

Informational Development and Human Development: Creative Synergy or Mutually Assured Destruction

Introduction to the Seminar on Informational Development and Human Development:
South Africa in a Global Perspective

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Seminar on Informational Development and Human Development: A FRAMEWORK TO RETHINK DEVELOPMENT IN THE 21st CENTURY

Around the turn of the 21st century a new form of socio-economic organisation became fully constituted on a global scale: informationalism. It did not replace capitalism; indeed it powered a new form of capitalism now prevalent everywhere: informational-financial capitalism.

The historical equivalent to informationalism was industrialism, which developed in both capitalist and non-capitalist versions. What characterised informationalism was the widespread use of micro-electronic based digital information and communication technologies that allowed the diffusion of networking forms of organisation in all domains of economic and social life. It also powered information processing and digital communication, enabling the expansion of the knowledge basis of the economy and of the information society. Information technologies made it possible for knowledge and information to be distributed and applied to all activities in any context, in a similar way to the transformation of production processes enabled by new technologies of energy generation and distribution during the two industrial revolutions.

This organisational transformation induced unprecedented flexibility and efficiency in the processes of management, production, distribution and exchange. This resulted in a substantial increase in productivity growth from the mid-1990s onward, signaling the rise of what was called “a new economy”. Furthermore, new technologies provided the infrastructure for global networks of communication and transportation. This, in turn, led to the formation of a global economy; that is, an economy with the technological, organisational and institutional capacity to operate as a unit in real time on a global scale. These networks did not include all people and territories in the world. In fact, only a minority of workers and managers were directly connected through these networks. However, all the core activities in every economic dimension were connected in a global architecture of networks and nodes on whose performance the rest of the economy depends.

Competitiveness of territories and firms became largely dependent on their ability to follow the rules of the informational economy: value-making by processing information into knowledge, and then applying knowledge to all the tasks to be executed on the basis of the technological and human capability installed in the system. As industrialism (based on the energy revolution) determined a new geography of the production and appropriation of wealth around the world, so did informationalism (based on the information and communication technologies revolution).

A substantial body of academic and technical literature provides evidence of the relationship between informationalism, productivity and competitiveness for countries, regions and business firms. But this relationship only operates under two conditions: organisational change in the form of networking; and enhancement of the quality of human labour, itself dependent on education and quality of life. Economic development, in any of its various definitions, came to be associated with the ability to restructure economies, organisations and institutions to support the informational mode of development (Castells, editor, 2005).

However, an equally important body of literature shows that wealth generation and human well being cannot be equated, and that productivity growth and enhanced competitiveness do not necessarily lead to greater human well being. In fact, in many instances dynamic economic growth worsened the living conditions of large numbers of people as well as their natural environment. This is why in development policies a new approach was introduced: human development as defined, for example, by the United Nations Development Programme’s human development reports.

In our view, human development refers to a process of enhancement of the living conditions that make humans human in a given social context. Thus, it can be interpreted in a very broad way. It certainly includes what traditionally have been considered the components of the welfare state: health, education, public transportation, culture, public insurance or subsidy in case of distress (unemployment, poverty, special needs in housing, transportation and social services etc.). But, it also should include the whole range of elements that constitute 'quality of life', as determined by recent social research. This comprises job creation, work quality and environmental sustainability, as the natural environment is at the source of key dimensions of the quality of life including health. It also refers to personal security, to prevention of violence and to basic human rights, such as personal dignity, privacy, communication rights and protection against discrimination.

In the broadest sense, a holistic human development perspective leads to the feeling of happiness as the synthesis of human experience, as proposed in some experimental policies, such as Bhutan's Gross National Happiness Index.

Indeed, there is a growing school of thought that considers happiness (defined in a number of ways, often controversial) as the core dimension of human development. In fact the "pursuit of happiness" has long been stated as the overarching goal of the human endeavor, a goal enshrined in the constitutions of some countries. If this is the case, and if informationalism is the most dynamic, synergistic form of socio-economic organisation, the central question in development policy nowadays is the relationship between informational development and human development.

In the traditional development paradigm, there was the implicit or explicit notion that wealth has to be produced before it can be redistributed. Thus, enhancing productivity and competitiveness in the global networked economy becomes the priority. As the argument goes, the more resources are generated, the more the benefits of economic growth will trickle down to the population at large by way of the market and/or the government. The problem is that the market does not usually play an adequate role as an equaliser but instead rewards the winners, except for some corrective mechanisms based on meritocracy.

Therefore, the role of government in fostering social well being is paramount. Corrective redistributive policies depend on the state. However, another major issue arises, namely that government bureaucracies in charge of human development often engage in the politics of redistribution. This means that they use the mechanisms of the welfare state to create the conditions for political patronage and clientelism as the basis for inducing the dependency of citizens vis-à-vis the state. This is the opposite of a developmental approach focusing on the modernisation of the economy and the empowerment of society. The outcome of this separation between the logic of informationalism and the logic of welfarism is the formation, in most countries, of a small, highly dynamic, knowledge-producing and technologically advanced sector. This sector is connected to other similar sectors in a global network but exclude a significant segment of the economy and society in its own country. This is, in fact, the structural basis for the growing inequality, polarisation and marginalisation that characterise the situation of most people in the world, despite high rates of growth in most parts of the globe in the last decade. And yet, there is a meaningful link between informational development and human development that, if made explicit and articulated in policy terms, could generate synergistic effects leading to higher productivity growth and greater human well being.

The living conditions of the population at large have been shown to improve in two ways. The first is through technological diffusion and spread of networking forms or organisation by allowing new regions and countries to enter the global market in multiple industries. The second is by enabling widespread access to information that is critical to produce, trade and deliver social services, including education and health.

It is not a question of producing advanced technologies, but of having the capacity to acquire and efficiently use the new information and communication technologies. It is not about innovating and selling Internet applications but about developing Internet-based tourism, Internet-based high value-added agriculture, technology-enhanced manufacturing, digital cultural products, etc. For example, a study on the impact of mobile communication in Latin America directed by Castells and which has just been published, shows that, on the basis of econometric and ethnographic evidence, the spread of mobile communication (which has reached nearly 100% penetration in the population at large) is positively correlated with economic growth and with the reduction of poverty, although it is neutral in relationship to inequality (Castells, Fernandez-Ardevol, Galperin, directors, 2010).

As for the overall quality of life, in sharp contrast with the media prejudice against the Internet, recent research by David Wilmott in Britain, analysing 35,000 interviews from the University of Michigan's World Values Survey, has established a direct link between happiness and informationalism, using the frequency and intensity of Internet use as a proxy of informationalism. The more intense and frequent use of the Internet by an individual, the higher the value of his/her score in the happiness index. This is explained by two variables: sociability and empowerment. Happiness is fundamentally linked to a dense network of social support. Happiness correlates with the feeling of autonomy and empowerment that people have in their lives. Internet, as we know from 20 years of empirical research (particularly from the USC World Internet Survey), increases sociability both online and offline, as the two forms of sociability feed into each other. And the use of the Internet increases empowerment, as documented by another stream of research, including the survey research of Castells in Catalonia and the studies conducted by the Oxford Internet Institute and the Pew Institute. The feeling and practice of empowerment is particularly significant for dominated groups, particularly women and poor people. This is why the positive effects of the Internet on happiness are stronger in poor countries and among the weaker segments of the population. Internet enhances sociability, freedom and empowerment and these conditions lead to a higher level of happiness – the ultimate indicator of human well being.

Furthermore, the diffusion of social networking on the Internet, amplified by the explosion of wireless communication (5.4 billion subscribers in the planet at this point), is at the source of the rise of mass self-communication – a key factor in the vitality of social movements and socio-political change nowadays. Thus, informational development becomes a key factor in another essential dimension of human development, namely political development. Political development is defined as the enhanced capacity of people to rebel against injustice and participate in meaningful politics – as the Arab revolutions or the “indignant” movements in Europe have shown recently.

Thus, there is, potentially, a synergistic feedback loop between informational development and human development in the broadest sense. This positive interactive effect is being sought by government policies trying to promote both. The success story of Finland is the best example of the critical role of the state in steering, through public policy, both informational development and human development.¹ In less than a decade, Finland became the number one information society in the world, as well as the most competitive economy, while supporting a comprehensive welfare state (Castells and Himanen, 2002). A similar strategy, also led by government policies, has been followed in another successful example of development: democratic Chile from 1990 to 2010.² Development experiences in Singapore, Taiwan, Costa Rica and other countries provide rich observational material to support the concept that government policies which are aimed at connecting the two processes can induce a dynamic and redistributive model of informational-human development.

1 This process has been documented by Castells and Himanen in their book “The Information Society and the Welfare State: The Finnish Model”.

2 These developments have been documented by Castells in his book “Globalisation, Development, and Democracy: Chile in the Global Context”, and by Ottone in his “Governing Globalisation. The Chilean Case”, published in 2011.

But we know many cases (e.g. California) in which informational development is one-sided and operates in the absence of deliberate government policies to enhance human development. In the case of Silicon Valley, immigration and entrepreneurialism provide the necessary human resources for the innovation drive at the source of economic growth, as documented in the research by Anna Lee Saxenian at Berkeley (Saxenian, 2005).

The split between informational development and human development may lead to pathologies in the two processes.

On the one hand, if capital accumulated in the dynamic sector of the economy is not recycled into the improvement of social conditions, including wages, it feeds the creation of virtual financial capital connected to real estate bubbles and financial creative destruction. Thus, just to mention the origin of the 2008 crisis in the US and Europe (not at the global level), the paradox in the US was that the crisis coincided with the rise of the new economy, an economy defined by a substantial surge in productivity as the result of technological innovation, networking and higher education levels in the work force. Indeed, in the US, where the crisis first started, cumulative productivity growth reached almost 30% between 1998 and 2008. However, because of shortsighted management policies, real wages increased by only 2% over the decade. In fact, weekly earnings of college-educated workers fell by 6% between 2003 and 2008. And, yet, real estate prices soared during the 2000s.

Lending institutions fed the frenzy by providing mortgages, ultimately backed by federal institutions, to the same workers whose wages were quasi-stagnant or diminishing. The hope was that productivity increases would ultimately catch up with wages as the benefits of growth would trickle down. This never happened because financial companies and realtors reaped the benefits of the productive economy, inducing an unsustainable bubble. The financial services industry's share of profits increased from 10% in the 1980s to 40% in 2007. The value of its shares increased from 6% to 23%, while the industry only accounts for 5% of private sector employment.

In short, the very real benefits of the new economy were appropriated in the securities market, and used to generate a much greater mass of virtual capital that multiplied its value through lending to a crowd of eager consumers-borrowers. The results are now well known. However, the possibility of financial collapse was spelled out in detail in a book Castells published in 2000 with Tony Giddens, Will Hutton, George Soros, Paul Volcker among others, intentionally titled "On the Edge: Living in Global Capitalism" (Hutton and Giddens, editors, 2000).

On the other hand, proceeding with human development without engaging in full-scale informational transformation leads to the fiscal crisis of the state, because of unsustainable growth in public spending in relationship to the productive base of the economy. As governments resort to massive borrowing, the dramatic increase in sovereign debt ultimately forces governments into adjustment policies, drastic cuts in social spending, and shrinking of public employment and public services. The result is the rise of popular protests, nationalistic reactions, and sometimes populist, demagogic movements that destabilise societies and political systems, as current developments in the European Union show.

Since human development in the contemporary culture includes environmental sustainability, the weakness of public policy in the environmental realm leads to damaging environmental conditions. This is reflected in deteriorating public health and in a high likelihood of manmade natural catastrophes. In contrast, when policies set up a direct link between informationalism and sustainability, they open up new

markets in ecologically-friendly production, particularly in agriculture, with knowledge-based, high value-added organic produce contributing to balanced economic growth. The synergistic triangle between knowledge economy, human welfare and environmental sustainability could become the engine of a new model of development capable of improving the quality of life in all its dimensions.

Yet, in most of the world the separation between informational development and human development, with negative effects for both processes, continues to be the prevailing condition. This split is particularly acute in the so-called emergent economies, including the BRICS countries. The dynamic sectors in these countries, as well as in some of the Latin American, Asian, African and Middle Eastern economies, are fully incorporated into the global networked economy working within the informational paradigm. However, the benefits of this growth are not only unevenly distributed, but wastefully used – often to feed conspicuous consumption by the upper middle class, corruption of political elites, or extravagant bureaucratic or military expenses. Ultimately, the lack of human development spoils the promise of informationalism in the absence of a conscious public policy aimed at correcting the pitfalls of the markets and the abuses of bureaucrats.

Even the booming economy of China is finding the limits of an inhuman development approach in the recurrent social protests and violent rebellions from workers, peasants and displaced urban residents, as documented by Berkeley professor You-tien Hsing, (2010) Furthermore, when human development is disconnected from informational development, social policies are frequently used as mechanisms of paternalistic control and political patronage. This further reduces the positive feedback loop between quality of life and informational productivity.

To examine these questions in a global perspective, Manuel Castells and Nico Cloete are currently engaged in a comparative research project on informational development and human development with the participation of researchers from the University of Southern California, the South African Centre for Higher Education Transformation, the Aalto University in Helsinki, the University of Costa Rica, and the University of California-Berkeley. We are currently investigating how South African development processes and development policies relate to the analytical approach we propose. It is our expectation that this seminar could provide some critical knowledge and insights on the matter.

Are these issues relevant to South Africa? Do South African policies in human development and informational development relate to the processes, contradictions and conflicts that we have identified on a global scale? To stimulate the discussion we will now specify the questions that in our view should be addressed in the South African context, as a pre-condition to generate answers to these questions, and in the hope that they could yield some analytical value and useful meaning for policy makers in the country.

Development, Informational Development, and Human Development in South Africa

In this section of our concept paper we will proceed with a succinct empirical assessment of the South African situation referring to each one of the analytical issues we have raised in general terms. Then, for each one of these issues we will suggest a few key questions to be studied and debated in the seminar.

Economic Growth, Inequality and Human Development

As stated in our analytical framework *the structural basis for the growing inequality, in spite of high growth rates in most of the world, is the growth of a highly dynamic, knowledge-producing, technologically advanced sector that is connected to other similar sectors in a global network, but it excludes a significant segment of the economy and of the society in its own country.*

Let's see how this process manifests itself in South Africa. During the first decade of the post-apartheid era in South Africa, gross domestic product (GDP) grew at a "modest rate", averaging one percent and more recently three percent. Nevertheless, it has been the longest period of positive growth in history (Bhorat 2010a). How did this growth happen? The envisaged post-1994 economic policies for the development project stated that the economy would require steering onto a new development path which, amongst others, would reduce dependence on resource sectors through industrial deepening and diversification.

The figure below shows the top ten sectors by investment, with government services, business services, and finance and insurance the leading sectors. From 2006 to 2008 alone, government services increased from 12% to 20%, electricity from 4% to 9%, 'other' mining from 4% to 8%, and wholesale and retail from 5% to 10%. Investment in the communications sector only increased by 2% (from 8% to 10%) (Mohamed 2009).

While the South African banking sector survived the 2009 global crisis surprisingly well, due to stronger banking regulation than in many developed countries, the worst impact was on structural industrial weaknesses inducing partial de-industrialisation. This was the result of a development dependent on a continued reliance on mining and minerals exports (Mohamed 2009).

A major change in the South African economy to which Bhorat and Jacobs (2010) have given considerable attention, is the change in the skills profile. The National Planning Commission (NPC) shows that job growth between 1995 and 2009 saw a 50% increase in high-skilled jobs and a 20% decrease in low-skilled jobs. Using data for the period 1970–2005, and updated to 2009, Bhorat (2010b: 20) argued that

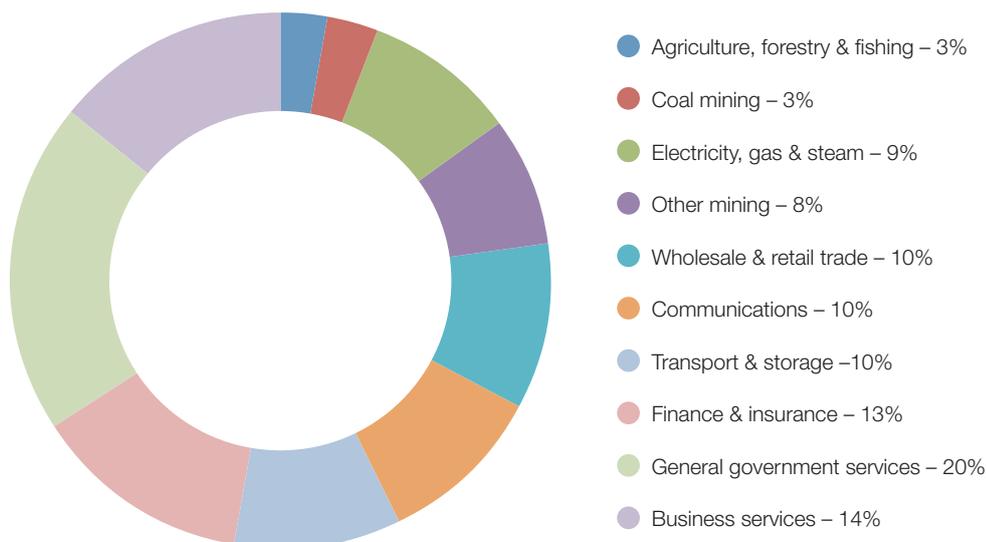
... this growth path has been built on a rising demand for skilled labour with a steady erosion in the demand for unskilled or under-skilled workers. The modern era in the South African economy has thus been defined by a growth path with a constant increased for educated workers at the expense of those with lower level of human capital. In trying to link the nature of South Africa's growth path to the human capital endowments of households, we showed that households at the top-end of income distribution benefited more from growth than those in the middle and bottom-end of the distribution. In particular, better educated households gained more from this economic growth than households who are lesser educated so effectively defining a growth path in South Africa manifest in generating high returns to the educated, at the expense of the less educated.

The stated goal of the post-apartheid economic policy was to reduce poverty, inequality and unemployment. A 2% growth should lead to a 1-7% reduction in poverty, depending on the country – meaning the success of redistributive policies (Bhorat, 2010a). In South Africa, poverty declined from 52% in 1995 to 49% in 2005 and in the lower poverty group a 7% decline (31% to 24%). In addition, there were definite gains in poverty reduction, particularly in African female-headed households (Bhorat, 2010a). All people, regardless of race, experienced increases in expenditure, meaning that growth was 'pro-poor'.³

Despite the modest gains in poverty reduction, the inequality gap did not decrease; instead, it increased amongst all groups (see table below). This led Bhorat (2010a) to conclude that in 1994 South Africa was "one of the world's most unequal societies, but by 2005 it may have become the world's most unequal".

³ But an African female-headed household still yielded vastly higher headcount and poverty gap ratio estimates in both 1995 and 2005.

Figure 1: Top 10 sectors by investment (as a % of total investment)



(Source: Mohammed 2009)

Table 1: Inequality Shifts by Race: Gini Coefficients for 1995 & 2005

Category	1995	2005
African	0.55	0.56
Coloured	0.49	0.58
Asian	0.45	0.53
White	0.39	0.45
Total	0.64	0.69

Bhorat (2010a) Source: Statistics South Africa (1995 and 2005) and own calculations

Bhorat argues that the Growth Incidence Curves suggest that those at the very bottom and those at the very top experienced the highest growth rate, but that the growth in expenditure of the rich exceeded growth at the bottom, fuelling the rise in income inequality. Employed blue collar workers also seem to have been excluded from the growth process. The stagnation of income growth in the middle of the distribution is a key element in the rising Gini coefficient (Bhorat, 2010a).

Whites and coloureds benefitted most from growth at the top end. Race and gender remain overwhelming determinants of the poverty profile, which leads Bhorat (2010a) to conclude that “this racial difference in expenditure growth at the top end must partially explain... the rising share of inequality between groups in overall income inequality” (p62).

On the welfarism side of the income structure, recipients of social grants trebled – 2.5% of GDP in 1996 to more than 3% in 2008. The total number of beneficiaries increased from 3 million in 1997 to 9.4 million in 2005 (increase of 217%).⁴ The share of households in the first income decile with access to grant income increased from 43% in 1995 to almost 65% in 2005 and that even for households in the sixth decile grant income increased from 19% in 1994 to 50% in 2005. According to Bhorat (2010a) this suggests that grant income does not only support the very poor, but also a large number of households in the middle income distribution.

4 More recent estimates suggest that 25% of the population are on social grants.

Moeletsi Mbeki (2009) raises the question: “But do social grants make people happy, as the ANC government expects?” (p87). He argues that, ironically, while putting food on the table, recipients become more insecure due to a possible withdrawal or reduction of grants. He further argues that grants could also accentuate the humiliation of being dependent, and humiliation from grant administrators.

While South Africa has had a mixed growth path, increasing income and increasing inequality, in terms of human development the picture is also mixed. Two key aspects of human development are education and health. The NPC’s (2011) “Diagnostic” diagnoses only school education, and states that: access to education is now nearly universal; there has been a steady increase in basic literacy; there is much better equity in school funding; 80% of learners aged five are in grade R; and most poor children receive school meals. However, there are huge variations in school outcomes, with only one percent of African schools performing on high school certificate levels vs 31% of formerly privileged schools. Worse, in mathematics, South Africa performs 137 out of 139 countries (WEF 2010) and is outperformed by many African countries.

In terms of health, despite certain aspects of the private health system that is world class, on a number of health indicators, South Africa’s performance has actually deteriorated. The HIV/Aids rate is significantly higher than most places in the world; reported tuberculosis rates are increasing; and infant mortality rates are high and deteriorating. Overall, South Africa is one of few countries in the world where life expectancy has deteriorated in the 21st century (NPC 2011). The NPC concludes that South Africa “faces a large and growing burden of disease, a collapsing public health system, largely due to policy mistakes – and the biggest concern is the massive shortage of skilled staff”.

One way of characterising the difference between GDP growth and human development is to compare the ratings of different countries against GDP and UNDP indicators. Table 2 below shows that two of the ‘African success stories,’ Botswana (-65) and South Africa (-51), are not translating growth into human development, while Costa Rica (+19) and Chile (+15) are doing much better. Table 2 also shows that in poorer African countries there is less of a discrepancy. It is also interesting to note that there is a considerable difference between Finland (+11) and the US (-4). (Unfortunately we do not yet have a figure for California.)

In summary, the post-1994 South African democratic growth model is through extensive social grants at the bottom end, few benefits at the middle of the distribution curve and the main growth is at the de-racialising top end.

Based on this growth path, both Bhohat (unequal income distribution) and Mbeki (the disempowerment of welfarism) express concern for the future of democracy. According to Mbeki (2009;87), “the danger in this is that to sustain self respect, the unemployed and those on welfare may support demagogues who claim to be marginalised and replace the ruling elite with nationalisation and a ‘people friendly government’”. Bhohat (2010a: 67) also rings a warning bell: “with declining tax revenues and rising fiscal deficits, it is unclear whether the current growth model is desirable or sustainable, and raises the alarm that these persistently high levels of inequality may give rise to social conflict and ongoing challenges around the nature and trajectory of the countries growth path”.

Table 2: Gross domestic product (GDP) per capita vs Human Development Index (HDI)

Country	GDP per capita (PPP \$US)		HDI ranking 2007	GDP ranking minus HDI ranking
	2007	GDP ranking		
Botswana	13 604	60	125	-65
Mauritius	11 296	68	81	-13
South Africa	9 757	78	129	-51
Chile	13 880	59	44	+15
Costa Rica	10 842	73	54	+19
Ghana	1 334	153	152	+1
Kenya	1 542	149	147	+2
Mozambique	802	169	172	-3
Uganda	1 059	163	157	+6
Tanzania	1 208	157	151	+6
Finland	34 256	23	12	+11
South Korea	24 801	35	26	+9
USA	45 592	9	13	-4

Source: Cloete, et al 2011

Seminar Questions:

1. What is the South African development model?
2. What are the main economic development drivers?
3. What is the state of human development?

Informational Development: ICT, Higher Education and Research, and the Environment

In the preceding section we argue that “A substantial body of academic and technical literature provides evidence of the relationship between informationalism, productivity and competitiveness for countries, regions and business firms. But, this relationship only operates under two conditions: organisational change in the form of networking; and enhancement of the quality of human labor, itself dependent on education and quality of life.”

To address this we look at three sectors in South Africa: information and communication technology (ICT); higher education and research, and the environment. On the one hand, these three areas are crucial in informational development; on the other hand, they have been virtually absent from development proposals – from the Reconstruction and Development Programme (1994), the Growth Employment and Redistribution policy (1996), and the Accelerated and Shared Growth policy (2008). In the most recent NPC Diagnostic, higher education and ICT are not mentioned, and only one page is dedicated to the environment.

ICT

While South Africa boasts some of the most developed telecommunication networks, products and services on the continent, the development of the South African telecommunications market in terms of competitive players and their relevant penetration into the market is relatively low. As it is widely recognised that telecommunications is an essential lever for economic growth, it is difficult to understand how the liberalisation and growth of the telecom sector has been decoupled from country-wide growth initiatives. The lag in the telecom sector is especially evident when looking at broadband penetration, where South Africa falls far behind countries with similar GDP per capita including Argentina, Poland, Mexico, Turkey and Brazil.

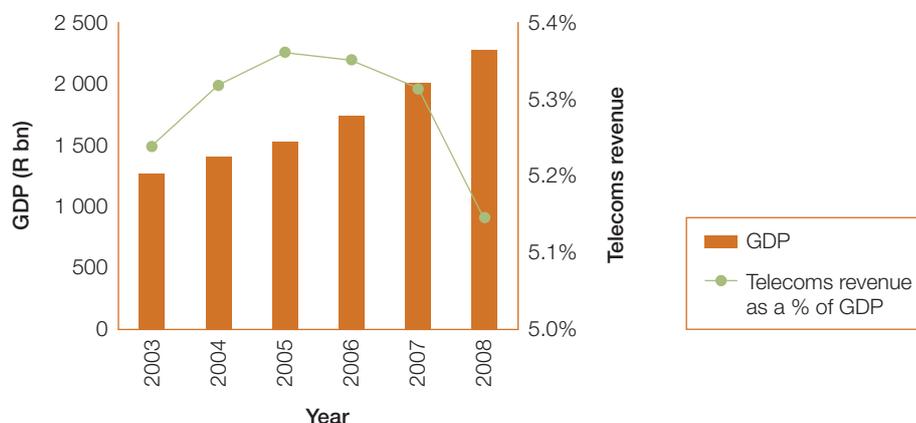
As a critical element of the informational economy, telecommunications has a direct influence on economic performance. Various studies have found that investment in telecommunications infrastructure has the potential to improve national productivity and economic growth in several ways (Castells, Fernandez-Ardevol, and Galperin (directors), 2010). A study by Deloitte (2009 in Gillwald 2010)) estimated that a 10% increase in telephone penetration results in a 1.2% increase in GDP in emerging markets and a 0.6% increase in developed markets.

In a recent review of the South African ICT sector, Gilwald (2010) states that:

- South Africa has the most developed telecom networks in Africa
- Mobile market penetration is around 80% with 10% multiple SIM cards – market liberalisation resulted in main players strengthening
- Interconnection rates are higher than any OECD country (500% increase) and market concentration has resulted in excessive profits
- While 15% of households own a computer, only 5% have internet access
- Contribution of ICT to GDP was 2.8% in 2008, much lower than other middle-income countries
- South Africa scores well against other African countries in terms of ICT indices, but is no longer at the top and is declining in the WEF ICT Network Readiness Index.

Gillwald (2010) concludes that South Africa has two economies in one society: a globalised minority which is highly interconnected, with the majority remaining unemployed and unconnected. But, the new ICT Act opens the market to competition and the huge increase in broadband offers possibilities not yet realised.

Figure 2



Seminar Question:

What is the state of information and communication technologies in terms of infrastructure and diffusion in South Africa? Which are the economic and social consequences of uneven quality and access to the informational infrastructure?

Higher Education and Research

Central to the highly productive, globally-connected sector of the economy is high skills and high participation in higher education. The NPC commissioned education paper says that higher education is now recognised as key to delivering the knowledge requirements for development. Research has suggested a strong association between higher education participation rates and levels of development, and that high levels of education are essential to the design and production of new technologies for a country's

innovative capacity and for the development of civil society. This has persuaded many countries – including rapidly developing nations such as China and India – to put knowledge and innovation policies, and higher education, at the core of their development strategies. While the South African higher education system has been characterised as a low participation/high attrition sector, compared to both schooling and the post-school sub-systems, higher education is in much better shape (Taylor, 2011).

There are three key issues in the debate about higher education and the knowledge economy, namely differentiation (concentration), massification, and links between higher education and economic development (Pillay, 2011; Cloete *et al*, 2011).

Differentiation in this sense deals with the knowledge production and the impact of the knowledge. It also refers to the capacity of the system and whether governments – directly or indirectly – support certain institutions to have higher percentages of masters and doctoral students and staff with PhDs, and encourage research output. Massification deals with participation rates above 30%, and increasingly above 50%, of the 18-24-year-old cohort who are in different types of post-school institutions, public and/or private.

Dealing with knowledge production and relevant skills, an as yet unpublished World Bank (Closing the Skills Gap, 2011, in press) assessment describes South African higher education as a “low participation-high attrition system” with the following problems:

- Applying the knowledge economy paradigm to South Africa, its weak post-apartheid growth can be attributed to the deterioration of relative performance of two pillars, namely **innovation and education**.
- The shortage of high-level skills has been a huge hindrance for innovation and technology absorption.
- One of the biggest contributors to the suboptimal performance of the South African economy is a **human capital trap**. Massive investments in the education system have not produced better outcomes in terms of either academic performance or graduation rates.
- South Africa has drastically scaled up investment in knowledge generation since the fall of apartheid. This trend has not been matched by an equally rapid increase in R&D personnel.

In terms of participation, the South African system ‘crawled’ from 12% in 1994 to 17% in 2010. During the same period the Brazilian system ‘exploded’ from 14% to 35% – mainly through private provision stimulated with tax concessions. Three major causes for the lack of expansion in South Africa include: the absence of a post-school, pre-university college type system that can absorb students who pass the formal ‘matric’ school leaving exam, but who do not qualify for entrance into university; the low throughput rate from the school system of students who are not adequately prepared for university studies; and the almost insurmountable restrictions on private higher education provision. Apart from chronic skills shortages, having an elite higher education system led to the rather bizarre situation that the university system is almost 70% African. However, the participation rate of Africans is only 13%, up from 8% in 1994, while the participation rates of whites have remained at around 60% since 1994. The participation rates of African students can only increase significantly if the system massifies.

Links between higher education and development require coordinated knowledge policies and links between higher education and economic planning. Knowledge policies have become increasingly important in the context of the knowledge economy. Broadly speaking, knowledge policies refer to political mechanisms (such as policies and steering incentives) that are aimed at improving the (knowledge) capacity of a country to participate in the global knowledge economy. Such policies thus relate to the higher education and science and technology sectors, and to high-level skills training, research and innovation.

In a study of eight African countries and their flagship universities (Cloete *et al*, 2011: 75) it was found that

... despite structures and mechanisms between government departments, and between government and universities, to ensure coordination and implementation, this was not happening. Coordination of policies require agreement on the role of knowledge, and higher education, in development. And in South Africa there was neither.

Seminar Question:

Is higher education positioned to be an important contributor to the knowledge economy? Which are its limitations and its potential?

Environment

South Africa's ecological infrastructure and natural capital are on par with its mineral wealth in their disproportionate allocation of global resources. South Africa occupies only 2% of the earth's surface and yet accounts for nearly 10% of known plant species, 7% of known reptile, bird and mammal species, and 15% of known coastal species (SANBI 2010). This makes South Africa the third most biodiverse country in the world, home to three of only 34 biodiversity hotspots.

These natural resources constitute South Africa's ecological infrastructure and are responsible for the provision of essential ecosystem services needed to regulate climate, water and air; to support the production of healthy soils and pollination processes essential to agriculture; to provide food, fuel and fibre to industry and rural households; and to support the country's rich cultural and aesthetic heritage.

This rich natural heritage belies the fact that 91% of South Africa is made up of water-stressed areas known as drylands (SOER 2010). These areas are highly prone to desertification, an irreversible process of land degradation in which the productive capacity of ecosystems can be permanently destroyed. Erosion caused by water and wind on poorly managed lands has already caused widespread degradation across 70% of South Africa (SOER 2010). Relative to overall global conditions, South Africa has more widespread and serious physical soil degradation in the form of crusting and soil compaction. This is a serious threat to food security and the ecological integrity of the country, particularly in commercial farming districts in the Western and Northern Cape, and on communal rangelands in Limpopo, Mpumalanga, KwaZulu-Natal and the Eastern Cape Provinces. South Africa also faces serious threats from mining and energy generation activities, which are systematically causing acidification and pollution of soil and water systems.

The total Foreign Direct Spend in South Africa in 2005 was R55.9 billion, R28 billion more than gold exports. Tourism in South Africa is directly driven by its rich natural heritage, and is responsible for more than a million jobs (Annual Tourism Report 2005). Agriculture, hunting, forestry and fishing, on the other hand, recorded a total economic contribution of R36.3 billion, creating 703 000 jobs (Stats SA, 2007).

In the face of a global economic recession, increasing incidents of biological invasions and the looming threat of climate change, South Africa's rich natural heritage presents a host of opportunities and risks. If managed effectively, the ecosystems have the potential to support a wealth of economic activities, including entering into new biodiversity and carbon markets, valued by Bloomberg's at R860 billion in 2010. If not managed effectively, environmental degradation has the potential to turn our existing social and economic concerns into disasters not unlike those facing our northern neighbours. Poverty, degraded ecosystems and climate change have the potential to undermine the entire fabric of South Africa's social and economic life.

The role that ecosystem services play in economic and social development is still grossly underappreciated, as are the multiple forms of natural capital embedded in the ecological infrastructure. This underappreciation is fuelled by three structural constraints in South Africa's economic and informational landscape: jobless economic growth driven by an over reliance on centralised capital and mineral resources; gross inequality in access to education and information resources; and lack of sufficient information infrastructure.

Seminar Question:

Are environmental policies linking the environment to human development?

Politics and Policy

In general terms we stated that *“when human development is disconnected from informational development, social policies are frequently used as mechanisms of paternalistic control and political patronage. This further reduces the positive feedback loop between quality of life and informational productivity.”*

Gumede (2010), in the “Developmental State in the Making”, argues that policy formulation processes and institutional mechanisms that have evolved since 1994 suggest that South Africa is aiming to be a developmental state (the establishment of the National Planning Commission is but the latest of such institutional mechanisms). Alas, as many of the analysts quoted above have pointed out, South Africa is not there yet! Many reasons for this have been advanced, but a prevailing one is that starting with the Constitution, South Africa has world class policies, but does not have the capacity to implement them. This assumption could be questioned on three grounds. Firstly, implicit, and sometimes even explicit, in the preceding analysis, is evidence that in many areas, from education to health to ICT, there has been a lot of ‘bad’ policy – policies that weakened already weak sectors (curriculum reform and teacher retrenchments in education) to economic and ICT policies that are explicitly anti-redistributive and redistributive policies that are disempowering.

Secondly, the Higher Education Research and Advocacy Network in Africa (HERANA) study in eight African countries shows that with regards to higher education and development, there is, with the exception of Mauritius, no agreement on the countries’ development models, nor on the role of higher education in them. This study suggested that in a number of countries, South Africa included, capacity may not be the central problem, but rather it is the lack of agreement, or a pact, on what needs to be done. The situation where there is the least implementation is where there is low capacity and disagreement.

Thirdly, a rather cynical counter explanation is that there is a strategy Mbeki (2009) and that the strategy is to develop a disconnect between the logic of informationalism and the logic of welfarism. In this case, many policy commission activities are what Hans Weiler calls ‘compensatory legitimation’ – for Weiler commissions and subsequent policies are often mainly an attempt to buy time and to create the impression of government action. You-tien Hsing, drawing on her observations in China, talks about “policy as performance” – when the regime has no intention to enact change, but ‘performs’ policy rituals in order to create the impression of an intention to change.

This ultimately leads some of the theses proposed by Mbeki's (2009) Architects of Poverty concluding chapter; “Africa Needs a New Democracy”, and his subsequent volume Advocates for Change (2011).

Seminar Question:

Which are the critical failures of development in South Africa?

Concluding remarks

Without a synergistic relationship between the dynamic, informational sector of development, that includes advanced services and knowledge- based economic activities, and the processes of human development, that include environmental sustainability, informationalism cannot be maintained as it runs out of the knowledge basis, quality work force, social stability, and managerial efficiency that are at the source of productivity and competitiveness, the key factors in wealth creation in a globally interdependent economy. Without a dynamic sector able to generate sufficient wealth to support public spending to improve social well being, the fiscal crisis of the state will ultimately limit any process of redistribution of income and services, leading to potential social discontent, and ultimately to political disruption. If informationalism is limited to a small, globalised sector and human development is captured by the politics of patronage, without a meaningful feedback loop between these two processes, that are the key components of development in our world, both processes enter into a sequence of mutually assured destruction. Looking at today's South Africa from this perspective, there are reasons to be concerned, rethink and react.



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