Research Article

Negotiating the Net: The Internet in South Africa (1990–2003)

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Abstract

The adoption of an analytical approach based on the examination of "Critical Negotiation Issues" provides a vehicle for a richly textured account of policy contestation from the perspective of its participant actors. This approach also accounts for the impact of such contestation on the diffusion of the Internet in a developing country such as South Africa. By tracking issues that have high relevance to the development of the Internet, that are highly contested, and which, if left unresolved, will impede diffusion, the changing policy environment and its impact can be better understood. In the case of South Africa four "Critical Negotiation Issues" in particular have impacted the development of the Internet: competition between ISPs and IAPs; access to facilities; telecommunications liberalization, privatization, and deregulation; and e-commerce policy.

Introduction

Despite its status as a talisman of the new millennium, its role as both driver and product of the emerging knowledge economy, and its vaunted potential for "leapfrogging" the social and economic divides of development,[1] the growth of the Internet in Africa has been insufficiently recorded and inadequately explained. Relative to the abundance of literature on the emergence of the Internet in developed countries,[2] there has been limited documentation, commentary, and analysis of the Internet[3] and its diffusion[4] in Africa.

In addition, many of the studies of the Internet in Africa are marked by a structural or determinist approach that tends to place technology or market structure in an independent role as an unequivocal driver of positive change (Gebreab 2002; Jensen 2002; Wilson 1998; Wolcott et al.

1. See, for example, the seminal works by Castells (1996), analyzing the profound globalizing changes wrought by information and communication technologies (ICTs), and Mansell and Wehn (1998), documenting the role and potential for ICTs in developing countries.

2. This includes, among others, Hafner and Lyon (1996), Abbate (1999), Berners-Lee (1999). The Internet Society's Web site has, for instance, an entire page devoted to online histories of the Internet at http://www.isoc.org/internet/history/

3. The International Telecommunication Union (ITU), for example, has in recent years launched a series of ITU Internet case studies precisely to address the issue that the Internet's "diffusion in developing nations has generally not been well researched" (ITU n.d.). These include Minges et al. (2000) and Jensen and Sarrocco (2002). Much of the literature on the Internet in South Africa focuses more narrowly on specific sub-issues (Antelope Consulting 2001; Abdinor 1999). There are also a number of historical pieces on the Internet in South Africa (Lawrie 1997; Guillarmod 1990; Balliah 2001) but all focus on the early years (circa 1990) and the Internet pioneers. Goldstuck's invaluable annual report, the most recent (2004b) iteration of which contains much valuable information, has the Internet service provider (ISP) market as its focus.

4. Internet diffusion is used broadly in this paper to refer to increases in both supply (such as bandwidth, domain registrations, number of ISPs), and demand measures (such as users, traffic volumes, numbers of Internet hosts) with respect to the Internet. As such it draws on a fuller discussion of diffusion measures in Wilson (1998).

2001). There is a corresponding tendency to downplay the role of society and social forces, to minimize the aspect of social construction of the Internet, and hence, to overlook contestation between diverse and competing interest groups as a motive force. Such an approach has often tended to concentrate on the macro-economic causes of Internet diffusion, such as GDP per capita, assuming a straightforward, incremental roll-out of Internet technologies and applications.[5]

However useful such studies may be—whether they focus on "e-readiness," or policy priorities, institutional reforms, and best practices—they have underplayed the experience of the development and diffusion of a new social technology, such as the Internet. The dynamic texture of the politicking, bargaining, maneuvering, and struggling for economic and social leverage that accompany the expansion of such a valuable wealth-generating resource have often been lost. The analysis presented here takes a different approach, seeking to emphasize the dynamics and nature of the contestation between opposing interest groups, to examine the social construction and negotiation that have underpinned the spread of the Internet in the complex and changing society of South Africa.[6]

The Internet in South Africa presents a number of interesting paradoxes. Despite the relative international isolation (which included the 1980s imposition of economic, scientific, and cultural sanctions) incurred as a result of its racially oppressive apartheid policies, South Africa was, nevertheless, during the mid 1990s, ranked far higher in Internet usage than countries at comparable levels of development, such as Brazil or Mexico.[7] This is perhaps unexpected, given a society torn by fundamental social conflicts, undergoing a profound political and social transformation from a repressive racial oligarchy to an open democracy, but it is precisely during those years when it experienced the strongest and most robust diffusion of the Internet. While this paradox[8] is not the subject of this article, it may serve to illustrate both the interests and challenges facing South Africa as a case study to examine the dynamics of Internet diffusion.

The negotiation approach adopted here to document and analyze the development of the Internet in South Africa between 1990 and 2003 will show that, instead of a smooth roll-out, its diffusion is marked by sharp contestation over key developments, and by a consequent series of lags and lurches. The analysis shows that, far from a smooth evolution, it is a story punctuated by a series of conflicts at key junctures over what are characterized here as Critical Negotiation Issues (CNIs). Such CNIs have typically arisen over a policy issue or technological development of high impact on and central relevance for the development of the Internet, and have become highly politicized, even antagonistic, due to the sharply competing nature of the interests at stake.

By identifying and analyzing the issues and the conflicts, the impasses and their eventual resolution in relation to the most central CNIs in South Africa, the analysis which follows provides a more dynamic—and, arguably, a richer, more interesting, and illuminating—narrative of Internet diffusion in South Africa.

Researching Internet Diffusion

The development of an approach centered on Critical Negotiation Issues and its application to the dif-

5. Many of the analyses of relevance and interest in South Africa deal with the Internet in the context of a broader focus on issues such as telecommunications regulation or privatization in the communications sector (Cohen 2003; Janisch and Kotlowitz 1998). Others tend to proceed from a macro-economic perspective (Ayogu and Hodge 2002; Cogburn and Adeya 2001; Beebe et al. 2003).

6. Although Horwitz's landmark work (2001a, 2001b) shares some of the perspectives of this article on the contested nature of the terrain, his focus is specifically on telecommunications and broadcasting, rather than on the Internet. In a similar vein, Cogburn's excellent (1998) account of the restructuring of the telecommunications sector in South Africa between 1985 and 1995 examines the interplay of global and domestic forces and interests. Kaplan's earlier (1990) work is of historical value, but predates the Internet era.

7. South Africa was, according to Hodge and Miller (1995), then ranked 14th. It has since slipped to a lowly 40th place, sandwiched between Brazil and Mexico (Schwab et al. 2002).

8. South Africa's early high levels of Internet connectivity may arguably derive from the extreme levels of social inequality between an affluent, technologically-advanced (white) elite with living standards on a par with those in Canada or California and the country's underdeveloped, impoverished majority. Subsequent laggardly growth may in part be ascribed to some of the conflicts chronicled here, but are also likely to be a consequence of policy failures.

fusion of the Internet in South Africa (and elsewhere in Africa) formed the basis of a substantial research project under the leadership of Dr. Ernest Wilson from the Center for International Development and Conflict Management (CIDCM) based at the University of Maryland.

The project involved a small group of researchers examining Internet diffusion in an arbitrary set of African countries.[9] The intention was to develop an understanding of both the conflicting sets of interests at play, and the dynamic of their development and resolution, through the recollections, perceptions, and explanations of those centrally involved in those disputes and negotiations (and their resolution). The research is thus based within a qualitative paradigm, using interviews with key participant role players who had been instrumental in the growth of the Internet in their respective countries. In-depth, individual, semi-structured interviews were the primary data-gathering methodology, motivated by the premise, outlined above, regarding the key impact of policy contestation between disparate, often opposing, actors on the development and diffusion of the Internet.

It must, of course, be recognized that interviews provide an imperfect explanatory tool. Indeed, qualitative research has been criticized for its overreliance on the interview technique (Silverman 1998). Beyond the obvious imperfections of personal recall, especially after the lapse of time, interviewees' perceptions are colored by hindsight, reinterpreting the past through the lens of the present. In addition, aside from the evident potential for interviewers to mislead or dissemble for self-justification or other reasons, there is the difficulty of uncovering the subconscious intent or tacit objective beneath the overt professed motivation. Nevertheless, the semi-structured interview does provide a useful vehicle for participant actors to analyze events from the perspective of their interests and objectives—precisely those aspects of the process which this analysis seeks to document.

A degree of triangulation was provided in this study by means of cross-interview analysis. Interviewees were asked to discuss and analyze a common set of events, as well as comment on the actions and motivations of other actors. Further corroboration and correction to subjective interpretation were sought through examination of a range of additional primary sources, particularly contemporary newspaper articles and historical documentation extant on the Internet, as well as other commentaries and analyses, both contemporaneous and retrospective.

The interview sample was derived by a Delphi process of peer nomination, seeking to derive a list of individuals who had been closely involved as primary actors in the development of the Internet in South Africa since 1990. Of the 42 individuals identified, extensive, in-depth, semi-structured interviews were secured with 12.[10] Naturally, the nature of such a sample introduces an element of random bias. In this case, the sample is dominated by private sector Internet service providers (ISPs), with only one representative from the incumbent telecommunications provider (and ISP), Telkom (which had been a key role player throughout) and none from government.[11] This was despite considerable efforts to se-

9. Aside from South Africa, the initial group of case studies focused on Tanzania (authored by Dr. Jonathan Miller), Rwanda (Albert Nsengiyumva), and Ivory Coast (Reine Boni). The development of the analytical framework employed in all the case studies draws extensively on the collaboration with and critical commentary of Drs. Ernest Wilson and Kelvin Wong of the University of Maryland.

10. Individuals nominated by more than one source were approached. The 12 with whom interviews were secured were Lucio de Re, Internet technical consultant, pioneer and founder of Proxima Information X-change (PiX); Michael Silber, Internet and e-commerce lawyer with Deloitte & Touche and member of the new .za domain name authority; Ant Brooks, Internet expert, head of the regulatory committee of the Internet Service Providers Association (ISPA) and administrator of the Johannesburg Internet Exchange (JINX); Anthony Gerada, CEO of Digitec Computers and Internet pioneer; Mike Jensen, Internet consultant; Arthur Goldstuck, Internet researcher, journalist, and author; Mike van den Berg, chair of the SA VANS Association (SAVA) and of the Communications Users Association of SA (CUASA), and managing director of FirstNet; Alan Barrett, CEO of Cequrux.com and founder of The Internetworking Company of South Africa (TICSA); Mike Lawrie, current .za domain administrator and founder of UniNet, the universities' Internet network; Victor Wilson, technology specialist, Telkom; Paul Nash, Internet consultant and founder of TICSA; Peter Davies, CEO of AT&T SA. An additional Telkom interviewee declined to be identified.

11. The director general in the Department of Communications, Andile Ngcaba, a central figure in most of the official policy processes, agreed to be interviewed, but cancelled several appointments.

cure interviews with appropriate Telkom staff. The company's policies require clearance for "official" viewpoints, leading to reluctance of staff to talk on the record.[12] As a result, the analysis presented here is unavoidably limited by the absence of a strong perspective from either government or the incumbent state-owned telecommunications operator.[13]

Interviewees were asked to identify and describe events or issues which they felt had been central in either facilitating or impeding the diffusion of the Internet in South Africa, and to recount at length the story of their personal involvement in and perspective on the history of the Internet. Based on the interview transcripts, a chronology of milestone events was constructed and an initial thematic clustering of common issues was developed.

Both chronology and emerging themes were subjected to in-depth scrutiny by the research team at a week-long workshop at the University of Maryland in July 2002. These discussions identified some 12 CNIs which were either common to several of the country case studies or particularly prominent in a single one. The entire approach, together with the identified CNIs, was presented for peer review at the conclusion of the workshop to a number of experts with knowledge of the Internet in Africa, and subsequently, to a conference in South Africa. The commentary emerging from the research process outlined above is presented in the following pages.

Critical Negotiation Issues

The focus on Critical Negotiation Issues as an analytical tool proceeds from the premise that policy and legal frameworks have a key influence on economic growth and social development.[14] Some social actors or interest groups benefit from particular policies and seek to maintain them. Others find that their abilities to accumulate wealth, or to derive other forms of social and economic benefit, are hindered by existing policies. This in turn leads them to mobilize for changes to existing policies and laws, or for their replacement by entirely new ones. The ensuing struggle for policy hegemony becomes potentially what is characterized here as a CNI. Naturally, not every disagreement or dispute constitutes a CNI. This article suggests three defining factors that allow an issue to be characterized as being of critical negotiation importance in the context of the Internet.

First, a Critical Negotiation Issue should center on a policy matter or legal question with a high degree of *relevance* to the development or diffusion of the Internet: one for which the outcome will have a significant impact in shaping the future direction and form of that diffusion.

Second, a Critical Negotiation Issue should be characterized by a high degree of *contestation.* It is engaged in by means of antagonistic behavior on the part of the competing social actors or interest groups, usually on the basis of the perceived impact (either negative or positive) its resolution will have on business, livelihood, or another fundamental interest.

Third, flowing from the above two characteristics, a Critical Negotiation Issue will, if left *unresolved,* impede the future development and further diffusion of the Internet, both because of its degree of relevance and its level of contestation.

The Critical Negotiation approach outlined above derives from the detailed account of the Internet in South Africa that follows. It also serves to illuminate key aspects of its dynamics. Structuring an analysis

12. The one interviewee working for Telkom who agreed to be identified requested that he be interviewed purely in his personal capacity, outside working hours, and requested that certain of his comments remain "off the record." Written comments were subsequently obtained from a former senior Telkom executive, Alan Levin.

13. It may also be remarked that the interviewees are overwhelmingly white, male, and English-speaking. This is not entirely unexpected in a country where, despite majority rule and a policy of "black economic empowerment," the economy remains largely in white, male, and to a lesser degree, English-speaking hands. The sample arguably thus accurately reflects the origins of the Internet in South Africa: its roots were under an apartheid *government, at English-speaking universities in contact with their overseas counterparts, and at the hands of the graduates of those universities (although a few white Afrikaans-speakers, such as Dr. Ben Fouché of the Council for Scientific and Industrial Research, were role players). But even today, there are only one or two black-owned ISPs, and the demographics of the sector have barely begun to shift.*

14. A number of major ICT development initiatives in Africa, such as the Leland Initiative of USAID and the Acacia Programme of the IDRC, are based on a similar recognition of the key enabling role of the policy environment on actors and activities.

of the evolution of the Internet around such a critical negotiation issues approach neither seeks to imply that the conflictual dynamics are due to failures of policy vision and implementation, nor that conflict is inherently undesirable or intrinsically detrimental to the diffusion of the Internet. A greater or lesser degree of conflict is, indeed, fundamental to any process of policy development in a dynamic environment where future developments and trends are largely indeterminate, and hence, prone to expose what in hindsight may be considered deficiencies of policy, and where there are contending interest groups at play. What the approach outlined here seeks to do is to develop a greater degree of understanding of the development of the Internet through an analysis of its CNIs and their impact on its diffusion.

Further, because it is derived from the perceptions of the actors—the partisans in that diffusion—it is, as pointed out earlier, an analytical approach that places its emphasis away from high-level examination of macrolevel political and economic dynamics at national and international level. While this is in some respects a limitation, it is also a strength, allowing the analysis to focus on issues often otherwise ignored—the specific indigenous political dynamics peculiar to particular environments and the unsystematic negotiated nature of technological development.

The CNI approach is an analytical framework that is integral to the larger project mentioned earlier. Figure 1 provides a visual summary. In the case of South Africa, four CNIs are identified as playing a central role in helping or hindering diffusion of the Internet since 1990. Their identification is based on common themes emerging from the interview sample. Each was identified and characterized by the majority of interviewees as having constituted an "issue," or node, around which negotiations ensued. From interviewees' descriptions and comments, each such issue was evaluated in terms of its relevance to the diffusion of the Internet, the degree of contestation, and its likely impact if left unresolved. Four CNIs in particular emerged from the data as critical to Internet diffusion and highly contested, as well as having had significant impact. They are the following:

- *Anti-competitive behavior,* initially manifested through clashes between the startup companies in the sector over market share, but subsequently in the face-off between Telkom's ISPs and those in the private sector, over market dominance, and ultimately, commercial survival itself;
- *Access to facilities,* in terms of which the private sector ISPs sought to secure connectivity from the monopoly provider of infrastructure, Telkom, which in turn either dragged its feet or refused to supply access, initially largely through bureaucratic inertia and ignorance of what the Internet was, but later as a weapon in the anti-competitive behavior alluded to above;
- *Telecommunications liberalization, privatization, and regulation,* which saw intense contestation over the shape, structure, and dynamics of the telecommunications market as an extensive policy reform was embarked on in the years following the advent of democracy in South Africa;
- *E-commerce policy,* which is, to a degree, a special instance of the previous CNI, but one with direct and immediate implications for Internet development.

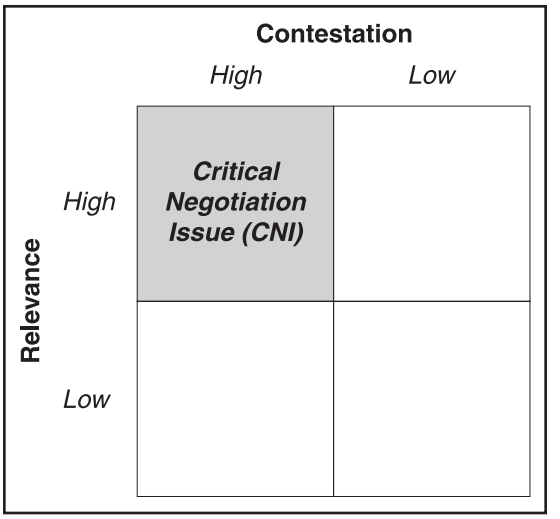

Figure 1. Visual summary of CNI analytical framework.

This is not to say that there were no other negotiation issues of key importance. Pricing, for example, has remained a key constraint on the development of the sector throughout, and is fre-

quently cited in interviews as a major ongoing brake on the development of the Internet.[15] Similarly, the establishment in 1996 of, firstly, a local peering point (a point of interconnection between ISPs to exchange traffic locally), and subsequently, Internet exchanges in two of the country's major centers had a dramatic impact on speed and cost of local access between ISPs.[16]

However, the analysis presented here limits itself to those CNIs which have featured repeatedly and prominently in the interviews, and which meet the three criteria identified at the beginning of this section.

It is important, in the absence of substantial representation of the views of Telkom, to say a few words at the outset about the motives of the incumbent telecommunications operator in the face of the rise of the Internet.

Despite the sometimes-strident views of those on the opposite (private-sector) side of the fence in the unfolding power struggle in the market sector, Telkom's motivations and behavior are neither irrational nor malicious. Like those of the other actors in the sector, their motives are naturally a mix of the professional, the political, and the personal, largely dictated by the monopoly position enjoyed by Telkom in respect to telecommunications and the perspective this creates toward innovation and the prospect of competition.

In a useful analysis of competing sectoral interests in the evolving regulation of the Internet, Huston (2002) suggests a twofold motivation behind the actions of what he refers to as "established communications industry players." On the one hand, the Internet's innovative new services are viewed with hostility and suspicion, as incumbents "perceive a substantial threat to their existing mode of business within the guise of the Internet" (Huston 2002: 12). This leads to behaviors and actions of the kind that will be subsequently chronicled, as the incumbent "use[s] its resources to resist such change" (Huston 2002: 7), bringing it into conflict with other players. Huston further suggests a secondary motivation (perhaps a later one, once the potential revenue of the Internet is recognized) "to develop this market in a way that enhances the value of their total enterprise" (2002: 6).

It is this author's view that the motives and actions of South Africa's Telkom are similarly structurally determined, by its established position within both the evolution of the technology and the structure of the market. This is exacerbated by its status as an incumbent, enabling it to bring the substantial resources it derives from its ownership of and control over the telecommunications network to bear on smaller, newer players (cf. ILRT 2003). The behavior of Telkom described here oscillates between hostility toward the new world of the Internet and its protagonists, and determination to ensure that the incumbent telecommunications market dominance of Telkom extends to this new sector as well.

Creating the Internet in South Africa

In 1990, at the outset of the period under review, all telecommunications in South Africa were governed by the 1958 Post Office Act, under which the state-owned Telkom retained its telephony services and infrastructure monopoly. It was illegal to connect private equipment to the network, and third-party traffic was prohibited. All regulation fell under the Department of Posts and Telecommunications, which was also responsible for the monopoly provision of telecommunications and postal services.[17]

15. For example, Mike Lawrie describes access costs as "horrendous" (interview, August 12, 2002), while Peter Davies states that South Africa has "the most expensive international bandwidth prices in the world," stating bluntly that this "mitigates against ICT development" (interview, September 17, 2002). Davies, however, concedes that an unstable, uncertain market and policy environment is a more serious impediment. These views are not entirely borne out by Antelope Consulting (2000), which finds the Internet in South Africa more expensive than the OECD norm, but considerably less expensive than countries such as Cambodia and Uganda.

16. According to Mike Lawrie, the Johannesburg Internet Exchange (JINX) played a "significant role" in promoting "exponential growth" (interview, August 12, 2002) in local traffic volumes. These sentiments are echoed by ISP CEO Rob Fisher: "JINX had (and continues to have) a huge *impact for my business!" (e-mail to "internet.org.za," or IOZ, mailing list, March 20, 2003; emphasis his).*

17. A number of important and extensive analyses have chronicled aspects of the transformation of the telecommunications sector, in particular since 1990, notably Cogburn (1996) and Horwitz (2001b). A number of shorter pieces with a similar focus cover the same period, including Janisch and Kotlowitz (1998); Horwitz (2001a); Ayogu and Hodge (2002); Gillwald (2002); and Cohen (2003).

E-mail was a fringe novelty, its use restricted to the few hundred enthusiasts who had grasped its potential. The wide webbed world of the Internet was a cornucopia yet undreamed of.

By 2003, the Internet in South Africa had reached a level of maturity and development that its pioneers hardly dared dream of. Its users in 2002 numbered over 3 million, serviced by over 200 competing ISPs, ranging from backyard, shoe-string operations to the several commercial giants that dominate the sector (Goldstuck 2004b). The Internet has become a pervasive facet of both personal and commercial life, with e-mail a key means of communication and e-commerce burgeoning[18]—so much so that dedicated legislation has recently been enacted to cover electronic transactions, online communications, and Internet security.

Much Internet development in the early 1990s in South Africa was centered around the universities (as it had been elsewhere [cf. Hafner and Lyon 1996; Abbate 1999]), many of which ran computer networks, and where a number of academics had been exposed to the possibilities of the bulletin boards and crude e-mail messages that were developing abroad.[19] Most had been drawn in by the excitement of the new and growing technologies, and the possibilities that these had opened up—which were, in the words of one such pioneer, both a "revelation" and a "culture shock" (de Re, interview, June 19, 2002).

Before either the Internet proper or its commercial advent, it was a period characterized in South Africa (as elsewhere) by a diverse foment of activities undertaken by a loose community of individual enthusiasts, almost all of who knew each other, personally and virtually.[20] Among that small band of enthusiasts, negotiation was unnecessary: events, interests, and conflicts were among kindred spirits, and the high stakes that would mark future negotiations had yet to manifest. This precommercial paradigm is aptly summarized in the words of Mike Lawrie: "In the early days, it worked like this. Randy Bush did me a favour. He accepted no money. I repaid the favour to someone else in Zimbabwe. The point was to keep the favour alive forever" (interview, August 12, 2002). There was a real sense of community, of a willingness to share, exchange, and assist, of "individuals being willing to put something back . . . [on a basis of] dial me and I'll carry your data" (Lucio de Re, interview, June 19, 2002). Many of these same individuals remain active today, some still as technological enthusiasts, others as CEOs.

But by 1992, things were already nudging in a commercial direction. The first such impulse came from Digitec Online, established by Anthony Gerada in June 1990 as a free bulletin board service to provide improved after-sales services to the customers of his small distributorship of portable computers. By January 1992 Digitec Online was claimed to be the busiest such service outside the United States, with some 10,000 users (Gerada, interview, June 24, 2002), and Gerada was constructing a special facility at his home to cope with demand, with 20 incoming phone lines and 30 more on order. To cover these costs, Digitec Online introduced the first bulletin board access charge in South Africa—at the princely rate of just over US $15 per annum (Gerada, interview, June 24, 2002).[21] Later the same year, Lucio de Re, another enthusiast who had begun providing e-mail and bulletin board services, also started charging to cover the rising costs of his growing numbers of users, establishing pix.za (derived from Proxima Information X-change) as the first commercial offering to the public of bulletin board and e-mail services (de Re, interview, June 19,

18. Goldstuck (2002b) reports that in 2001 there were 215 South African online retail Web sites with a combined turnover of US$25 million, and that by the end of 2003 (Goldstuck 2004a) there were 1.04 million online bank accounts. These figures still represent a small proportion of all retail and banking activity but are at odds with similar, earlier measures reported by the research company Acuity Media Africa (GSMBox 2000). Acuity claims 1999 figures of US$444 million for business-to-consumer e-commerce and US$657 million for business-to-business e-commerce, they provide evidence of substantial and healthy economic activity in the sector.

19. See Lawrie (1997) for an excellent participant account of the early days.

20. The early Internet activists included Lucio de Re, Mike Jensen, Mike Lawrie, Paul Nash, Anthony Gerada, Francois Guillarmod, Alan Barrett, Henk Wolsink, as well as their key contact, Randy Bush of Oregon, United States. Most of them are included in the interview sample.

21. Ramwell (1994) corroborates this, but gives the date a year later than Gerada's recollection. PCReview's *date is the one adopted here.*

2002). At about the same time, in June 1992, the Council for Scientific and Industrial Research (CSIR) launched CompuServe Africa, providing similar services, although at prices described by some as prohibitive (de Re, interview, June 19, 2002).

Although the Internet would never quite lose its sense of community, its rapid growth quickly made it a space where costs had to be recovered—and where there was money to be made. And this would, inevitably, bring it finally to the attention of policymakers and the incumbent operator. It would also, therefore, bring to the surface the kinds of issues and the forms of negotiation relevant to this analysis.

Commercialization of the Internet

The true commercialization of the Internet, however, began with the establishment of The Internetworking Company of South Africa (TICSA) at the end of 1993. Its founders were a group of young men who had cut their teeth in the early university-based networks of the Internet pioneers—former students Paul Nash and Chris Pinkham and former electrical engineering lecturer Alan Barrett (Barrett, interview, July 5, 2002; Nash, interview, August 22, 2002).

The idea to establish a commercial Internet service provider (ISP) had been brewing for some time. Toward the middle of 1993, Paul Nash and Lucio de Re, still wary of having e-mail fall afoul of the legal prohibition on third-party telecommunications traffic, had approached the state-owned monopoly, Telkom, with a proposal to establish an ISP based on Telkom's infrastructure (de Re, interview, June 19, 2002). It was a proposal that Telkom found "too undisciplined" (de Re, interview, June 19, 2002). They turned down the proposal—and perhaps lost their chance to become South Africa's monopoly incumbent ISP. Losing such an opportunity perhaps bears out the admittedly hindsight judgment of Mike Lawrie: "Telkom failed utterly to understand what the Internet could do for their business" (interview, August 12, 2002). In fairness, however, it must be noted that a corporation the size of Telkom is structurally unsuited to early adoption of innovation, lacking the "potential for agility."[22]

A second attempt was made to forge an ISP partnership. This time the CSIR, which was already marketing CompuServe Africa which was believed to be "hemorrhaging money" (Nash, interview, August 22, 2002), was approached. At a meeting attended by Peter Davies (then of OmniLink), among others, Paul Nash and Lucio de Re made a second attempt to seek financial support for their vision of an ISP, trying a more persuasive rhetoric of "bridges and funnels" (Nash, interview, August 22, 2002).[23] However, this attempt also foundered, principally because of unequal partnership terms demanded by OmniLink.[24] Stymied for the second time, they were advised by Randy Bush to "stop being enamoured of the suits" (de Re, interview, June 19, 2002), and to set up their own ISP.

Thus, on November 1, 1993 TICSA was launched as South Africa's first full-fledged commercial ISP (albeit guided by a "voluntary, not-for-profit philosophy" [Goldstuck 2002a] more in keeping with the vision of the early Internet pioneers), based in Cape Town, and providing a 64kb international leased line link to the Internet. TICSA's initial handful of customers included Vector Network Computers, HP, Olivetti, The Internet Solution, and PiX (Nash, e-mail, June 26, 2002; Guillarmod, 1994). In effect TICSA was an Internet access provider (IAP), since it focused on providing access to corporate customers and other ISPs (Nash, interview, August 22, 2002). By the end of that same month TICSA would be supplying Internet connectivity for 10 companies (Guillarmod 1994), a long way toward its break-even target of 16 (Nash, interview, August 22, 2002). In one fell swoop, the Internet in South Africa had come of age, had become a competitive domain.

Anti-Competitive Behavior (CNI #1)

There has been some speculation as to why Telkom allowed the ISPs to grow relatively unimpeded during this period. Alan Levin, a founding senior execu-

22. Alan Levin describes Telkom as a "large ship [which finds it] difficult to respond to change" (correspondence, May 25, 2004).

23. Nash does not indicate if the metaphor was adopted as a sales tactic to echo the CSIR's positioning itself within the innovation value chain (see the CSIR Web site at http://www.csir.co.za for several references), or whether this is the interpolation of hindsight. It seems implausible that he and de Re were its originators.

24. According to both Lucio de Re (interview, June 19, 2002) and Paul Nash (interview, August 22, 2002), OmniLink sought to impose a shareholding for itself and the CSIR far in excess of the 40% that was on offer.

tive of Intekom,[25] suggests that Telkom was motivated by the benefit of the growth of the Internet to their bottom line: "Telkom saw itself as a data carrier" and hence saw the ISPs as a "new revenue stream that at first appeared very unthreatening" (correspondence, May 25, 2004). Others disagree, attributing it to a failure to grasp the potential of the new platform, suggesting that Telkom "didn't really understand . . . the potential impact of the Internet on their revenue" (van der Bergh, interview, June 27, 2002).[26] Some have suggested it also had a lot to do with the impending transition to democracy and the resultant lack of job security for Telkom staff, as well as uncertainty about Telkom's future role. In the words of Soren Aalto (e-mail, October 15, 2002): "What seemed to happen at that point was the message that with the '94 election and change of political regime coming up fast, Telkom folk had more pressing things to worry about than third-party traffic rules."[27]

Whatever the reason for the lack of attention to the emergence of the Internet as a new economic sector based on Telkom's infrastructure, it allowed the first Critical Negotiation Issue to emerge first as a squabble between the emergent ISPs themselves over market share—sharp and acrimonious, but small in scale. It was only some time later that the issue was to encompass the nature and structure of the entire market, taking on the David-versus-Goliath dimensions of a life-and-death struggle between the massive commercial weight and political power of the incumbent telecommunications monopoly, Telkom, and the incipient commercial ISP entrepreneurs.

As such, it was to become the overriding negotiation issue defining the character of the commercialization of the Internet, an issue that even today continues to cast a long shadow over the sector. It is therefore dealt with first, and at greater length, than the remaining critical negotiation issues.

In March 1994 the TICSA partnership fractured and collapsed, with The Internet Solution (TIS) breaking away to set itself up as a rival ISP. Relations had been uneasy for some time, in part due to a divergence of approach between the founders of TICSA, still imbued with a pioneering TCP/IP camaraderie, and the hard-nosed business-oriented MBA approach which Dave Frankel in particular brought to TIS (Lawrie, interview, August 12, 2002).[28] Behind the impending breakdown lay a recognition, by some of its pioneers at least, that the Internet provided a platform by which substantial money could be made by selling access and services to companies and individuals.

Relations between TIS and TICSA deteriorated rapidly. There were allegations of aggressive poaching by TIS of TICSA customers using underhanded methods, including falsified documents. A defamation case was lodged by TICSA against TIS, which retaliated by withholding payment of its invoices. Finally, on March 1, 1994, TICSA disconnected TIS for nonpayment. TIS was quickly forced to secure its own leased line to the Internet (Nash, e-mail, June 26, 2002; interview, August 22, 2002).[29]

Comradeship had been replaced by cut-throat competition, by an aggressive drive to dominate the small (but rapidly growing and highly profitable) market. It is the recognition of this fundamental shift that perhaps lies behind the wry observation of Lucio de Re on the swing from an approach of camaraderie to one based on commerce and profit: "The biggest change has been the ownership of the Internet. That is what money has brought in" (interview, June 19, 2002).[30]

TIS was not the only ISP to fall out with TICSA. A few months later Anthony Gerada's Digitec Online

25. Dial-up ISP launched by Telkom in 1996.

26. In this, Telkom was not alone. Lucio de Re makes a similar observation with respect to the private sector when he says, "The corporates just could not see the Internet coming" (interview, June 19, 2002). Telkom employee Victor Wilson passes a similar judgment of myopia on the emerging ISPs themselves: "The TICSA people were short-sighted. They just didn't see the commercial opportunities" (interview, August 19, 2002).

27. Mike Lawrie (interview, August 12, 2002) expresses identical sentiments: "Later Telkom people were more worried about keeping their jobs in the new South Africa than about third-party traffic."

28. TIS had been founded by computer scientists Ronnie Apteker, Tom Mcwalter, Joe Silva, and Phil Green (who later left). They were subsequently joined by "business graduates" David Frankel and Alon Apteker (Goldstuck 2004b).

29. Goldstuck suggests the dispute originated over a different issue, saying that "[TICSA] had insisted that TIS was not allowed to resell bandwidth, whereas that was the reason for TIS's existence" (Goldstuck 2004b). However, his account agrees with the bitterness of the dispute and its basis in a fundamental divergence of approaches.

30. The comment is echoed by Goldstuck: "While TICSA clearly gave birth to the ISP industry, it becomes clear from interviews with numerous industry players that it was the arrival of TIS that commercialised the Internet access business.

became involved in a dispute with TICSA, partly around service quality, but mainly around the change from a flat fee to volume-based billing in order to boost TICSA's flagging revenues. This resulted in Digitec Online being cut off by TICSA one Friday at four in the afternoon. A phone call away, TIS, now TICSA's bitter rival, was eager to offer alternative connectivity. Working frantically through the night, Digitec was online via the TIS backbone by noon the following day, a mere 18 hours later (Nash, e-mail, June 26, 2002; Gerada, interview, June 24, 2002; de Re, interview, June 19, 2002).

Behind the acrimony and the in-fighting among the emergent commercial ISPs lay a conflict over customer base, market share, and competing business models, with TIS in particular engaged in a bitter struggle for domination against TICSA. These may have seemed like small squabbles for scant rewards among small ISP companies, but they were a foretaste of things to come. As suggested, it appears to have been the recognition that there was considerable money to be made from the evolving Internet, and particularly from the corporate customers that lay behind the transformation of a community of like-minded enthusiasts into a battleground of MBA stratagems, as ISPs fought an acrimonious battle for market share. The main actors at this stage were the fledgling individual private-sector ISPs that sought to commercialize the Internet: principally TICSA and TIS.[31]

The Incumbent Enters the Fray

The emerging Internet industry was soon to be shaken even more dramatically by events that would result in antagonisms and alliances that persist to this day. On October 1, 1995 Telkom, the monopoly provider of all Internet infrastructure nationwide, began pre-commercial testing of its own Internet service. This was the precursor to what was later to be launched as Telkom's own ISP under the name of the South African Internet Exchange (SAIX). It was the first sign of the coming storm in these hitherto small-scale conflicts."[32] After years of ignoring or failing to understand the potential of the Internet, the incumbent was about to enter the market (Goldstuck 1995).

Telkom's entry into the ISP market took it a long way from its earlier failure (described by most interviewees) to grasp the significance or impact of the Internet that was growing up across its own leased lines and telephone circuits. Over the years, the company had engaged in saber-rattling at activities that it perceived as undermining its (exclusive) revenue stream,[33] such as bulletin boards, which were viewed as competition to its own BelTel service (Wilson, interview, August 19, 2002), but it had hitherto failed to see the Internet itself as a potential business area. Anthony Gerada, for example, describes Telkom as being "caught totally unawares by the whole Internet thing" and quotes their technical director as asking, "What is this Internet?" (interview, June 24, 2002). Mike Lawrie ascribes the turnaround to the fact that Telkom had finally done "their sums" and recognized the "revenue stream from the universities" as easy pickings (interview, August 12, 2002). In Telkom's defense, former senior executive Alan Levin points out that although "very few really understood the potential of the market," belatedness of Telkom's entry was due to "the time . . . it takes . . . to establish strategic intent . . . in a *very* big corporate [entity] . . . exacerbated by the significant changes in management and shareholding that [they] were going through at the time" (correspondence, May 25, 2004).

The ISPs had been aware of Telkom's precommercial testing from October 1995 and were quick to condemn the imminent establishment of SAIX as "unfair competition by the company that has the monopoly on bandwidth" (Goldstuck 1995), recognizing both the potential of Telkom to cross-subsidize its ISP operations, thereby undercutting

Until that point, TICSA was broadly-speaking a non-profit organisation with the odd commercial interest" (Goldstuck 2004b).

31. They might more correctly be termed Internet Access Providers (IAPs) since their control of international leased lines puts them in a position to sell Internet access to other ISPs (sometimes termed second-tier ISPs), such as Digitec Online, PiX and a range of others.

32. Alan Levin notes that these were dial-up trials to ensure Telkom's "technical capability," and points out that some "commercial selling of SAIX connectivity" preceded the official launch (correspondence, May 25, 2004).

33. Bidoli (1994) quotes senior Telkom executive Rhynie Greef, while acknowledging that "nobody owns the Internet," saying that Telkom will permit it to be used only for "information retrieval" and "personal electronic messages," and that Telkom considers electronic data interchange, e-commerce, and "third party voice and data traffic" illegal.

the ISPs' pricing structure, and the potential for conflict of interest and even breach of confidentiality created by Telkom's access to the ISPs' leased line customer base. Telkom's Hendrik Bezuidenhout was quick to deny cross-subsidies, saying "I'm not going to start a price war" (Goldstuck 1995).

The fears of the ISPs were realized on June 11, 1996 with the public launch of SAIX, which positioned itself as a provider of access and bandwidth to second-tier ISPs and the lucrative corporate market, its tariffs undercutting the pricing of the other ISPs, and with the added advantage of being immediately able to provide 20 local points of presence (PoPs) countrywide.

There have been suggestions that Telkom's pricing was based on a calculation error, but it is more likely that it was merely predatory.[34] Nevertheless, it cut to the heart of the commercial viability of the existing ISPs,[35] opening up a bitter contestation for survival, attested to by the lengths to which the parties were prepared to go. A few days after the launch of SAIX, the first in a series of confidential "Telkom internal strategy documents that were leaked . . . by a secret ally" was faxed to the ISPs, revealing Telkom's plans to compete directly in the dial-up ISP market (Brooks, e-mail, November 6, 2002). Further, allegations began to surface that Telkom's leased line installation teams were actively trying to poach customers for SAIX (Gerada, interview, June 24, 2002).

An Alliance of ISPs

Contestation breeds coalitions and alliances, and this Critical Negotiation Issue was no exception. Although the advent of SAIX was the catalyst, a series of meetings of ISP CEOs to discuss common issues "including the future of the *.za* domain name, peering issues and influencing government policy" (Brooks, e-mail, November 6, 2002),[36] organized by Anthony Brooks, with some degree of false pretence under the banner of the African Internet Development Action Team (AIDAT), had already sown the seeds (Brooks, interview, June 21, 2002).[37] In the days preceding the formal public launch of SAIX, a series of meetings and phone calls initiated by Brooks had secured the formal support of the ISP community for the launch of an umbrella body, the Internet Service Providers Association (ISPA) (Brooks, e-mail correspondence, November 6, 2002).[38] ISPA's own inaugural press statement of June 10, 1996 was carefully timed to steal Telkom's thunder by preceding the launch of SAIX by a single day (Goldstuck, interview, June 26, 2002).[39] Within a few days, on June 15, 1996, the ISPs retaliated further by announcing their intention to take Telkom to the Competition Board. The gauntlet had been thrown down (see also *Computing SA* 1997).

The launch of SAIX had the effect of persuading the ISPs to move beyond their petty litigations and squabbles over market share, as the preceding AIDAT meetings had already shown them capable of doing, to unite in the face of a common and power-

34. According to an anonymous source within Telkom, the pricing calculation may have failed to take account of the cost of one half of Telkom's international leased line circuit (interview, late 2002, name and date withheld at the request of the interviewee). However, in an e-mail to the author dated November 6, 2002, ISPA's Anthony Brooks suggests that the subsequent process around the Competition Board shows that "Telkom wasn't able to accurately calculate the cost of providing Internet access."

35. Victor Wilson wonders why the commercial ISPs were "so opposed" to SAIX, which he saw as merely having "positioned itself as a hub for other ISPs . . . intended as a service to them" (interview, August 19, 2002). The argument is disingenuous, since SAIX's pricing, however arrived at, undercut the profit margins of the ISPs, which had already been trimmed considerably by the bitter in-fighting described earlier.

36. Brooks further comments, "How little that list has changed in seven years!"

37. The invitation to the first AIDAT meeting had played the CEOs against each other, suggesting that all other CEOs had already accepted!

38. The initial meeting was, according to Brooks, held at The Internet Solution (TIS) on June 9, 1996, two days before the launch of SAIX, and involved what he describes as a "gang of five": Dave Frankel of TIS, Jon Oliver of GIA, Mark Todes of Internet Africa, Steve Corkin of Sprint, and Ant Brooks. In the words of Anthony Brooks: "Several other significant ISPs in the market . . . were phoned shortly after the meeting to brief them on the plans and [to invite] them to participate. Amongst those who got calls were Anthony Gerada (PiX) and Angelo Roussos (Club Internet)" (Brooks, e-mail correspondence, November 6, 2002).

39. Anthony Brooks (interview, June 21, 2002) gives a slightly different date—June 7—but also puts this the day after the launch of SAIX. Computing SA *(1997), however, also gives the date as June 10, 1996, but states that SAIX was officially launched the following day. This is borne out by Brooks and Edwards (1997).*

ful enemy. A further incentive behind the launch of ISPA was the creation of a platform from which litigation against Telkom could be launched without putting individual ISPs at risk of victimization or bankruptcy due to court costs (Silber, interview, June 20, 2002).

But the effect of establishing ISPA went beyond squaring up for a fight against the incumbent. The very meeting that agreed to establish ISPA also agreed "in principle" (Brooks, e-mail, November 6, 2002) to establish a full peering point, which itself had a key impact on the diffusion of the Internet through the facilitation of local traffic.[40]

The other major grouping potentially affected by the dispute between Telkom and the ISPs was the South African VANS[41] Association (SAVA), a major client for leased lines. However, because they operated in a different market segment and had at the time a "sensible and growing relationship" with Telkom "characterised by occasional skirmishes rather than outright warfare," they elected to stay outside the conflict in the early years (van der Bergh, interview, June 27, 2002).

The other players in the conflict were those structures asked to adjudicate. Beyond the early threats of litigation, it was with the Competition Board that ISPA's threatened complaint was formally lodged, alleging anti-competitive practices by Telkom and SAIX. In October an interim agreement was reached wherein Telkom pledged to "supply details of its business model to the Board as well as set up a neutral service desk to handle all digital line applications" (*Computing SA* 1997).

Telkom Counter-Attacks

This temporary victory for the ISPs was soon undercut. November 1996 saw the launch by Telkom of intekom.co.za—a subsidiary company specifically targeting the dial-up market—bearing out the Telkom memos leaked to ISPA and belying Telkom's public promise not to compete in this market.[42]

Hoping to build on its earlier agreement with Telkom and to bring the contending parties together, in January of 1997 the Competition Board initiated a process to draft an "Internet Blue Paper" (internet.org.za 1997; *Computing SA* 1997), hoping to define an agreed common framework as a modus vivendi for the future of the Internet industry (M-Web n.d.; *Computing SA* 1997). However, the process soon ran into trouble. Having taken a full 6 months to launch the agreed digital line service desk, Telkom earned the ire of the Competition Board (Gordon 1997) by reneging on its earlier undertaking to provide "audit information" on the cost structures of SAIX (*Computing SA* 1997).

Shortly thereafter Telkom rejected the jurisdiction of the Competition Board over the dispute with ISPA, and demanded the matter be referred to the newly established telecommunications regulator, the South African Telecommunications Regulatory Authority (SATRA),[43] which had barely acquired premises and staff, and was ill-equipped to deal with such a major clash. It is unclear why ISPA acquiesced to this, save that the Competition Board process had proved ineffectual, and ISPA was hopeful that the new regulator, under whose jurisdiction the dispute seemed logically to fall, would have more teeth.

Once the ISPs had been persuaded to transfer jurisdiction to SATRA, Telkom immediately laid a countercomplaint, charging that the very existence of the commercial ISPs was illegal, in contravention of Telkom's legally entrenched monopoly, claiming that IP services were within the sphere of exclusivity guaranteed it in terms of the 1996 Act RSA, 1996, and asking SATRA to amend its license accordingly.

Short of skills and experience in this area, SATRA first handed down an interim ruling on June 11,

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40. Brooks (e-mail, November 6, 2002) traces the establishment of SA's first Internet exchange directly to this meeting.
41. Value-Added Network Services.
42. The launch of intekom.co.za may in part have been a counterstrategy to ISPA's complaint. However, the timing of the leaked memos (a few days after the launch of SAIX) suggests that the launch of dial-up ISP was integral to Telkom's strategy all along. Former Intekom senior executive Alan Levin (correspondence, May 25, 2004) suggests in Telkom's defense that they "did not say that they wouldn't enter the market—they said that SAIX would not sell dial-ups." However, despite "extreme efforts to establish Intekom as a separate entity with totally separate governing structure, in order to compete with the ISPs on an equal and even basis . . . [with] all accounting . . . done at an arm's length" (Levin, correspondence, May 25, 2004), Telkom, SAIX, and Intekom were widely perceived as a single telecommunications entity, as their subsequent integration under the banner of Telkom Internet perhaps bears out. The private-sector ISPs certainly perceived a de facto *vertical integration which was an anti-competitive threat.*
43. M-Web (n.d.) gives February 10, 1997 as the date on which SATRA was established.

1997 (the anniversary of the launch of SAIX!) that "Telkom could not claim exclusive right to Internet service provision" (FXI 1997). SATRA then establishing an advisory commission chaired by Anthony Brooks to report on whether the Internet fell within Telkom's exclusivity. Based on the recommendations of this commission, on October 14, 1997 SATRA announced at a press conference that the provision of Internet services was open to competition and did not fall within Telkom's exclusive sphere.

In the face of the resultant acclaim from the ISPs, Telkom filed a legal challenge to the SATRA ruling, alleging that it had no legal basis for its decision and that the process was marred by procedural irregularities. In a strongly-worded letter to the daily newspaper *Business Day,* Telkom CEO Mac Geschwind defended the company's right to the terms of its license and rejected the interference of the regulator (*Computing SA* 1997). In December 1997 the Pretoria High Court upheld Telkom's challenge, finding a number of procedural violations in SATRA's process.

By this stage the bitterness and antagonism of a year and a half of legal wrangling had worn down the antagonists and the matter remained in abeyance as Telkom declined to proceed. In the words of one commentator, the "commercial stakes had become too high for either side to risk losing" (Silber, interview, June 20, 2002). Telkom's complaint against the ISPs was thus never resolved.

A modus vivendi of sorts between Telkom and the ISPs had emerged, albeit characterized by mutual sniping and ongoing antagonism. In January 1998, ISPA dropped its bar against membership by Telkom and Intekom, paving the way to the inclusion of SAIX and Intekom within its peering arrangements (*CyberServ Newsbrief* 1999).

A year and a half later, in July 1999, Telkom turned its attention elsewhere, to the suppliers of value-added network services. The new CEO, Tom Barry, initiated, through a "six-point letter," a series of attacks on and attempts to close down VANS operators (van der Bergh, interview, June 27, 2002).[44] It was now the turn of the ISPs to "keep down in their foxhole and wait for the shelling to stop," despite warnings from the SA VANS Association about Telkom's "divide and conquer strategy" and that they would be next (van der Bergh, interview, June 27, 2002).[45]

By 2002 events had come full circle. Spurred in part by increasing overlap and convergence between VANS and ISPs, but also angered by Telkom's continuing behavior in the market, on May 7, 2002 (de Wet, 2002a), ISPA and SAVA filed a joint complaint against Telkom with the Competition Commission.[46] The complaint alleged "anti-competitive" practices, including "illegal cross-subsidisation" and "discriminatory pricing," and called on the Commission to enforce "accounting separation" (Pinweb Consulting 2002).

In February 2004, the Competition Commission found that in its conduct against the VANS operators, Telkom had "abused its dominant position by engaging in a pattern of anti-competitive practices . . . to the detriment of the development and growth of the ICT sector" (Competition Commission 2004). It then referred the matter to its enforcement arm, the Competition Tribunal, for a determination. According to technology news site ITWeb, the Commission further recommended the imposition of the maximum fine, US$500 million (Weidemann 2004).

Naturally the matter has not rested there. In May 2004 Telkom filed a High Court application to have the finding of the Competition Commission set aside on grounds that bizarrely echoed the initial dispute between itself and ISPA: namely, that the Competition Commission acted outside its powers in adjudicating a matter properly the province of the sector regulator, Independent Communications Authority of South Africa (ICASA). Telkom argued that the memorandum of understanding between ICASA and the Competition Commission governing their concurrent jurisdiction in the sector was "unconstitutional" (Anton Klopper, Telkom's head of litigation, quoted in Bidoli 2004) and alleged procedural irregularities on the part of the Commission. This is a dispute whose bitter and litigious days are far from over.

It is a struggle for market dominance of the potentially lucrative Internet sector, we suggest, that has underpinned much of the negotiation, maneu-

44. Some of these "negotiations" are discussed in the next section.
45. The same VANS operators had previously been content to let ISPA challenge Telkom alone.
46. Successor, under new legislation, to the Competition Board.

vering, and tactical stratagems chronicled here. Paul Nash sums up the trend: "You might just see a pattern emerging here—greed was a big factor in breaking a number of promising start-up activities, and slowing growth. Telkom was another" (Nash, e-mail, June 26, 2002). Somewhat similar sentiments were voiced by an anonymous Telkom source (interview, late 2002, name and date withheld at the request of the interviewee) who suggested that by entering the ISP market, Telkom's "retail greed [had] choked its wholesale business."

The motive of market domination is also borne out by the suggestion that Telkom's entry into the ISP market was, at least in part, a response to the perceived threat of the acquisition of one of the two major private sector ISPs—TIS—by Dimension Data, a major Telkom infrastructure equipment supplier. According to Alan Levin, one of the "strategic goals" was for Intekom to offer shares to a suitable IT company with no Internet foothold, but "the deal was vetoed [in 1997] by the minister of Posts, Telecommunications and Broadcasting at the time, Jay Naidoo" (correspondence, May 25, 2004).

What initially set the emerging private-sector ISPs apart and against each other was their divergent business models, and conflict over the vital market share within a small (albeit burgeoning) sector that could mean the bottom-line difference between success and bankruptcy. This later changed to defense of their hard-won viability against inroads from the incumbent—initially on the basis of predatory pricing and customer gouging,[47] subsequently in defense of their very right to exist.

In both its aspects, this series of disputes, principally those dragging on between the incumbent operator and the ISPs over so many years, has been a sharp conflict which has left bitter memories and a rancorous legacy of mutual antagonism, mistrust, and bitterness that still colors relations in the sector today.

There are contradictory views about the impact of the disputes on Internet diffusion itself. Some have argued that Telkom's "regulatory intransigence is a key factor in the slowdown of growth in the industry" (Goldstuck 2002a). Others have pointed out that the launch of SAIX and Intekom, and the consequent proliferation of "virtual" ISPs, together with ready access to local PoPs, was key to enabling the Internet to spread rapidly outside the main metropolitan areas (Brooks, interview, June 21, 2002). More indirectly, the launch of SAIX was a key catalyst in bringing the ISPs together under ISPA, which strengthened and unified the industry, as well as precipitated establishment of Internet exchanges in Johannesburg and Cape Town—with the consequent boom in local Web site development facilitated by quick access times (Brooks, interview, June 21, 2002).

Looking further back, before the launch of SAIX, it can be argued that the aggressive customer base expansion and poaching of TICSA's customers at any price by TIS after their split forced TICSA to take the Internet seriously—to treat it as a business rather than as a vocation. TICSA was forced to "either pack up or take TIS on—which was ultimately good for the industry, and led to aggressive network expansion" (Nash, interview, August 22, 2002).

Access to Facilities (CNI #2)

The internecine warfare between players in the Internet market continues to characterize and shape the sector today. But another related area of low-grade conflict and protracted negotiation also spans the period: the struggle by ISPs, IAPs, and VANS operators to secure access to the infrastructure required to provide Internet services and content.

The nature of this second Critical Negotiation Issue was determined by the market structure that governed the sector in 1990, and which de facto remained in place in 2003, despite substantial and ongoing changes to the policy framework. Telkom's continued retention of its monopoly on infrastructure provision forms the basis of this CNI, and is buttressed by the fact that resale and self-provisioning remain illegal. This meant that all providers of Internet and related services were required by law to purchase leased lines and other means of telecommunications access from Telkom[48]—which

47. ISPA (1996) alleged pricing levels up to 40% lower than the rates charged by existing ISPs.
48. Although the 1996 Telecommunications Act was amended in 2001 to provide for a second PSTS license, as well as licenses to provide PSTS services in "under-serviced" areas, no such licenses have as yet been issued. The sector regulator, ICASA, has twice rejected as inadequate all bids for the second PSTS network operator license (see, for example, Weidemann 2003a), and the under-serviced area licensing process drags on (see, for example, Weidemann 2003b).

itself competed directly in the ISP, IAP, and VANS markets.

This conflict of interest—together with the bureaucratic delays and inefficiencies common to many large corporations, and Telkom's stubborn defense of its infrastructure exclusivity, and hence, its revenue base—have created a secondary pattern of conflict between it and the providers of Internet services.

Even before the 1990s, the small group of enthusiasts experimenting with electronic communications ran into opposition, inflexibility, and delays from SA Posts and Telecommunications (and subsequently from its successor, Telkom) in their attempts to secure the infrastructure and facilities they required for the development of the Internet. Requests for lines and connections were frequently met with delays or refusals. When IBM secured data leased lines to Holland in 1987 (Davies, interview, September 17, 2002), and when UniNet in 1989 was granted permission to transmit data and e-mail messages because academics were considered a "common interest group," which thus qualified for limited exemption to the ban on "third-party traffic" stipulated by statute (Lawrie 1997), these were considered major breakthroughs.

The key issue of contention arose, as suggested above, from the fact that the incumbent public switched telephone network (PSTN) operator, Telkom, had the exclusive legal right to supply all telecommunications leased and dial-up lines. The emergent providers of Internet services were therefore entirely dependent on a single company for all their connectivity, and therefore, acutely vulnerable to delays, disputes, and denial of service. The period from 1990 is thus characterized by ongoing grumbles and complaints over the incumbent's foot-dragging over the provision of facilities, punctuated by outbreaks of active dispute and litigation.

The legally protected monopoly of Telkom (and its predecessor, SA Posts and Telecommunications) manifested itself in a gatekeeper attitude that marked its dealings with the emergent Internet sector in the early 1990s. And Telkom certainly saw no commercial reason to prioritize providing connectivity for a new set of services it neither understood or appreciated. Facing off against Telkom were the emergent ISPs and VANS operators, for whom connectivity was a critical component of business success, even of commercial survival.

The nature of this low-grade conflict is perhaps best encapsulated by the early dispute between the universities' network, UniNet, and Telkom. Having secured leased lines to other academic institutions in SA two years earlier, in 1991 the application of Rhodes University for an international leased line to connect to other networks in the United States was met with a firm refusal from Telkom. According to Telkom, e-mail messages constituted prohibited "third-party traffic" (Lawrie 1997), for which there could in this case be no "common interest group" exemption because there could be no such thing as an international "common interest group" (Lawrie 1997).

Many of the other early ISP entrepreneurs recall difficulty securing the necessary infrastructure from Telkom. Anthony Gerada, for instance, describes persistent "foot-dragging" delays from Telkom in response to his request for an additional 30 phone lines to service the growing bulletin board business of Digitec Online. This led to a press furor under the headline "Telkom throttles the Internet" (Gerada, interview, June 24 2002).[49]

In part the delays and poor service experienced by ISPs and VANS operators alike may be attributed to the lack of customer responsiveness common to most monopolies. Dave Frankel of The Internet Solution described it thus: "I spend half a million rand [US$80,000] with [Telkom] and don't get the service level that someone spending R 5,000 [US$800] a month gets from me" (quoted in Goldstuck 1995).

In part this situation was certainly due to attempts to obstruct potential competitors. But it was also related to a gatekeeping, obstructionist mentality inherited from its role as an apartheid-era bureaucracy (Wilson, interview, August 19, 2002).[50] Mike Lawrie, for example, described how "there didn't appear to be any channel to get Telkom to re-

"Carrier-of-carriers" and "multimedia" licenses were awarded to the state-owned broadcasting signal distributor, Sentech, in May 2002, but neither allowed Sentech to provide access to ISPs, IAPs, or VANS operators.

49. The article, a photocopy of which was shown to this interviewer, was reported by him to have appeared in Computing SA, *but we have been unable to trace the original.*

50. Victor Wilson described this as the "conception that what the Postmaster General does, no-one else may do."

act. Rather than seeing how to meet customer requests within the regulations, it was a question of: how can we block this?" (Lawrie, interview, August 12, 2002). It may also have been a legacy of the apartheid "total onslaught"[51] mentality: as a bastion of employment for conservative Afrikaans-speaking whites, Telkom too had a role to play in preserving privilege in South Africa. Communications with the outside world, especially those using new technologies and in the hands of "liberal" English-speaking academics, were likely to be the object of suspicion.

Lawrie suggested, in Telkom's defense, that "investment fright," caution about the cost of investing in infrastructure, may also have been a factor: "Infrastructure is expensive to roll out. Telkom was worried about whether that investment would be recouped" (interview, August 12, 2002).

Sometimes the conflict over access to facilities reached a boiling point. Mike Lawrie described a moment in late 1995 when the management of UniNet, the universities' network, came within 24 hours of taking Telkom to the Supreme Court over a delay of over a year on the delivery of backbone circuits, but got cold feet.

Lawrie further described a succession of meetings with Telkom CEOs over the years that were unable to secure better and more prompt access to facilities: "[UniNet] could get nothing special out of Telkom whatever" (interview, August 12, 2002).

Telkom vs. AT&T

In July 1999 the relationship between Telkom and SA VANS Association began to deteriorate, following the appointment of SBC's Tom Barry as Telkom's chief operating officer. A series of attempts by Telkom to close down individual VANS operators for alleged license contraventions ensued (van der Bergh, interview, June 27, 2002). Perhaps the most extended example of this was the saga between Telkom and AT&T, which began on September 1, 1999, with the formal post-sanctions entry of AT&T into the VANS market in South Africa to take over the VANS license originally awarded to IBM in 1994, in return for signing up IBM as AT&T's major customer (Davies, interview, September 17, 2002).

The entry of a major international telecommunications operator into the South African market, albeit in the shape of a VANS operator, set alarm bells ringing in Telkom. In the view of Peter Davies, CEO of AT&T, Telkom perceived the "world's largest supplier of Internet services" as a substantial threat to its own share of both VANS and ISP markets (Davies, interview, September 17, 2002). The following day, on September 2, 1999, Telkom imposed on AT&T a list of five conditions under which Telkom would continue to supply services. Two weeks later, on September 17, 1999, Telkom stopped supplying leased lines to AT&T (Davies, interview, September 17, 2002). Following an ongoing and intensive exchange of letters, in June 2000 Telkom finally agreed to limited, conditional supply of facilities. However, barely two months later Telkom reneged (Davies, interview, September 17, 2002).

The dispute continued to escalate, soon moving to litigation. In November 2000 Telkom filed a complaint with ICASA, alleging that AT&T's VANS operations contravened Telkom's monopoly. To this, AT&T responded in March 2001 by filing a countercomplaint that Telkom's refusal to provide leased line link-ups between its customers was illegal and anticompetitive (de Wet 2002c).

After these disputes had remained unresolved for nearly a year, there was an abrupt escalation. One Friday afternoon in early 2002, SAIX disconnected its peering arrangement with AT&T, forcing all bilateral traffic between the two to travel via already congested international links, and driving some third-tier ISPs, such as E Cape Net, to switch from AT&T to other providers (de Wet 2002c).

In June of 2002, ICASA ruled on the dispute, upholding AT&T's complaint that Telkom was illegally refusing to supply infrastructure. Telkom, however, refused to comply, forcing AT&T to file for a compliance order in July 2002 (de Wet 2002a). An out-of-court settlement committed Telkom to supply 15 requested services, including that of peering (de Wet 2002a; Davies, interview, September 17, 2002; ICASA 2002). But the dispute was not over yet. Thirty minutes before the compliance deadline, Telkom filed a High Court motion to appeal the ICASA ruling (Davies, interview, September 17, 2002). At the time of writing, the High Court had yet to hear Telkom's appeal.

Although the sharpest contradiction to emerge in

51. Total onslaught *was coined in the era of then-SA President P. W. Botha to refer to the perceived global campaign against* apartheid.

relation to access to services has been between Telkom and AT&T, it is a dispute that exemplifies the ongoing conflict between VANS and ISPs versus Telkom over access to facilities. It is likely that the dispute played no small part in the decision by the SA VANS Association to band with ISPA, and lodge a new joint complaint before the Competition Commission, alleging anticompetitive practices by Telkom, including "discriminatory pricing, illegal bundling of services and cross-subsidisation of competitive services" (de Wet 2002a) described in the previous section.

The consensus among both private-sector ISPs and VANS operators is that Telkom's continual denial or delayed provision of access to facilities over the years has had a considerable detrimental effect on the diffusion of the Internet in South Africa. Mike Lawrie, for example, is in no doubt that "SA has been impeded" (interview, August 12, 2002).

Peter Davies, too, describing Telkom as "100% motivated by intent to protect their monopoly at all costs," points to a negative impact on the further development of Internet services. He alleges that at least one prominent international firm has rejected South Africa as a low-cost ICT destination principally because the "unreliable environment" created by Telkom increased the risk of investment (interview, September 17, 2002).

Telecommunications Liberalization/ Privatization/Deregulation (CNI #3)

There is some debate about which milestone to use to mark the maturing of the South African Internet market into a fully competitive phase. By some standards, the 1994 split between TICSA and TIS, despite occurring so shortly after the commercialization of the market, signifies the transition. Most, however, view the 1996 entry of the giant state telephone monopoly, Telkom, into the ISP market as a key indicator of the competitive nature of the terrain.

The year 1996 was a watershed for the sector in many respects, none more so than that of policy formulation. It was in July 1996 that the telecommunications policy restructuring process drew to a close with the passing of the Telecommunications Act, which confirmed Telkom's exclusivity in public-switched telephony and telecommunications facilities until 2002, and established a regulator for the sector. Although the Act, which was promulgated into law in November 1996, makes no mention of the burgeoning Internet, it did establish the legal and regulatory framework that continues to shape the sector today. Its provisions dashed the hopes of many in the private sector for a rapid liberalization of the sector. A number felt betrayed by the process, angry that their recommendations had been excised from the final legislation. A mistrust was created, which colored relations between government and the private sector for years to follow.

The unfolding drama of telecommunications reform in South Africa during the 1990s remains a negotiation issue of concern and importance to the diffusion of the Internet in these years, even though the Internet players themselves were relatively peripheral to its major developments. However, telecommunications infrastructure constitutes the basis upon which the entire edifice of e-mail and the Internet is constructed. The Internet is therefore deeply affected by the market structure of the telecommunications sector, and by its impact on network rollout, interconnection, bandwidth, pricing, access to facilities, and more.[52]

In the mid 1990s, South Africa was only one of many countries in Africa grappling with telecommunications reform—with market liberalization, partial privatization of the incumbent infrastructure monopoly, rate rebalancing between local and international call charges, and establishment of an independent regulatory regime. But it embarked on a process that was illustrative of the prevailing balance of market forces and social and political power. It was a highly contentious process, largely because of the massive potential for foreign investment in, and the perceived profitability of, telecommunications as a sector, but also because of the likely impact of its outcomes on the cost structure and value chain of the Internet itself.

The process has this in common with telecommunications reform and its impact on the Internet elsewhere in Africa, although the process itself as-

52. South Africa's telecommunications reform process has been relatively well and publicly documented, most notably in Horwitz (2001a, 2001b), Cogburn (1998), Gillwald (2002). The analysis here draws extensively on these commentators, but focuses on those aspects relevant to the diffusion of the Internet; we make no claim to be comprehensive.

sumed a particularly South African character, with the emphasis on the kind of inclusive (and hence, protracted) stakeholder consultation that had become de rigeur within South Africa's democratic transition. The discussion which follows is therefore illustrative of both the commonalities and the differences with other countries in Africa.

The first steps toward telecommunications reform began with the October 1991 Post Office Amendment Act, which initiated a separation of powers in the sector by splitting the Post Office from Telkom, corporatizing both, and retaining regulatory functions within the then-Department of Posts and Telecommunications (M-Web n.d.).

Innocuous and elementary by current sector benchmarks, these initial reforms emanated from a review of the sector initiated during the apartheid era under a former prominent financial services executive, Wim de Villiers, and were fraught with the political tensions of the early years of apartheid reform, subject to attack from both right and left of the political spectrum (Horwitz 2001b). Nevertheless, the de Villiers review marked a key change in shaping the direction of telecommunications over the ensuing 10 years or more.

The National Telecommunications Forum

The National Telecommunications Forum (NTF) was launched in November 1993 as a specifically created stakeholder structure to discuss telecommunications reform (van der Bergh, interview, June 27, 2002; Khumalo 2001),[53] and, in part, as an attempt to resolve such political tensions. Based on the CODESA[54] stakeholder negotiations paradigm, the NTF also created strong expectations of an inclusive "win-win" outcome—which were later short-changed. This development marked the beginning of substantive negotiations to reform the sector.

At stake in these negotiations was nothing less than the future size and shape of the entire telecommunications sector in South Africa. Faced with global pressures toward telecommunications reform and deregulation, as well as with internal demand from the private sector for newer and more extensive services, the process promised a fundamental overhaul of the sector, from its very objectives through market structure to regulatory and institutional framework.

At the heart of the debate was the question of whether—and, from the viewpoint of most stakeholders, to what extent—the sector should be opened to competition. The range of viewpoints was extreme, from those on the left (principally organized labor) who sought to retain a state-owned, service delivery–oriented monopoly, to those in the private sector hungry for investment opportunities, who argued for complete opening up of the market. Debates raged around both privatization (either through granting an equity stake in the incumbent operator, or by listing shares on the stock exchange) and liberalization (the extent to which the telecommunications market, or sectors of it, would be opened to the competition of additional entrants).

The objectives to be set for the sector as a whole came under considerable scrutiny. Influenced by both the momentum of the unfolding negotiated democratic change and by the social development priorities of the ANC's Reconstruction and Development Programme (RDP), the debate here was about the balance between commercial imperatives and developmental objectives.

The institutional landscape was also the subject of debate and negotiation. The structure, design, and powers of the institutions required to oversee and manage the sector, their degree of independence and relationship with the channels of governmental oversight, and control were all hotly debated.

Together, these issues raised the stakes high, and made negotiations difficult, intense, and highly conflictual—especially coming as they did, so soon after the highly fraught birth of a South African democracy, when the appetite for fundamental change ran high alongside intense mistrust on the part of the new government toward those who had served the ancient regime.

New Democracy, New Telecommunications Policy

The retreating apartheid regime had been the original initiator in the telecommunications reform process, but was perceived by both the ANC and the trade unions to be engaged in "unilateral restructur-

53. The NTF was an initiative of the ANC-aligned Centre for the Development of Information and Telecommunications Policy (CDITP) and brought together the key stakeholders including government, business, organized labor, and Telkom.
54. The Convention for a Democratic South Africa (CODESA) was established in December 1991 as a multi-party forum to negotiate South Africa's transition to democracy.

ing of state assets" (van den Bergh, interview, June 27, 2002) in order to undermine the ability of the new government to affect fundamental social transformation and redistribution of wealth.

The incoming ANC government—its first two telecommunications ministers, Pallo Jordan and Jay Naidoo—and the ANC's sectoral policy think-tank, the Centre for the Development of Information and Telecommunications Policy (CDITP) headed by Andile Ngcaba who was later to become director general, were key drivers of the process. Initially espousing the developmental priorities and public service delivery perspectives on telecommunications set out in the ANC's Reconstruction and Development Programme (ANC, 1994),[55] the ANC's position gradually eroded toward a perspective of "managed liberalisation" under strong ministerial control. Enormous, sometimes competing, pressures were exerted—from multilateral agencies such as the World Bank and the ITU in favor of wholehearted and immediate reform, as well as from potential investors in the incumbent operator in favor of a guaranteed monopoly or "exclusivity" period.

Not surprisingly, the trade unions constituted a vehement voice against both privatization and liberalization within the sector. Both had long been viewed with antagonism by the major union in the sector, the Post Office and Telecommunications Workers' Association (POTWA), and its successor, the Communications Workers' Union (CWU), as well as by the giant labor federation, Congress of SA Trade Unions (COSATU). On the one hand, the twin potential pillars of telecommunications reform were seen as inimical to core union interests—the creation and preservation of permanent quality jobs at high levels of skill and remuneration. On the other hand, they were antithetical to the socialist principles to which both subscribed, as well as holding the danger of undermining the extension of telecommunications services to the historically disadvantaged by placing the imperatives of profit ahead of the objectives of social service delivery.

The private sector was also a major voice in the unfolding negotiations. Almost unanimously in favor of liberalization, the exact positions of the private sector players varied according to their perception as to what degree, scope, and timing of liberalization and privatization best suited their particular commercial interests and investment agenda. The private sector felt the most bitterly betrayed by the slow timetable toward managed liberalization in the final policy outcome.

Positions and likely policy outcomes changed considerably over the period of the negotiations process, most dramatically between later drafts of the legislation.

At the outset, when the Green Paper on Telecommunications Policy was launched on July 7, 1995 it posited a range of policy options, ranging from the retention of Telkom's monopoly with minimal liberalization of the sector, to a rapid and immediate transition, to full competition in the sector. The tensions described above suffused both process and content, continuing through to the National Colloquium on Telecommunications in November 1995. At one extreme were the trade unions in the sector, doggedly resisting reform at every step. At the other was the private sector baying for telecommunications reform and more, with varying, but commercially motivated, degrees of fervor. ANC minister of Posts, Telecommunication and Broadcasting Pallo Jordan uneasily held the middle ground.

By the time the White Paper on Telecommunications was released in March 1996 it reflected carefully crafted compromises, setting out a phased and managed liberalization of the sector over seven years, with oversight by an independent regulator. This uniquely negotiated accommodation had the support of most major stakeholders, with even a degree of reluctant acquiescence from the unions.

Furor over Legislation

But the calm was soon shattered. The White Paper moved toward legislative enactment under the helm of a new Posts, Telecommunications and Broadcasting minister, Jay Naidoo (who had been appointed in a cabinet reshuffle following the demise of South Africa's Government of National Unity), and recently appointed Postmaster General Andile Ngcaba. The 14th draft of the bill, which removed most of the independence and authority of the sector regulator and made the liberalization timetable subject to ministerial discretion, provoked a public furor and led to the resignation of ministerial special adviser Willie Currie. The limitations on regulatory independence may have been partly motivated by the ANC's desire to stamp the authority of government on the democratic transformation, while the degree

55. See especially Chapter 2.8.

of discretion over liberalization was almost certainly motivated by the desire to secure more favorable terms for the partial privatization of Telkom.[56]

The Telecommunications Act was finally passed in November 1996, largely unchanged from the 14th draft, but amid considerable acrimonious debate. Behind the parochial issues tabled by most private-sector companies lay a common chorus of betrayal and allegations that the government was narrowly advancing the interests of Telkom at the expense of the development of the telecommunications sector.

The sector regulator, the South African Telecommunications Regulatory Authority (SATRA), was finally established in February 1997. In April, Thintana Communications, a consortium of SBC & Telekom Malaysia, was awarded a 30% equity stake in Telkom, whose license gave it exclusivity over the provision of telecommunications services until 2002. By June 2000 SATRA and broadcasting regulators were merged to form ICASA.

2001 Policy Review

The year 2001 saw a public review of telecommunications policy, as Telkom approached the end of its exclusivity period. The Department of Communications again ran a stakeholder consultative process, involving a public policy colloquium, but this was less extensive and transparent than the 1996 process.

The review was not without conflict and controversy. The Telecommunications Policy Directions, unveiled in March 2001, proposed the introduction of limited competition to the telephone network through the licensing of a second network operator. This time much of the dispute and negotiation took place within the cabinet, with trade and industry minister Alec Erwin emerging as the temporary victor in a push for broader liberalization of the market when a set of revised Policy Directions was released in July, which included the proposed granting of two additional public switched telephone service (PSTS) licenses, as well as broadband licenses. Following objections from Telkom and mobile holding company M-Cell, which saw its market capitalization plummet by R 2 billion following the release of the revised policy directions, an about-turn in August saw the issuance of a third and final set of Telecommunications Policy Directions. This version of the Directions reverted to licensing only a single competitor to Telkom and dropped the licensing of broadband. Interestingly, and less controversially, all three versions of the Policy Directions proposed the introduction of an e-rate to facilitate Internet access for schools.

In November 2001, the Telecommunications Amendment Act was promulgated, legislating the introduction of a competitor to Telkom. However, to date no final license has yet been awarded, as the process is mired in difficulties, initially over selecting an appropriate equity investor for the license consortium, and latterly because of internal squabbling among the members of the agreed consortium.

The net result of the often-troubled and frequently antagonistic negotiations around telecommunications reform in South Africa has been the entrenchment of Telkom as the sole provider of telecommunications—and hence, Internet—infrastructure.

One impact of this situation has been the high price of Internet access, as Telkom has dramatically increased the cost of the local calls required for access. While partly driven by the requirement of rate rebalancing between local and long-distance traffic, such high prices (which include the high price of leased lines) are also attributable to lack of competition and regulatory weakness (Melody 2002). The high cost of access is widely viewed as a major inhibitor of Internet development (Gillwald and Kane 2003).

The private-sector monopoly status and degree of licensing and regulatory protection afforded to Telkom has undoubtedly been a key factor behind its willingness to act aggressively (in the litigious tradition of its Texas-based strategic equity investor, SBC) against any perceived threat to either its monopoly position or revenue stream.

E-commerce Policy (CNI #4)[57]

The explosion of local connectivity from mid 1996 was mirrored in the growth of content, services, and projects. For example, the first local directory search engine, Ananzi, was launched in early 1996 (Ananzi

56. See the extensive analysis in Horwitz (2001b). The author has himself, on more than one occasion, heard ministerial strategy discretion over the pace of liberalization justified as privatization bargaining to members of the National IT Forum by then-postmaster general Andile Ngcaba.

57. The analysis presented here has benefited from additional comments from Michael Silber, e-commerce lawyer who was closely involved with the legislative drafting.

n.d.). On November 22, 1997 the establishment of a school networking project with core funding from the IDRC (International Development Research Centre) of Canada was agreed upon (SchoolNet SA 1998). Almost a year later, in October 1998, the NGO SchoolNet SA opened its doors (Marquard, e-mail, October 15, 2002). At the end of October 1996, banking giant ABSA, prematurely as it turned out, announced it was to offer limited home banking facilities via the Internet "in the next couple of days," only to fail to deliver due to the absence of international secure transaction standards (Goldstuck 1996). By March 1997, however, most of South Africa's main banks were racing to provide services over the Internet, with Nedbank becoming the first to offer the ability to transact online (Goldstuck 1997b).

Banking was not the only sector to adopt e-commerce in fits and starts. Goldstuck (1997a) had earlier detailed the difficulties and failures of his attempt to find, buy, and finance a car via the Internet.

By 1999, Internet-enabled e-commerce was flourishing. So much so that, on July 30, 1999, the Department of Communications released an e-commerce discussion paper, thereby launching a formal process to formulate an e-commerce policy leading to legislation. The development of national policy and legislation relating to electronic commerce is a further hallmark of a maturely competitive Internet sector. Yet it has not been without its share of acrimony and dispute. Like so many other processes in the sector, this one became politically charged, surfacing as another Critical Negotiation Issue.

The process began straightforwardly enough with the formal launch on July 30, 1999 of an e-Commerce Discussion Paper by Andile Ngcaba's Department of Communications (RSA 1999), the prime driver behind the process. This was followed by the establishment, along the participatory policy development lines that had become a familiar feature of the South African political landscape, of working groups to draft recommendations under nine e-commerce themes in September 1999.[58] The working groups met over the following months to prepare recommendations for an all-day colloquium. This was followed by an e-Commerce Law Workshop on April 19, 2000, from which an e-Commerce Green Paper was formally launched on November 20, 2000 (RSA 2000). The resultant legislation, the Electronic Communications and Transactions Bill, was taken to parliament on March 8, 2002.

Issues of Contention

The key issues of contention were similar to those arising from the earlier telecommunications reform attempts: complaints about the inability of stakeholders in the participatory process to exert meaningful influence and have their interests reflected in the outcome; concern at the wide-ranging oversight powers the bill granted to government; and the significant number of issues left to the discretion of the executive arm of government via the minister of communications or the director general.

Although many in the sector were satisfied with the manner in which the commercial issues were dealt with in the bill and made only limited comment to improve those areas, there was opposition to the far-ranging, noncommercial aspects of the proposed legislation. These dealt, inter alia, with the accreditation process for certified service providers, the process for the registration of encryption providers, the registration of "critical" databases, the transfer of the *.za* domain to a new body, and the creation of so-called cyber inspectors.

The most vocal opposition to the process centered around the proposed transfer of the *.za* domain name governance to a government-appointed body. Opposition came principally from the private sector and the ISPs and VANS operators who feared state control and felt their own (and prior) process to create a successor *.za* domain registry body, NameSpace, was being undercut. Mike Lawrie, the incumbent *.za* registrar, and Michael Silber, Internet lawyer and prominent mover behind NameSpace, were prominent voices. A number of academics and other individuals, as well as organised labor,[59] also expressed views about content and process.

Michael Silber has described the legislation as consisting of "the good, the bad, and the ugly" (in-

58. The themes were Security & Privacy Group; Internet Governance & Domain Naming; Customs & Taxation; Education, Awareness & Enablement; Intellectual Property; Technical Standards; Infrastructure, Access & Convergence; Contracting & Trade Laws; Electronic Payment Systems.

59. COSATU made formal responses to both the Green Paper (COSATU 2001) and the final bill (COSATU 2002), expressing concerns about the process.

terview, June 20, 2002). While welcoming its legal recognition of online contracts, signatures, and transactions, there was concern about poor wording in sections and the proposed creation of "cyber-inspectors." More fundamental was the opposition of the private sector to the government's powers to assume control over any database deemed to be "critical," to the bill's provisions requiring registration of all "cryptography providers," and to the government's intention to establish its own domain name authority.

This government plan was seen as a threat to the process initiated by the private sector as far back as February 1999 to establish its own national domain name authority and to take over the reins from the incumbent, Mike Lawrie. This body, NameSpace, had subsequently been launched in September 2001 on an interim basis (de Wet 2001), although control of *.za* had not yet been transferred.

An informal alliance operated among the Internet Society, ISPA, and CUASA, largely on the basis of similar concerns over the same sections of the bill. However, each operated independently and made its own submissions to the Department of Communications on the bill.

The conflict between the private sector and the Department of Communications over control of *.za* was the issue that captured public attention. The incumbent registrar, Mike Lawrie, angered at being excluded from the relevant working group, described "the result that emerged [as] horrible" (interview, August 12, 2002), and publicly stated his refusal to redelegate *.za* to the Department instead of to NameSpace. The issue came to a head in June 2002 when Mike Lawrie moved the primary files for *.za* offshore (de Wet 2002b), amid rumors and speculation that they had been transferred to the Principality of Sealand, a libertarian offshore platform in the English North Sea, home of server-hosting company HavenCo.

In the meantime, Michael Silber, as chair of NameSpace, and others labored behind the scenes to achieve a compromise. This was finally achieved through the appointment in November 2002 of a compromise panel, including Mike Lawrie, whose function it would be to run a public process to appoint a board of directors. After some delays, this compromise body, the ZA Domain Name Authority, was formally registered and its nine-member board was appointed in September 2003. As of this writing negotiations are under way for a handover from Mike Lawrie to the new body (Vecchiatto 2003).

Impasse Resolved

While the high-profile conflict over control of *.za* appears to have been resolved, some of the other equally worrisome provisions of what is now the ECT Act remain, including those relating to critical databases and cryptography providers.

To date no regulation has been published on any of the areas requiring regulation in terms of the Act (certification, encryption, databases, cyber inspectors, etc.), and it seems that the much-maligned cyber inspectors may not be introduced, or introduced on a much smaller scale than originally contemplated. The Department of Communications has commissioned a study to determine what databases fall within the "critical" category as well as the prevalence and distribution of such databases. Informal discussions of registration of cryptography providers are proceeding, which has led to certain international providers of (usually open standards–based) cryptography algorithms refusing to provide them to South African developers because of concerns over the registration requirements.

The furor over *.za* appears to have overshadowed the potential impact of the other piece of legislation to have emerged from the e-commerce policy process, namely the Regulation of Interception of Communications and Provisions of Communication-related Information Act, which, inter alia, imposes onerous obligations on telecommunications service providers, including ISPs, with respect to logging and archiving "communication-related" information (as opposed to content), such as e-mail header information, Internet access logs and the like, and surveillance and decryption of traffic under their control.

Conclusion

The modus vivendi arrived at through the e-commerce policy process is indicative of the maturity of the sector. The Internet in South Africa has come a long way from its early days at the start of the 1990s. Those few thousand early users and tinkerers have been replaced by an established sector of several million users, hundreds of ISPs, a formidable infrastructure (even if owned by a single company), considerable economic and social value, and specialized legislation.

The story of the years between 1990 and today reveals a kaleidoscope of interactions, negotiations, and conflicts among actors, with certain negotiation issues prominent in the narrative. What are the key trends behind impasses, negotiations, and resolution? And how have they impacted the diffusion of the Internet?

On one level the period has witnessed a shift from "ponytails" to "suits," from those for whom the nascent Internet was a hobby and passion to those for whom it has become an economic enterprise. Interestingly, the shift has been described in similar terms by two key figures at opposite ends of the spectrum. Lucio de Re, deeply involved in the development of the Internet, but paradoxically still today outside its commercial ambit, remarks that "the biggest change has been the ownership of the Internet" (interview, June 19, 2002). His words are echoed by Michael Silber, one of South Africa's leading Internet corporate lawyers: "The individualists, the mavericks, the visionaries are no longer running the Internet" (interview, June 20, 2002).

This shift is marked by distinct phases in the development of the Internet over the period. The early years may be characterized as a pre-commercial phase, when it could be characterized by interpersonal relationships and by a shared passion for a budding technology and the possibilities it offered. The guiding principle was collaboration, and attempts to recover costs or make a profit ran from haphazard to disastrous.[60]

It was only after the stabilization of the Internet as a platform and a technology that the stage was set for commercial exploitation. Among its early pioneers were some who quickly saw its commercial possibilities. Within a few months, ISPs had mushroomed across the landscape and were engaging in a highly competitive—often sharply antagonistic, straying on occasion to illicit—jockeying for commercial advantage, customer base, and business model. A new species of individual—armed with an MBA, a vision of the business possibilities, and a commercial instinct—came to the fore.

Once business models, revenue streams, and commercial viability had been established, what was now a relatively stable, robust, and growing market could hardly escape the attentions of the incumbent telecommunications operator. The consequent entry of Telkom into the market signalled the phase of competitive maturity, but also heralded the bitter warfare between Telkom and its commercially viable ISP rivals. It is a market that has now stabilized, although it is still marked by litigation and hostility. The maturity and stability of the market is reflected in the strong presence of Internet multinationals such as Tiscali/WorldOnline, UUNet/MCI, and AboveNet.

Thirteen years have seen a fundamental transformation of the sector. Corporate maneuverings, takeovers, and mergers have replaced the buccaneering approach of the early pioneers like Lucio de Re and his friends who happily "borrowed" international dial-up access from an unused telephone jack.

As this account makes clear, those 13 years were by no means ones of straightforward, uninterrupted growth, of steadily increasing benefits and linear progress. It was a process anything but smooth, characterized by periods of sharp conflict and hiatus. Neither was it a process driven by uninterrupted technological development and innovation. Clearly the clash of personalities and the contending interests influenced forward movement and negotiational impasse. Finally, the nature of the conflicts, the delays, and the negotiated outcomes resulted in a situation of uneven, often patchy, benefit and erratic growth.

Underpinning the critical nodes of negotiation that run through this account lie the Critical Negotiation Issues approach.

Behind each case lies a clash of interests between defined, more or less coherent groupings, whose ability to benefit from the further development of the Internet hinges on differing, even opposing, outcomes in respect to a particular Internet policy issue or point of decision. This is what defines the relevance of each issue for the diffusion of the Internet.

Based on their differing interests, the contending groups articulate and mobilize behind competing trajectories for the growth and development of the Internet. Depending on the degree of contradiction

60. The story of the dial-up subscribers to Lucio de Re's Proxima Information X-change, PiX, coming at the end of the period, is symptomatic. Faced with an astronomical telephone bill, and unable to manage the collection of subscriptions effectively, Lucio transferred his subscriber base to Anthony Gerada in exchange for settling the telephone bill (Lucio de Re, interview, June 19, 2002; Anthony Gerada, interview, June 24, 2002).

between the competing trajectories, and on the degree to which the issue of difference is central to the Internet and its development, the issue at hand assumes a degree of antagonism. This is what constitutes the degree of contestation which each issue manifests.

The resulting conflict leads to delays as each group seeks to wrestle an outcome of which it is the major economic, social, or political beneficiary. If unresolved, the issue impedes the further development of the Internet. However, once a consensus has been bargained or a solution imposed, the impasse is unblocked and diffusion proceeds.

The case of South Africa is similar to the others that have been documented and analyzed as part of this project in many respects. It reveals a similar dynamic of Critical Negotiation Issues, even though the actual fabric of issues and their specific content is naturally highly specific.

One key difference, perhaps the defining difference, with regard to South Africa is that the private sector entrepreneurs and ISPs were able to establish themselves within the sector before the Internet had drawn the attention of the monopoly incumbent, Telkom. This was, as we saw, partly due to South Africa being an early adopter of the Internet, partly due to the distraction of South Africa's democratic transition, and partly due to the failure of Telkom to recognize the potential of the Internet.

This key difference has made the struggle for access much less of a Critical Negotiation Issue in South Africa than elsewhere on the continent. Access had already been conceded, subject to bureaucratic obfuscation and delays, by the incumbent in the early 1990s, and secured by the emergent private-sector ISPs. Access became henceforth a weapon to be used by the incumbent against the ISPs and the VANS providers in the ongoing for market dominance and control.

What the narrative and analysis presented here have sought to demonstrate is that, contrary to the conventional wisdom in much of the literature on the diffusion of the Internet, the process is not a smooth evolutionary upward curve. What the account reveals is a highly contested terrain, characterized as much by conflict and negotiated struggle as by a consensus that is often partial and temporary.

Interestingly, the divides that emerged in South Africa had less to do with the racial polarization and political conflicts that simmered beneath the apartheid legacy than with the more straightforward commercial imperatives of profit and capital accumulation, market power, and policy design.

This article has sought to identify, describe, and analyze four Critical Negotiation Issues that were central to the diffusion of the Internet in South Africa that were particularly contested, and the resolution of which had a meaningful impact. Certainly the points of conflict were perceived as central by the players themselves. Their comments and reflections suggest that deadlock around certain issues held back Internet diffusion, and that their resolution helped to move that development forward.

The analysis presented here makes no pretence at being comprehensive. It does illustrate an approach that examines issues of conflict around the diffusion of the Internet as perceived by its participants, that analyzes the manner of the negotiated resolution and its outcome and impact. Such an examination of the complex interaction of individuals, interest groups, and institutions may have relevance for policy makers as they seek to understand and manage transitions in other countries. ■

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