THE FUTURE IS ALREADY HERE, IT'S JUST NOT VERY EVENLY **DISTRIBUTED...**

In July this year, internet researchers from over 20 countries in the World internet Project met together with South African researchers, senior politicians and business leaders from media, mobile and fixed operators, civil society organisations and others in Wits internet Week. The programme offered some important insights on the South African internet, past, present and future. **Indra de Lanerolle**, of the Network Society Project at Wits, the South African partner in the World Internet Project and one of the organisers of the week of seminars, meetings and a conference, reflects on some of the lessons to be drawn from the discussions.

To speak about the 'internet' is, almost always, to speak about the future: the future of the internet itself and the future that it will enable or effect. It is, of course a real technological and social object. But since its beginning, it has also been an idea – an imaginary – of things to come: what is possible and what is probable in human development. In other words, it involves prediction. Scientific theories can offer predictions of course, but then so can Tarot Cards.

As Manuel Castells argues, the internet is a product of society, and social systems are more like weather systems than apples falling from trees. So prediction is perilous, a point highlighted by Professor Jeff Cole from the University of Southern California, one of the keynote speakers during Wits Internet Week. He is a founder of the World Internet Project which has been tracking internet access and use over the last 15 years through a global research network that includes members from China, Russia, Europe and Latin America. Speaking of the early days of the project, he admitted: "We never could have anticipated that user-generated content would grow like it did, we didn't expect people to upload so much content, or that most phones would have cameras, or that a single social network would have 1.5-billion people connected."

The SciFi writer William Gibson once offered a compelling insight that goes some way in addressing these perils of prediction: 'the future is already with us…" he said. "It's just not very evenly distributed." Wits Internet Week offered much useful evidence of the future that is 'already with us', and explored some of the implications of that uneven distribution.

The week began with what, in internet years, is ancient history. Luci Abrahams, Director of the LINK Centre and Adrian Schofield of the Johannesburg Centre for Software Engineering offered a useful timeline of internet developments in South Africa starting in the late 1980s. That history probably begins even earlier. In 1974 Vint Cerf and a group of electrical engineers came to South Africa. Cerf was one of the inventors of TCP/IP – the protocol that still lies at the heart of internet communication. He demonstrated ARPANET, the American precursor to the internet, by establishing a temporary data connection from the Carlton Centre in Johannesburg to UCLA. The work to establish a permanent connection to the internet began more than a decade later when in 1989 staff at the computer centre at Rhodes University created the first permanent international connection from South Africa allowing use of email and bulletin boards.

Mike Lawrie, one of those Rhodes pioneers, demonstrated that his abilities to improvise technology solutions are still proving useful, even in retirement. He described his latest network activities – establishing a distributed network through his

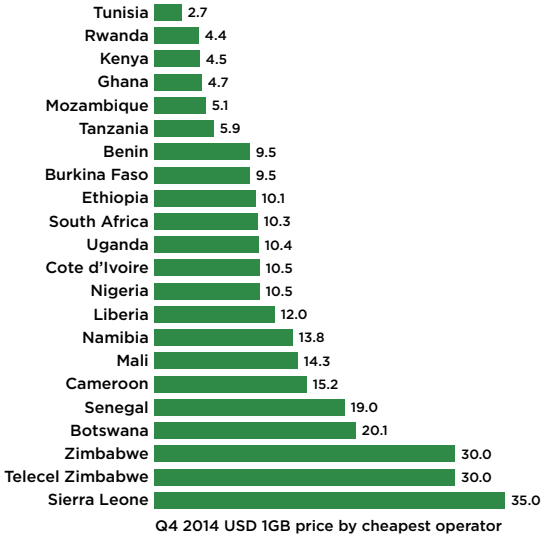
complex allowing residents to share a single ADSL connection to get broadband access at affordable cost. Ant Brooks from the internet Service Providers Association admired Mike Lawrie's ingenuity. He also pointed out that he was probably breaking three laws or regulations and, in theory at least, he could be hunted down by ICASA or the Film and Publications Board. This raised an issue that came up frequently. The shape of the internet and its distribution is, for better or worse, a result of political, economic and social decisions.

Changing the future – increasing affordable access

Political and economic decisions made and to be made, were interrogated throughout the week. No more so than in looking at what steps were needed to get more people online. Research shows that in 2012, 34% of the South African adult population had used the internet. The government's broadband policy – SA Connect – sets a target of 90% of the population on broadband by 2020. The policy was praised but the lack of progress by government, and the regulator, ICASA, since it was adopted in December 2013 was sharply criticised. Mmamoloko Kubayi, MP and Chairperson of the Portfolio Committee Chairperson, Telecommunications and Postal Services in the National Assembly, acknowledged that, as a nation, "we are not doing very well". She questioned why a good policy was not being followed. She also criticised the regulator, ICASA: "We cannot have the regulator taking so long to release spectrum", spectrum which is needed to enable investment in next-generation mobile networks capable of delivering broadband speeds.

Mmamoloko Kubayi, Chair of the Portfolio Committee on Telecommunications and Postal Services at the Next Four Billion Conference, WIts internet Week. Photo: Wits Vuvuzela

Alison Gillwald, in one of the keynotes at the Next Four Billion conference, said that much of the infrastructure – international connectivity and the national fibre network – is in place. Over 80% of the population live within 10 kms of a fibre-optic cable, according to the SA Connect policy document. She and others viewed the biggest challenge as being access or what the telecommunications industry call "the last mile". Comparing South Africa with other countries on the continent, the quality of our access networks and the speeds available are good. The problem is largely one of cost.



Africa data price transparency index by cheapest operator. South African mobile data costs are around three times higher than Tunisia's, the lowest cost country. Source: Research ICT Africa.

Gillwald argued that "being pro-market is being pro-poor". Echoing the National Development Plan which states that "...affordable internet access is best achieved through effectively regulated competitive markets, complemented by targeted state intervention", she argued that competition is what drives down prices while at the same time maintaining sufficient investment in the infrastructure. However, she emphasised that this didn't mean the state should "get out of the way": strong competition requires strong regulation.

A survey of experts, industry leaders and public officials was presented at a roundtable on broadband.

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Tshwane residents using free wifi broadband internet. Tshwane has over 600 free public wifi points delivering speeds of up to 9Mbps. Photo: Indra de Lanerolle

Launch of Facebook's first office in Africa, Sandton, July 2015. Photo: Indra de Lanerolle

It showed that, in their view, reducing the cost of mobile data would have the greatest impact on internet penetration and use. But the respondents were not optimistic about this happening soon. There was more optimism about the likelihood of extending public wifi and fibre to the home and workplace.

At provincial and city level, there is progress. The city of Tshwane is about a quarter of the way to their target of 2 800 public wifi hot spots offering free broadband in public spaces like parks to the 3 million residents of the city. Fibre to the home and office, which could not only provide much faster internet services but also increase competition were also discussed. Ideas for increasing competition included introducing "open access" on mobile networks so that ISPs could offer data as they do on fixed lines.

Digital disruption

A powerful theme at the conference was the new scale and visibility of economic disruption that internet-enabled organisation was bringing. Jeff Cole saw disintermediation moving to a new level – taking out whole industries and major businesses. As he was speaking, Uber drivers were facing intimidation from other car-service drivers a few kilometres away from the meetings. If you are a taxi driver in Johannesburg, Uber is a threat. But Uber has also created thousands of new jobs in the city. In a discussion on digital jobs this theme was taken further and some of the complexities explored. Research by Dalberg for the Rockefeller Foundation and work by the World Bank has suggested that "digital jobs" could be important sources of income in Africa. These include, for example, jobs in international call centres sited here to serve customers in Europe which can make use of high-speed fibre connections, English or French speaking populations, similar time zones and lower rates of pay. Sergio Godoy from Chile pointed out though that digital jobs are likely to be less secure. Uber itself argues that it is not a transport company, it's a software business. An Uber driver recently pointed out to me that being an Uber driver is not being employed by Uber. When the violence broke out, he asked: "Where is Uber? We are on our own." This points to another aspect of the digital economy: its globalising effects. I was speaking to him on my way to the launch of Facebook's first office in Africa – in spite of capturing a significant proportion of Africa's online advertising market, until now they had not felt the need to have even one worker employed on the continent.

The next generation

Some of the most exciting international research concerns children. The research community is now rejecting the concept of "digital natives" – a generation for whom the internet is somehow less problematic or challenging because they have grown up with it. Ellen Helsper from LSE pointed out that children's lives in many countries are profoundly digital but, like the physical environment, the digital environment that they have to negotiate is not designed by them. She presented research conducted

One Laptop per child in Uruguay.

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in over 30 countries over the last decade on children's use of and attitudes towards the internet. Her work offered a challenge to the approach taken by the Film and Publication Board in their attempt to tackle children's exposure to online content but also raised some questions for the FPB's critics. She said that pornography is children's greatest fear. They are also worried about seeing real violence, especially when it involves children. They want to be warned about this – especially visual content. But she also reported that children do not want to be excluded from online environments that give them pleasure and joy. And their own views of what is disturbing or upsetting are not always the same as what adults think it is or should be. Helsper suggested that the best way of managing these issues would be a multi-stakeholder approach including children, parents, online content providers and the state. It was good to see the head of research for the FPB present at the event. She told me she is planning further research.

Matías Dodel from Uruguay looked at a different aspect of the children's internet: its use in education. He reported on the One Laptop Per Child (OLPC) programme, originally started by Nicolas Negroponte, the former director of the MIT Media Lab. Uruguay is the only country in the world where OLPC has been fully implemented on a national scale. In a population of a little more than 3-million people, more than 600 000 laptops have been distributed. As well as a computer, every child is given a free mobile internet connection. All textbooks are available free on their computers.

The Gauteng education department has recently launched a pilot tablet programme in selected schools. Though Dodel was careful to note that national contexts may vary greatly, his list of success factors in Uruguay – institutional design, addressing teachers mistrust and fears, and building strong public/private partnerships – might be relevant to education authorities designing ICT and internet programmes here.

The next 4-billion

An important focus of the South African research presented was on "mobile-centric" or .mobi internet use. As internet penetration has increased, the number of PCs has not. An important body of research in South Africa over the last five years has focused on how people who are largely dependent on mobile phones and mobile networks use the internet. Mobile-centric use is also a global phenomenon as research from China and the US shows. Cole went as far as to suggest that in the near future less than 10% of the population would use laptop or desktop computers.

But if the future is mobile, the mobile-centric present imposes severe constraints on many of its users. Marion Walton from UCT described the "pavement internet" – the strategies people on low incomes use to share internet content. Low income users pay more for data than middle-class and rich users. One GB of data on Vodacom, the largest

network, costs R149. You can buy the same amount for as little as R7 if you have access to a fixed line which is generally available only to the better-off. Walton described how online sharing doesn't work for these users. They want to download rather than use share buttons so they can share face-to-face with their friends without incurring additional data costs. It reminded me of a story the filmmaker Lionel Ngakane once told me of going to the cinema as a child. He and his friends would save enough pennies to buy a single ticket and send one of the group into the cinema. After the movie finished, the boy would have to re-tell the film, scene by scene, to the others outside the cinema.

Luci Abrahams reported on the LINK Centre's research on low-income and very low-income users. She highlighted the value these users place on being able to communicate and the careful rationing they have to do to use what for them is a very expensive commodity. Koketso Moeti reported on her work at amandla.mobi, a social mobilisation tool aimed at low-income African language speakers, especially women. She described some of the complex means they haveput in place to enable the internet and cash-poor to engage with their campaigns – offering multiple routes for users from USSD, WhatsApp, Mxit and SMS to please call me's and missed calls. She also raised the issue of the language of the internet. All their content is translated into four languages, something few content producers in South Africa seem to consider, let alone implement. Our own analysis at the Network Society Project showed that only 4% of South African adults who said they could not read and write English easily used the internet.

The role of the academy

The role of Rhodes and other universities in founding the South African internet was duly acknowledged during the week. But there were also concerns that the academy was not playing a big enough role in its development today. Nkateko Nyoka, the head of regulatory affairs at Vodacom, suggested that universities had now fallen behind and were no longer producing the research or innovation, or making the same contribution to debates about the internet's future. Adam Habib, Vice Chancellor of Wits, admitted the university had been "lethargic" in developing the internet infrastructure that it required. He committed the university to a massive upgrade of its technology and to working with the city to re-invigorate the ICT infrastructure and innovation in the area around the university.

What comes next?

The uneven distribution of "the future" is both obvious and profound. In Sweden, around 9 out of 10 adults use the internet and connect at fast speeds. The Chinese World internet Project report

showed that by the end of last year there were an extraordinary 649-million internet users, almost 48% of the population. As in Africa, mobile devices and networks are the backbone of internet growth. The Russian researchers reported evidence that suggests the possibility that internet penetration in Russia could have reached a plateau at just two thirds of the adult population.

While the US and China are the homes of most of the largest internet businesses and services, Estonia produced Skype and Israel, Waze and other global apps. There is nothing inevitable about how and when the internet becomes available to all or how it reorganises economic relationships. To create an affordable accessible internet in South Africa requires evidence for policy and planning. To understand how

Soweto by Jodi Bieber

the internet can reshape and is reshaping economic, political and social communications requires research. Wits internet Week demonstrated that there is great interest in these questions and a greater need to invest skills, time and resources in answering them.

Wits internet Week was organised by the Network Society Project, the LINK Centre and the Johannesburg Centre for Software Engineering at the University of Witwatersrand, Johannesburg. The SA Connected Roundtable was organised by the Network Society Project and the Mapungubwe Institute for Strategic Reflection with the support of Multichoice. The Next Four Billion conference was held with the support of Dark Fibre Africa. You can find presentations from the conference and links to papers at networksocietylab.org.

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SHORT SHARP

Indra de Lanerolle: 10 POINTS ON DIGITAL AUDIENCES

1. The future is already here – look around your neighbourhood/workplace for the guys with the shovels putting in cables.
2. New users of the internet are not like you!
3. 66% of them earn less than R1500 a month.
4. It's NOT "mobile first", it's "mobile centric"...
5. ... or for new users "mobile only".
6. Rich media is still for the rich – data still costs way too much for the new users.
7. Social searching and links from friends are killing home pages.
8. News media is not alone in this world: the Lexis rankings for SA are:
   - Google.co.za
   - Google.com
   - Facebook
   - Youtube
   - Gumtree
   - Twitter
   - Yahoo
   - Wikipedia...
9. The future is not evenly distributed: Tshwane might have public wifi but this is not true of any other city in South Africa.
10. Some good news: there has never been a South African mass media (except radio), digital provides the first time we can imagine mass access (90% by 2020!).