

Foresight 2000 as an aid to stimulate research in the financial services sector in South Africa.

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ABSTRACT:

Foresight is a family of processes intended to capture the dynamics of change by placing today's reality within the context of tomorrow's possibilities. During 1998/99 a foresight project was undertaken in South Africa and 13 sectors or fields were covered. One of these was the financial services sector. The main objective was to identify critical new developments in this sector and to identify research and educational needs to maintain sustainable growth and development in the sector. This paper covers the broad foresight methodology and some major findings regarding the relevant sector.

1. INTRODUCTION

Foresight is a family of processes intended to capture the dynamics of change by placing today's reality within the context of tomorrow's possibilities. It acknowledges a range of potential futures and seeks to add new dimensions to current thinking by providing:

- a way of thinking about the longer term future and how it could differ from the present
- a means of testing current views and policies; and
- a way of overcoming the difficulties of static or retrogressive analyses.

Foresight provides a valuable mechanism for serious consideration of significant technical trends and their relationship to socio-economic needs. Foresight is inherently pro-active and reflects the belief that today's decisions and actions influence the future. Building complex pictures of alternative futures enables a better assessment of how well current research and technology systems might address future needs. (Foresight Report, 2000: 2)

2. FORESIGHT 2000 IN SOUTH AFRICA

The National Research and Technology Foresight (NRTF) Project was one of a number of initiatives launched by the Department of Arts, Culture, Science and Technology (DACST) as part of its mandate to review and reform the science and technology system in South Africa. The South African interest in foresighting started in 1993 when the International Development Research Centre (IDRC) of Canada conducted a 'Mission on Science and Technology Policy for a Democratic South Africa'. The Mission report outlined the steps that needed to be taken into account when transforming science and technology and also assessed the status of the existing system. The Foresight exercise in South Africa, though informed to some extent by

approaches of other countries, had to adopt its own approach to fit the South African context. Some of the unique features of the South African Foresight are addressed below to provide greater clarity:

2.1 Consultation

Perhaps one of the distinguishing features of South Africa's Foresight project is the extent of wider community involvement in the process. The Foresight programme has been deliberately designed to involve stakeholders such as industry, government, organised labour and civil society. This inclusive participatory approach is an attempt to give ownership of the process to all sectors of the population.

2.2 Methodology

The methodological approach adopted in the South African Foresight project employs a combination of techniques. These include strengths, weaknesses, opportunities and threats (SWOT) analysis, scenario analysis and surveys of opinions on research and technology trends.

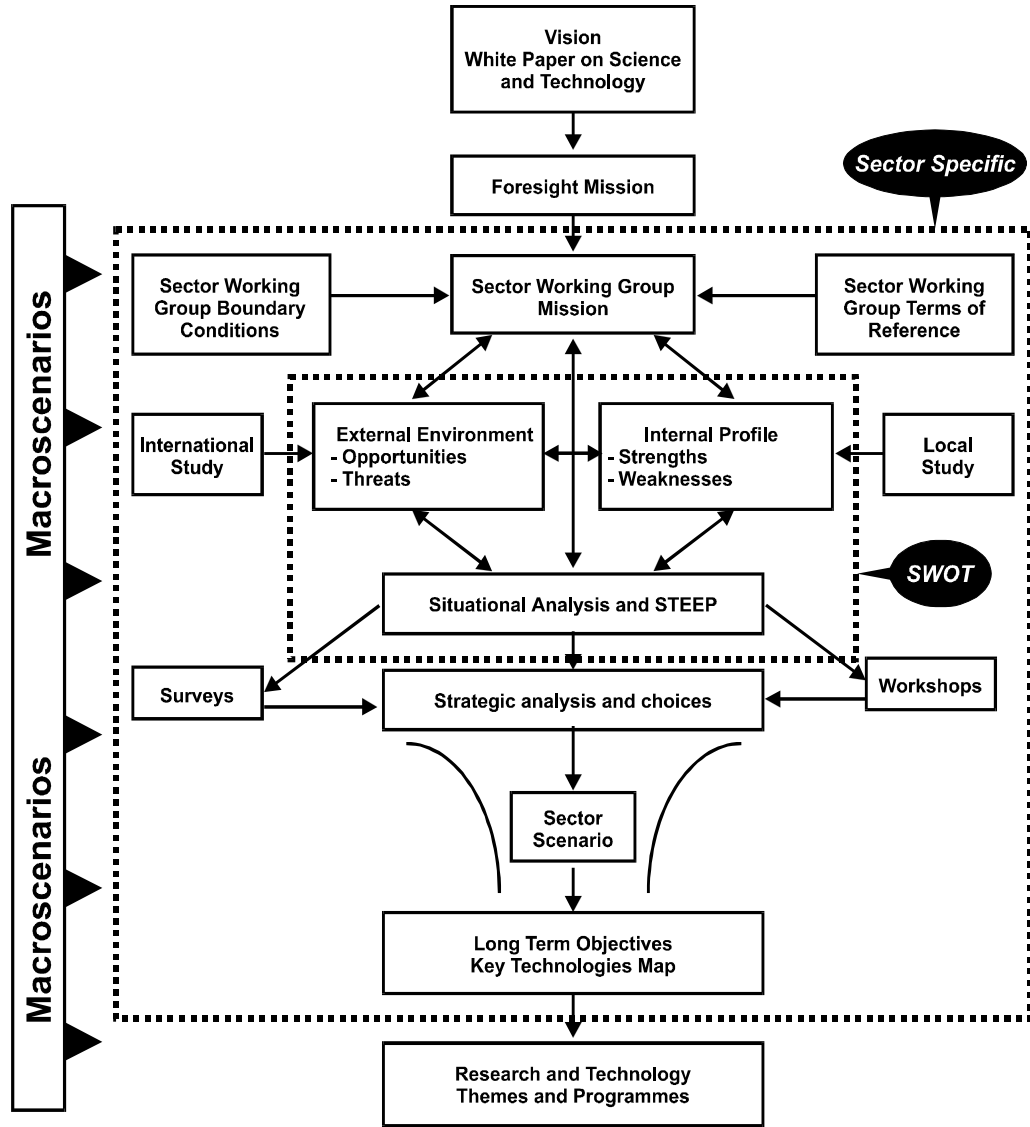
The methodology employed in the South African Foresight project differs also from other countries in that, to contextualise sector work, macro-scenarios for science and technology in South Africa have been developed to provide a uniform frame of reference for all 12 sectors covered.

The process followed to select the Foresight sectors were also one of the special features of the South African process. A series of countrywide workshops in which participants were asked to identify future priorities for South Africa were conducted. The sectors that were finally selected reflected the goals of the exercise and have drivers which include social development, technological development and wealth creation.

The 12 Foresight sectors appear hereafter in alphabetical order:

- Agriculture and Agroprocessing sector
- Biodiversity sector
- **Business and Financial Services sector**
- Environment sector
- Energy sector
- Health sector
- Information and Communication Technologies sector
- Manufacturing and Materials sector
- Mining and Metallurgy sector
- Safety and Security of Citizen and Society sector
- Tourism sector
- Youth sector

In Figure 1 a schematic representation of the Foresight methodology is given. (Foresight Report, 2000: 5)



3. FINANCIAL SERVICES - SOME IDENTIFIED TRENDS

3.1 Definition of the Financial Services Sector

There appears to be no universally accepted definition for accurately defining the Financial Services sector. The definition could even differ according to one's perspective or place within the sector.

On consultation, the South Africa Financial Sector Forum felt that a definition of financial services would be too wide to be meaningful, i.e. *any service which has a financial association*.

The UK Foresight Financial Services report also mentions that they could find no universally accepted definition for the Financial Services sector. The UK report therefore does not adopt a rigid or precise definition of financial services and has its prime emphasis on banking, insurance and the financial markets rather than on areas such as law or accountancy.

There seems to be a general consensus that an encompassing definition would be too wide to be at all meaningful.

After the Sector Foci exercise at the First Workshop of the Financial Services Sector Working Group, it was decided that the Financial Services sector would include banks, insurance and the financial markets. It would examine possible scenarios for the sector and technologies which can make the sector more competitive whilst having a positive impact on South Africa's socio-economic development. Potential points of focus could also include a look at capital flow mechanisms and venture capital availability. The sector was to also examine ways of developing and selling unique expertise to other countries, particularly in area of change management. For the purposes of the Financial Services Sector Working Group, it was accepted that "financial services" will include a range of services of a financial nature including banking, securities, insurance and assurance, capital provision, transaction services, investment protection, risk management, measurement, medical insurance, stock-broking and many other services which are needed to ensure a vibrant economy.

3.2 Current status

Finance, Insurance and Business Services was one of the highest contributors to the economy in 1996, accounting for 17.0% of the GDP. In 1994, 4.9% of the workforce in the formal economy was employed in the Finance and Business services sector. This percentage increased to 6.7% in 1997.

3.3 Current Initiatives

There is currently no discernible long term strategic plan for the whole sector as all the individual companies tend to have their own plans to ensure their own competitive advantages and protect their own niches. It is well to

remember that the aim of Foresight is to facilitate the country's global competitiveness and that it is companies that compete, not governments. Government's role is to create a conducive environment so that the companies can compete successfully in the global arena.

3.4 Identified Drivers and Constraints

Technological trends internationally point to increased reliance of this sector on IT and communications technologies. While the technologies may lead to increased efficiency in service delivery, issues relating to security (e.g. increasing fraud) present a problem. Lack of information technology awareness, and of access to sophisticated technologies like computers in the larger community, may be a constraint to the widespread use of newer high technology service delivery modes (e.g. virtual banking).

4. SCENARIO ANALYSIS OF FINANCIAL SERVICES

The scenario analysis consisted of two broad overviews, e.g. an international and a local overview.

The International Study summarised and analysed major international trends and presents a review of the global issues that could have an affect on the Financial Services sector. As mentioned above, a certain amount of overlap with the ICT and other sectors was inevitable. To obtain a broad overview the following main groups of countries were included in the analysis: OECD, G7, NIC (Newly Industrialised Countries), Developing Economies, North and South Saharan Africa and SADC. The trends covered were the social, political, economical, technological and foresight studies and strategic plans developed in a number of overseas countries.

Figure 1.2 is showing how South Africa is performing in terms of factors of importance to the information age.

Its access to electricity is competitive and its access to news in terms of newspapers and television average. Access to communications media such as faxes, telephones, the Internet and personal computers are reasonable. It has, however, lower industrialization than many of the other countries compared to.

The outstanding feature is access to telephone lines. South Africa is comparing well in terms of telephony penetration and investment in telecommunications. It is not comparing badly in terms of access to the Internet, and also not so good in terms of the number of computers per capita.

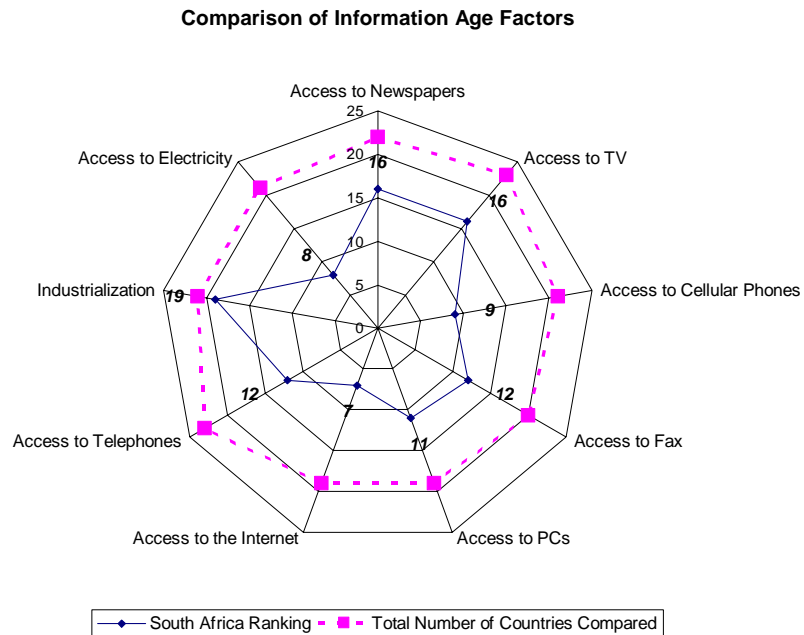


Fig. 1.2: Comparison of South Africa's performance against other countries in terms of information age factors

It has fair access to cellular phones.

South Africa's relative positioning of its financial sector is also clear from the evaluations as published in the World Competitive Reports. In 1994 SA was rated number 21 among 41 countries, in 1995 number 20 among 48 countries, in 1996 number 18 among 53 countries and in 1997 number 11 among 53 countries and in 1998 number 14 among 59 countries.

5. MAJOR FINDINGS

5.1 General Trends

South Africa is being increasingly viewed by the international community as part of the “emerging markets”. This can have negative consequences for the financial markets in South Africa, a fact which was so pertinently illustrated when the “Asian ‘flu’ struck in 1998.

The emigration of skilled people from South Africa may also have a negative impact on the development of the financial services sector in the country. It is difficult to estimate the magnitude of the emigration of skilled people from the financial services sector, but some mechanism will have to be found to counteract this process as this will be important in determining future training needs.

International trends also show that the sector is a major contributor to the economy. In Singapore, the Financial and Business Services Sector accounted for 27% of the GDP in 1995 and grew by 7.7% in the same year. In Britain, the Financial Services sector currently contributes about 7% to the GDP and employs more people than in defence, aerospace or the IT and electronics industries.

5.2 Some economic trends

Policies are in place to bring the fiscal deficit down steadily and to keep inflation in check. Even so, not more than 3 percent growth per annum can reasonably be expected on average over the next few years.

In 1997, economic activity consequently slackened and the growth in the real gross domestic product declined from slightly more than 3 per cent in 1996 to half of that in 1997. The real gross domestic product increased by 1,8% in the first nine months of 1997. In Rand terms, the gold price declined by 7,5%.

The Gross Domestic Product in 1997 was R 529.6 billion and the GDP per capita was R 13 773, the second highest in Africa. The most important contributors to the GDP were manufacturing (24%), financial services (18%), general government (15%), commerce (16%) and mining (8%).

Gross domestic expenditure increased by 0,1% in the first nine months of 1997 from the exceptionally high levels of expenditure in 1995 and 1996 that were, to a large extent, financed by credit. The balance of payments remains a structural barrier to accelerated growth. The economy is dependent on imported capital and intermediate goods and, as in the past, the cyclical upswing brings deterioration in the current account.

5.3 Social Trends

Human beings are the only users of financial services, and are the drivers of the system. It is thus of absolute importance to analyse the social and demographic trends and to take these into account during the development of scenarios and strategic plans.

The October 1996 census puts South Africa's population at approximately 40,6 million. Of these 54,4% resides in three provinces (KwaZulu-Natal, Gauteng and the Eastern Cape). This may lead to unequal distribution of infrastructure and services. Coupled to this, the Human Resource Index, the access to household services and literacy levels are underlying factors likely to have future impact on financial services in South Africa. Furthermore the

census indicates that almost 25% of the South African population is below the age of 10 years and almost 47% below the age of 20 years. The age pyramid is broad-based as in the case of most developing countries. This may imply a dramatic increase in the demand for financial services when these people enter the market.

The Human Development Index (HDI) for South Africa was 0.68 in 1991 and was rated at 0.71 in 1997. In the 1997 international HDI rankings, South Africa was 79th in the world after being 86th in 1992. The latest figures per province range between 0.47 for the Northern Province to 0.83 for the Western Cape. This again, indicates that there is a steep differential across South Africa, which may influence the demand and supply of financial services differently across the provinces.

The access to electricity is another influencing factor in the formula for utilising especially high technology in the financial services sector. In 1998 electricity was available to almost 58% of all households. Most connections were in Gauteng, followed by KwaZulu-Natal.

The literacy level of citizens in a country plays an important role in their economic participation. Adult literacy (defined as a percentage of persons who are 15 years and older who can read, write and speak their home language) in 1991 ranged from 76.6% for Africans to 99.5% for Whites. The average for South Africa was 82.2%. Almost 20% of South Africans aged 20 years or more have received no education, while only 6% have post-school qualifications (Census 1996).

5.4 Research, Science and Technology issues

The Research, Science and Technology issues derived from SWOT 2 process are different for each of the four scenarios, but enabled some measure of comparison with the output of SWOT 1. A comparison table was derived from the outputs of the 3rd Financial Services Sector Working Group Workshop and contrasts the Sector Foci, SWOT 1, Key Uncertainties and SWOT 2 results. The table appears as [Appendix 1](#). The information contained in this table was analyzed in terms of related aspects resulting from the various analyses. The discussion of the relevant aspects is based on the presence of related items in at least two of the sets of information.

5.4.1 Services focus and providers of services

Regarding financial responsibility, poor participation and lack of commitment were identified as two weaknesses. Research on these two aspects as well as on ways in which buy-in from the private sector and stimulating the political will of government should be undertaken.

The revision of legislation and the redistribution of wealth were seen as opportunities in social development. Alleviating the threat of poverty and the

number of unsophisticated users should be attended to for enhancing community development and counteracting the present skills loss as a result of emigration.

The nature (and quality) of products in the financial services sector are hampered by *inter alia* the lack of risk capital, high interest rates and the absence of standardised product sets. Scientific analyses and research in ways and means of overcoming these threats and weaknesses should be undertaken.

There is a need for faster implementation and the maintenance of operating systems and more specifically communication systems. The total financial services sector can deteriorate should these aspects be neglected.

Despite the fact that South Africa is regarded as the technologically most advanced country in Africa there is still limited public access to sophisticated technology. The cost implication of extending technology to more people, is most probably one of the major restricting factors. The customisation of global technology and the utilisation of internationally available technology to overcome these weaknesses should be investigated.

Despite South Africa's relative strong regional infrastructure, it is still perceived that the expansion of networks and infrastructure is too slow. Unavailability of the necessary network will restrict the delivery of financial services and alternative ways to overcome this limiting factor should be sought.

Service delivery suffers as a result of poor customer focus and insufficient methods and aids to assess the ever-changing needs of clients and potential customers. A part of this problem could reside in a lack of leadership in this regard. A focussed programme to take care of this should be developed.

The control and growth of capital are influenced by the limited access to external capital and capital outflow resulting from imports of overseas products and services. A stronger link of our financial system to international systems may contribute to alleviating these problems. Optimisation of this process should be properly investigated.

Financial regulators, institutions and industries are characterised by good managerial skills, well-established financial infrastructure and good quality financial training. There is however, a lack of standardisation of electronic systems, insufficient integration of local banking systems and fears about the security of e-commerce and electronic systems. These deficiencies should be attended to by means of closer collaboration among these institutions and industries, the further upgrading of security systems, as well as by means of properly educating and training operators as well as customers.

5.4.2 Research focus

More knowledge and insight are needed regarding the dynamics of financial management. South Africa is an emerging market, but as a result of lack of standardisation, economies of scale cannot be fully utilised to the benefit of the whole country. A well-structured scientific approach must be followed to solve these problems.

Technology is seen as a value adder and enables the financial services sector to develop specific niche markets. The present level of local technological development and an over-dependence on global technology hamper the development of home-grown technology. In the period of isolation South Africa was forced to develop its own technology in many fields, but ways and means should be sought to stimulate local technological development under the prevailing political dispensation.

Our dependence on first world technology and a relative low capability to attract international investments and retain capital, stimulate research towards minimisation of risk. The development of risk assessment and minimisation systems can be very beneficial to South Africa as a regional power and global player. In this regard lessons can be learnt from global best practices.

Despite various markets analyses full clarity on client culture has not been reached. Continuing change in customer tastes, the expectations of stakeholders and low level of integration of services often lead to a mismatch between services and needs.

Global impact and competition open up various opportunities. Some of these are the beneficiation of raw materials, the upgrading of IT standards and e-commerce. A strong deviation from international norms may lead to a low level of international acceptance of this country. The balance between localisation and global participation should be sought by means of appropriate research.

5.4.3 Training focus

The relative low level of knowledge and skills in IT and financial matters amongst the population clearly indicates a need promoting education and training. This opens up the opportunity to stronger utilise ICT in education and training, and investigate the optimisation of the learning process.

The financing of education and training is another focus area. More capital is needed for education and different ways have to be found and implemented to satisfy this need. The high level of mobility of people with specialised skills aggravates the problem. Finding innovative ways to deal with this problem is a challenge not only for training departments or institutions, but also for employers.

As education is an enabler the need for appropriately qualified personnel is ever increasing. The local skills basis is not sufficient to maintain a growing economy and the possible impact of HIV on the depletion of the labour force

as well as emigration, may have a devastating effect on the future of the country. Preventative measures must be found to prevent further deterioration of the skill base.

Promotion of productivity by training is dearly needed. Besides a need to boost education and training, a lack such an initiative may lead to the inefficient use of non-renewable resources. Research and appropriate technology can counteract these threats.

5.4.4 Marketing focus

Marketing of banking and other financial services largely depends on the level and quality of communication with clients and the "un-banked" population. The opening up of the latter group may create a huge market opportunity. Besides marketing campaigns, the use of technology can be implemented to achieve this objective.

Marketing of electronic innovation and the use of technology to assist the creation and establishment of new ventures may lead to economic growth and a greater demand for financial services. It may even put South Africa in a position to export "home-grown" services and systems.

5.4.5 Creating an enabling environment

The creation of an enabling environment seems to be vested in establishing partnerships among stakeholders, enhancing security and the provision of better financial services infrastructure. Partnerships will lead to creating a financial hub with a higher level of regional integration and an increased national strategic focus. Abating the level of crime and corruption may lead to a higher level of consumer protection and a more positive attitude of investors from abroad.

Improving the financial services infrastructure may lead to more user-friendly systems, and greater reliability of electronic systems. This can serve to attract more sophisticated technology and financial inflows. Adapting and developing technology to serve the country's and the region's needs better, may lessen vulnerability to global changes and enhance internal control of developments. Clear policies and guidelines should be developed to initiate and maintain such processes.

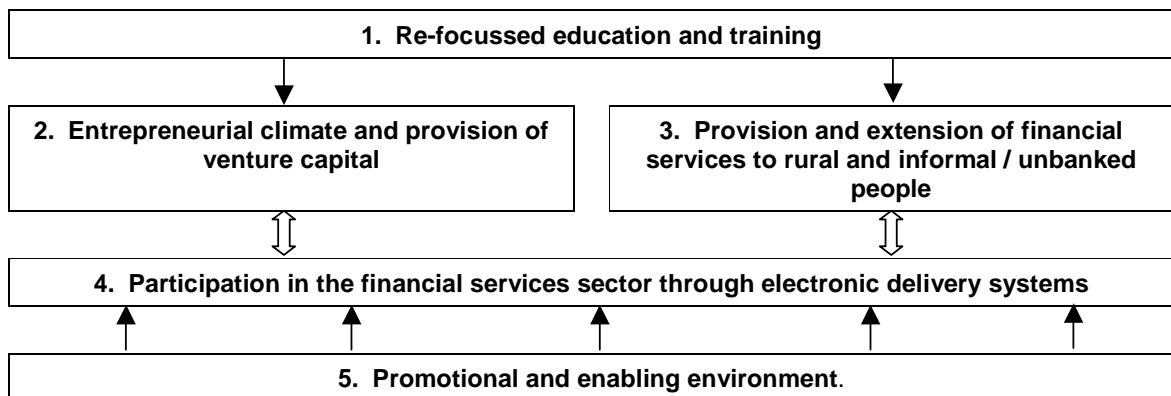
From the above points it is clear that there are a number of aspects and processes that need to be attended to in order to put South Africa on a growth path for the 21st Century, and develop the country as the innovation hub for Africa.

6. IMPACT ON TRAINING AND RESEARCH: MAJOR FINDINGS AND RECOMMENDATIONS.

In the economic ecology of technology, the emphasis is not only on competitiveness, but there is also a socio-economic emphasis on the quality of life. If this is the new paradigm in the way in which one should relate to technology, then it will surely shape the way in which we have insights into emerging markets and technology opportunities.

6.1 Key Themes

Five key themes for the effective evolution of financial services emerged:



6.2 Training and research needs under each theme

The key financial services themes are described and would require research and technological support as given below.

<p>1. Re-focussed education and training Seen as essential if the "unbanked" in South Africa, as part of the growth process, are to effectively utilise financial services and the supporting sophisticated technology of the present and of the future, they will first need to have a basic understanding of the past and present access to, and workings of systems in the financial services industry. [N.B. Unbanked refers to those individuals and businesses which do not utilise the products, processes and services of the formal financial services sector]</p>	
<p>Research and technology aspects</p> <ul style="list-style-type: none"> Distance learning of trainers and students research Wireless and satellite telecommunications technology Accessible public (inter-organisational and multi-functional) user operated devices (e.g. ATMs. Telecentres and information kiosks) and associated technology in each community [N.B. co-ordinated with SA Universal Service Agency] Own language voice recognition, automated personal profiling and evaluation technologies Enhanced Internet delivery technology Multi-media programme technology and research Business simulation, especially e-commerce and interactive d-commerce (e.g. auctions) technologies 	

2. Entrepreneurial climate and provision of venture capital

3. Provision and extension of financial services to rural and informal / unbanked

Seen to be the most prominent drivers of economic growth and job creation in South Africa. It becomes critical that government and players in the financial services sector make more effort in the facilitation of a broad range of small-, micro- and medium-sized enterprises (SMMEs) in both the formal and informal sectors, which will lead to the job-creators of the future.

Research and technology aspects

- Research into economic and financial models for SMMEs and their technology requirements
- Neural network technology and application research
- Artificial intelligence technology and application research
- Knowledge management technology and application research
- Automated risk and credit assessment and monitoring technology and application research
- "Home based" service technology

people

Seen to be largely untapped market opportunities for the financial services sector (in the short term) to bring the "unbanked" into the formal banking and financial services system. The financial services sector as a whole would need to read the future correctly, remove barriers to the entry of the "unbanked" into the formal banking stream and become more innovative in their approach, even if it means incentives for revising or abolishing charges.

Research and technology aspects

- Research into economic and financial models for the "unbanked" and their technology requirements
- Joint venture / partnership methodologies and incentives research
- Wireless and satellite telecommunications technology
- Accessible public user operated and associated technology in each community
- Multi-function smartcards, secure authorisation (e.g. biometrics), encryption technologies
- Electronic cash (e-cash) technology
- Own language voice recognition, automated personal profiling and evaluation technologies
- Enhanced Internet delivery technology

<p>4. Participation in the financial services sector through electronic delivery systems</p> <p>The key to participation in the financial services sector is seen to lie in the sector itself. The institutions involved would need to balance the 'First World / Third World' dichotomy to resolve the great differences in the demands for increasing technological sophistication and needs satisfaction. The 'haves' will demand ever more sophisticated services and technology, while on the other hand, the millions of 'have-nots' would still need more 'traditional' services from branches of their financial services providers or banks. One particular solution to the 'crisis-in-waiting' could well be that participation in the financial services sector through electronic delivery systems would be made a viable option for all concerned</p>
<p>Research and technology aspects</p> <ul style="list-style-type: none"> • Research into the business (especially SMMEs) potential for the use of smartcards • Multi-function smartcards, certification, secure authorisation and verification (e.g. biometrics), encryption technologies • Electronic cash (e-cash) technology • Wireless and satellite telecommunications technology • Enhanced Internet delivery technology

<p>5. Promotional and enabling environment</p> <p>Seen as an essential part of the whole financial services sector. The government would need to support increasing moves toward electronic banking and financial services. The government would need to influence the financial services environment so that the "unbanked" do not get left behind in the current and future modernising of the South African democracy.</p>
<p>Research and technology aspects</p> <ul style="list-style-type: none"> • Research into the technological, regulatory and legal environment for financial centres and virtual banks • Knowledge management technology and application research • Broadband, wireless and satellite telecommunications technology • Certification, secure authorisation and verification (e.g. biometrics), encryption technologies • Enhanced Internet delivery technology

6.3 Human resource needs

In the financial service sector the following nine human resource clusters were identified:

- Entrepreneurs (persons starting and running new enterprises)
- Marketing, sales and communication (market analysts, marketing specialists, sales people, communicators)
- Social scientists (economists, anthropologists, political analysts, sociologists)
- Educators and trainers
- Financiers and bankers (financial specialists, banking experts, Risk analysts)
- Legal and security (legal specialists, security experts)
- Information technology (data analysts, data architects, systems analysts, network specialists)
- Environmental scientists
- Managers

In view of the fact that electronic systems are already and will in future play an important role in the future of the financial service sector, some of the needs emanating from the analysis of the technology related education and research fields need to be taken into account. The most important areas are:

Connectivity applications, requiring specialists in the following areas:

- All aspects of digitization;
- Web applications, e.g. e-commerce; e-business; tele-working; tele-learning; tele-health; tele-governance; and tele-policing.
- Authentication, identification, certification, verification, and non-repudiation;
- Electronic IPR.

Human-Computer interaction, requiring specialists in the following areas:

- Voice recognition, translation, natural language synthesis (including audio patterns recognition and phonetics), and voice-based user interfaces (initially “command and control”)
- Multi-media, interactive visualisation techniques combined with sophisticated mathematical tools.
- Interactive virtual and/or immersion environments; visual simulation with real time monitoring and feedback.

Computer enhanced learning, requiring specialists in the following areas:

- Distance Learning; learning applications.
- Interactive multi-media and virtual learning environments.
- Edutainment (including games (especially strategic)).
- Mechanisms of the human brain and intellect.

Of the other 6 categories, two were considered short term (0-5 years): entrepreneurs and marketing, sales and communication; and four categories were considered medium term (0-10 years): social scientists, educators and trainers, financiers and bankers, legal and security personnel.

6.3.1 Short term

(a) Entrepreneurs:

Life skills in entrepreneurship are needed. Interdisciplinary and more integrated teaching methods around entrepreneurship will promote this development. Institutional capabilities are very low, so will need to be enhanced through alliances or grants from the business and industry sectors. Policy is required to create an enabling environment for entrepreneurs - e.g. no tax for first few years, etc. Incentives available for entrepreneurs from the Department of Trade and Industry should be made more visible. Availability of venture capital is insufficient and not visible enough. Partnerships and alliances can help to resolve this problem. Greater co-ordination is needed between government policy and the needs of industry/business to increase the relevant competencies and skills for entrepreneurs.

Training and educational institutions should assist SMME's in strategic planning for the diversification of the market.

The National Skills Authority (NSA) must look into areas of potential growth, and, if necessary, provide developmental capital. Greater knowledge of entrepreneurship skills will go a long way to improving quality of life and wealth creation if it is properly implemented.

This issue should be characterised by an interdisciplinary approach. This would avoid the problem of entrepreneurs acting as individuals or in small groups as opposed to collaborating with other SMMEs.

(b) Marketing, sales and communication:

Institutional capacity for training in this area is satisfactory. However, there is a need to undertake research into the impact of marketing on sales.

After sales service must be improved (e.g. call centres). This would involve an understanding of clientele (locally, regionally i.e. Southern Africa Development Community and internationally), and an understanding of social, cultural and other barriers (especially in international marketing).

We do not see a large role for government policy in this area, but there is an opportunity for empowerment of SMMEs. Interdisciplinary capacity is moderate, but should be extended to integrate cultural sensitivity

6.3.2 Medium term

(a) Social scientists:

Institutional capability is satisfactory, but needs to be refocused for the financial services sector. There is also a large discrepancy between academic training and the world of work. Policy is needed to assist in this refocusing.

Incentives and instruments to shift focus, e.g. bursary and subsidy allocations are ways of doing this.

Improvement in quality of life or wealth creation in these areas is limited without a better understanding of the functioning of the economy by all citizens. Economists and social scientists should play a role in this activity. These issues are highly interdisciplinary.

(b) Educators and trainers:

There are no formal partnerships among training institutions in the Further Education and Training band to allow easy transfer of students from one institution to another. Mutual recognition of qualifications is also a problem.

This can be addressed by the National Qualifications Framework (NQF.).

During South Africa's isolation, this sector developed its own techniques (pedagogical processes) for development. This development needs to be benchmarked against international standards. There is also a need for research into the processes of these learning methods.

Institutional capabilities for training in this sector need to be enhanced through joint ventures between institutions and between industry and institutions.

General curriculum policy is in place. However, it is too generic and too broad.

Education policy needs to be more specific to allow educators to interpret and deal with it. Implementation of the new educational system is dismal as a result of redundant teacher training methods which increases the difference between educational policy (i.e. curriculum 2005) and the products delivered by training institutions. National Skills Authority (NSA.), which has already

been established to monitor implementation of policy and developing skills in these areas, is part of this.

Proper resourcing of teachers who are properly trained is needed. More funds should be made available to educate teachers and trainers.

Policy is needed for standards on SMME provision of education and training. Clear guidelines and standards must be provided.

Awareness programmes are needed to upgrade the knowledge of the population as a whole to increase participation in the financial sector. At the moment there is a tunnel vision approach in this sector. There is therefore a great need for an interdisciplinary approach.

(c) Financiers and bankers

Current institutional capabilities are satisfactory. However, there is a need for training institutions to consider the training of financiers and bankers in so-called "high risk" issues in financing (development capital, venture capital, and intellectual capital).

Research into the validity of training in relation to world of work is needed ensure provision of relevant training.

Policy and strategy is in place, but implementation systems need to be accelerated.

In the public sector, all managers should be trained in financial management according to set standards acceptable to both public and private sectors.

There is no direct impact on general quality of life and wealth creation. We anticipate a secondary effect within 5-10 years.

This area should be approached in a highly interdisciplinary manner.

(d) Legal and security

There is very little institutional capacity for training in this specific field. The existing capacity should have a focus on financial service aspects.

Programmes in this field, e.g. B.Com LLB, should be researched to enhance their relevance for both the legal and financial service fields. Curriculum should integrate and find a bridge between law and economics. There is also a need to include experiential learning in the process, e.g. in the form of learnerships. A chair should be set up and initiated by the private sector for training in this field. There is an opportunity for empowering SMME's in this field e.g. private security companies, etc. If this issue were properly addressed quality of life would be enhanced through minimisation of fraud, etc.

This area is by its very nature highly interdisciplinary.

7. CONCLUSIONS

7.1 Role of Foresight

Foresight does not predict the future but opens possible scenarios. These scenarios should serve as broad guidelines for public sector and private sector decision takers where and how to invest money and efforts to achieve the medium to long term objectives of the country. It also gives a clearer indication of a number of options and the implications, should the more prosperous and successful option not succeed.

7.2 Investment in research and education

The results obtained during the foresight process will enable the government of the country to improve and focus its decisions on investment in research and training and education. Taken into account that both research and the development of the human resource, are long term processes, timely investment in terms of money, infrastructure and time is a must to succeed.

7.3 Foci of research institutions

Research institutions like the Human Sciences Research Council, universities and technikons often waist time and funds on research that is not really of value or which does not contribute to alleviating the needs of the country. The results of the foresight project should guide research institutions in South Africa on where to focus present and future research efforts.

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Appendix 1

Research, science and technology issues

Services focus	SWOT 1	Key uncertainties	Scenario SWOT
1. Financial responsibility	Poor participation (w*)	Buy-in from private sector Lack of political will	Lack of commitment (w)
2. Social development	Revise legislation (o*) Poverty (t*)	Socio-political tension Unsophisticated users	Community development (s*) Redistribution of wealth (o) Skills loss (t)
3. Nature of products	Lack of risk capital (w) High interest rates (t)		Standardized product sets (s)
4. Systems		Communication systems	Faster system implementation (o), Maintenance (o)
5. Technology	Limited public access (t)	Cost implications	Customise global technology (o), International tech (s)
6. Networks		Slow expansion of infrastructure	Strong regional infrastructure (s)
7. Monitoring			Protected from international competition (s)
8. Service delivery	Poor customer focus (w)	Poor focus on customer needs	
		Lack of leadership	Leader of NIC (o)

Financial services & providers	SWOT 1	Key uncertainties	Scenario SWOT
Control & growth of capital	Linked to international financial systems		Limited access to external capital, capital outflow
Financial regulators	Good managerial skills	Lack of standardization of electronic systems	
Financial institutions	Established financial infrastructure	Competition of foreign banks Integration of banking systems	Quality financial services
Financial industries	Quality financial training institutions	Security of e-commerce and systems	
Unregulated F institutions			
Developmental financial institutions		High degree of short termism	

Research focus	SWOT 1	Key uncertainties	Scenario SWOT
1. Dynamics of Financial management	SA as emerging market (t)	Lack of standardization	Economies of scale
2. Technology	Market niche (o), value adder (o)	Level of technological development	Over-dependence on global technology, Isolation forces homegrown technology
3. Risk minimization	Depend on 1 st world tech.		Retain capital & investments
4. Access to funds and services			Learn from best practices
5. Client culture		Change in customer tastes, Integration of services	Mismatch between services and needs, Not meeting

		Expectations of stakeholders	local needs
6. Global impact	Minerals beneficiation (o), Global competition (t)	Level of IT standard, E-commerce	Divergence from international norms, International acceptance

Training focus	SWOT 1	Key uncertainties	Scenario SWOT
1. Promote education & training		Lack of knowledge amongst population	Use of IT in education and training (o)
2. Finance education & training		Capital required for education	More skills mobility (t)
3. Education as enabler	Lack of skills (t)	Level of financial and technological education	Poorly trained people (w)
4. Need for qualified personnel	Possible impact of HIV, (t) Emigration (t)	Level of highly-skilled labour	Local skills level inadequate (w)
5. Promotion of productivity by training		Appropriate education and training	Inefficient use of resources (w), Education and training boosted (o)

Marketing	SWOT 1	Key uncertainties	Scenario SWOT
Marketing of skills			
Marketing banking	Globalisation & internet (o)	Level of communication with clients	Huge market opportunity (o)
Marketing electronic innovation	Technology to assist new ventures	Size of bankable population	Export home-grown services (o)

Creating an enabling environment	SWOT 1	Key uncertainties	Scenario SWOT
Partnerships between stakeholders	Create financial hub (o)	Level of regional integration	Increased national strategic focus (s)
Greater security	High crime rate (t)	Level of crime and corruption, lack of consumer protection	
Better financial services infrastructure	User-friendly financial systems and infrastructure (o)	Reliability of electronic systems	Leverage to attract technological and financial inflows (s)
Home based industry	Cultural entitlement (t), Policy (s)	External vulnerability, Exchange controls	Ability to control own destiny (o), Low awareness of global trends (w)

*s = strength, w = weakness, o = opportunity, t = threat