. ICT, partly because of the low costs of collecting and distributing data, can lead to an explosion in the amount of data available. Yet this is not the same as information, which is the intelligent interpretation of data – a necessary precursor to any action. For ICT to enable better information, it is important to consider not only how to collect the data, but which data is important, how this will be processed into a ‘user friendly’ format and who will then use this information to deliver action. A recommendation is to spend due time and effort in understanding the system, asking direct stakeholders what information they currently get, what information they need and then seeing how and whether ICT systems can be used to gather data that can generate additional, better or faster information and get it to where it is needed (in a way that suits the working patterns of those individuals).

There is a concern that ICT systems that engage the public gather perceptions and not ‘facts’. This may be true, but this is not necessarily a bad thing. Perceptions shape how people behave (not the ‘objective facts’) and peoples’ behaviour affects whether services are delivered, whom they reach and whether they are sustained. Understanding the difference between perceptions and objective ‘facts’ is important, but both are valuable.

“Don’t forget the C in ICT”. Too often new ICT systems forget the ‘communications’ aspect of ICT. There is a strong risk of overly focusing on technology (the latest ‘new kit’) or on trying to generate a lot of new information. Yet ICT tools can play a significant role in improving communications within a water, sanitation or healthcare system – and this alone can lead to dramatic changes. Disregarding the importance and need for communications (whether inside organisations or between organisations and individuals) can also undermine any efforts to improve things. There are many examples of ICT systems that have ‘failed’ by not giving the communications part of ICT its due attention.

For impact at any significant scale it is crucial that ICT systems, whether in healthcare or water and sanitation, integrate with existing government systems. There is a great risk of fragmentation – too many organisations piloting new ICT systems put in place technologies or processes that cannot easily be absorbed into existing government systems (or worse still, undermine these). Designing with “the end in mind”, is therefore crucial: this includes thinking about how government can link into any ICT system being put in place and whether and how government can replicate and scale it up so it should prove effective.

As with any field, the focus on innovation for innovation’s sake can crowd out other considerations. This can be disastrous. Bringing iPads into rural Africa, far from electricity, never mind repair shops, is not a great idea. Equipping health workers in informal settlements with the latest expensive tablet devices can create other problems (such as personal security). More prosaically, paper-based systems have many advantages. Paper can be copied, notes can be captured in the margins, different languages can be used to record information, the public themselves can engage with it. Be careful when looking at ICT tools not to “throw the baby out with the bathwater”.

“Give them pizza with their brocoli”. A lot of initiatives, particularly in the healthcare system, have tried to harness ICT to get people to do what is good for them. And only that. For instance, cellphones used to gather field information can be restricted so that they can only do one thing and no longer function as a phone. Airtime and data bundles used for transporting information can be restricted to ‘the project’. The disadvantage is that this turns the device into something used only for work, something alien and otherwise ‘not useful’. Alternatively do exist though and can be productive. If frontline workers being asked to use phones and new ICT tools are permitted – sometimes on a limited basis – to use them for their own purposes (browsing the internet, accessing Facebook, receiving SMS) then they are more likely to engage with the project, look after the equipment, etc. A balance is surely needed, but a quick pro quo arrangement can be a sensible approach.

It may be true that the “technology side is not the hard part”, but it can be harder than you think. You can transfer software from South Africa to Mozambique and suddenly find it does not work as planned. It can work on one mobile phone but then not on another model from the same manufacturer with the same operating system. Under- appreciating the technical aspects of ICT can be as disastrous as over-emphasising them.

ICT tools can be incredibly powerful at improving the flow of data and, from there, the flow of information. But what if the flow of information is not the real problem? There are many issues that undermine healthcare or water and sanitation systems – and to a lot of them have little to do with information. Cultural conflicts, different worldviews, individual rivalries, dysfunctional facilities – all of these can be the ‘sand in the gearbox’. Don’t assume that a new ICT system is going to solve all problems – after all, these are tools, not a panacea to what are typically complex and entrenched challenges.