

# **SOUTH AFRICAN PARLIAMENT**

Cape Town

**Submission to the Technology Innovation Agency Bill (B49-2007)**

## **“SOUTH AFRICA’S BASTARDISED INNOVATION CULTURE”**

By

**INDUSTRIAL DESIGNERS ASSOCIATION SOUTH AFRICA**

( Reg. No. 2007 / 031789 / 08 )

**“IdeaSA”**

9<sup>th</sup> January 2008

Presented by Bernard George Smith, Chairman, IdeaSA

## **Submission to the Technology Innovation Agency Bill (B49-2007)**

---

This document is presented as a submission to the South African Parliament by the Industrial Designers Association South Africa (IdeaSA).

IdeaSA is a registered Section 21 Company that represents the profession of industrial design in South Africa. The aim of IdeaSA is to develop, promote and protect the profession of industrial design and to ensure that industrial design is included in the national development agenda of South Africa, for the contribution that industrial design will make to innovation and economic growth in our country.

### **CONTENTS**

1.	INTRODUCTION: CONTEXT OF OBJECTIONS TO TIA	Page 03
2.	TERMS OF REFERENCE	Page 04
3.	INDUSTRIAL DESIGN AND INNOVATION IN SOUTH AFRICA	Page 06
4.	THE BASTARDISED INNOVATION CULTURE SA	Page 08
5.	POST APARTHEID DESIGN AND INNOVATION	Page 10
6.	THE TECHNOLOGY INNOVATION AGENCY	Page 13
7.	THE AMTS AND INDUSTRIAL DESIGN	Page 13
8.	THE ADMINISTRATION OF THE AMTS	Page 15
9.	RECOMMENDATIONS/ACTIONS TO TIA BILL	Page 18
10.	CONCLUSION	Page 19

## 1. INTRODUCTION: CONTEXT TO OBJECTIONS TO THE TIA

According to the 'Business Case' (05 July 2007) for the Establishment Of The Technology Innovation Agency (TIA), Executive Summary, page 4, it is quoted:

*"The motivation for the TIA is to develop a public institution that has the capability of addressing the challenges presented by the innovation chasm – that is to enhance the country's capacity towards translating a greater proportion of local research and development (R&D) into commercial products and services. The TIA is therefore envisaged as the mechanism that has the competency to assist the 'national system of innovation' (NSI) to mine the existing body of knowledge and to develop technology based products and services that have the potential to be proliferated and commercialised".*

The above could well read as a definition of industrial design (also known as 'product design'). The definition of what constitutes a 'national system of innovation', according to the World Bank, specifically includes the critical role played by industrial design. Industrial designers are primarily involved in the activity of innovation specific to the transforming of knowledge, technology and ideas into physical, usable, industrialised saleable products.

Therefore, according to the above quote, the main function of the TIA is to bridge the innovation chasm. As the role of industrial design is exactly what is lacking in bridging the innovation chasm, it is logical that industrial design should play a leading and pivotal role in the structures of the TIA and in the national system of innovation i. e. the transforming of R&D into commercial products and services.

This brings us to the point of our objection to the formation of the TIA – that nowhere, in the planning or implementation strategy, is the role of industrial design acknowledged or included.

Since 1994, government has developed various policy statements and national strategies that aim to stimulate economic growth. Within the Department of Science and Technology (DST), these include the White Paper on Science and Technology (1996), The Research and Development Strategy (NRDS – 2002) and the Advanced Manufacturing Technology Strategy (AMTS - 2003). In all of these strategies, the role of industrial design emerges as a vital link in the national 'system' (national system of innovation) that will enable growth, progress and success of developing and marketing technology products both locally (for product substitution) and internationally – to increase value-added exports.

These national strategies form the reference and foundation to the formation or the 'need to establish' the Technology Innovation Agency. IdeaSA is therefore questioning and challenging, why industrial design is not included in the establishment of the TIA when industrial design is included in these national strategies.

The Business Plan for the establishment of the TIA describes the objective of the agency as one that will manage various national strategies, initiatives, funding mechanisms and projects under one administrative body. This would include the management of the Innovation Fund and NRF, the AMTS and Light Metals Initiative that were previously managed by state institutions such as the CSIR.

Of all the national strategies developed by government, the Advanced Manufacturing Technology Strategy is most specifically designed to include the development of industrial design within the context of the national system of innovation. Industrial design was further included in the AMTS by submissions of concerned industrial designers through the NACI (National Council on Innovation) workshop on industrial design held on 12<sup>th</sup> August 2002.

The Department of Science and Technology appointed the CSIR as the implementing agent for the AMTS strategy. The Business Case for establishing the TIA clearly indicates (page. 33) that some of these institutions tasked with such implementation have clearly failed on this responsibility.

We believe that the CSIR's failure to implement the AMTS has been the cause for the exclusion of industrial design in the planning of the TIA and the broader development agenda of South Africa.

This document will detail the development context of industrial design within the AMTS and present the facts leading to what we believe is an unconstitutional omission of industrial design in the development agenda of our country.

This submission also aims to give parliament an understanding of the history, role, current situation and proposals concerning industrial design for the purpose that government should understand the great economic potential of this sector and to ensure inclusion of this wealth-generating industry.

We present this not as a request.

If government is serious about the creation of a modern knowledge economy, if government is serious about international competitiveness of value-added products and if government is serious about economic growth and wealth generation for the benefit of job creation and poverty alleviation, then the development of industrial design cannot be an option.

It is a necessity.

## 2. TERMS OF REFERENCE

One of the great mysteries that has plagued the decades of frustrated but talented industrial designers in South Africa is this: How can a country that is 'industrialised' and indeed aiming to become 'highly industrialised' consistently ignore the value of 'industrial design'?

There indeed exists this strange phenomenon in South Africa. It is 'strange' because we live in a country endowed with a wealth of natural resources – both mineral and in human capital, that has the potential to 'create' wealth that will in turn benefit all the people of South Africa.

Some important reference to history explains this. To define the above in the context of the value of industrial design, we need to go back to the year 1947. Here, for the first time, a call was made in parliament by the then Minister of Economic Development for the establishment of an industrial design council. This was further argued in a paper by Vivian C Wood (quarterly journal for Art and Science, 1963), quoted as follows:

*“INDUSTRIAL DESIGN – South Africa’s most urgent need. Wood explored the phenomenon of design in industry internationally and discussed the implications of industrial design for South Africa’s industrial progress. He stated that the survey had convinced him that South Africa would never become an advanced industrial country, in spite of a wealth of raw materials and progress already made, if it did not give immediate, concentrated attention to industrial design”.*

*He further commented that: “There was nothing more difficult than to interest Union industrialists in design. This lament has become a constant refrain”.* (SABS archives)

Unfortunately, these ‘urgent calls in parliament’ to invest in developing industrial design capacity fell on deaf ears. A year later (1948) the apartheid government came into power and ignored the value of industrial design. Today, government finds itself in the very predicament that was warned against sixty years ago!

The seriousness of this economic blunder is that one could well argue that should government have taken action in 1947 for the urgent need to develop industrial design, we would not have an ‘innovation chasm’ today. We would also have no need for the establishment of a Technology Innovation Agency.

Therefore, to ignore again the importance of industrial design in the TIA and within the broader development strategies of South Africa would be tantamount to economic suicide.

The irony of course is that the above quote by Vivian C Wood unfortunately, stands true for today – word for word.

This is particularly concerning, given that through proposals submitted by industrial designers to NACI in 2002, the DST conducted a baseline study into industrial design during 2005. Also, a national initiative to develop the industrial design capacity was launched by DST through the CSIR, aligned to the AMTS during 2003 called DESIGNation (‘DESIGN for our Nation’). This initiative was specifically developed to align to the aims of developing a national system of innovation.

DESIGNation has grown into one of the biggest technology, design and innovation projects in South Africa. Yet recently this initiative has been scrapped for no reason by CSIR and DST.

Through the efforts mostly of industrial designers themselves, our government has at least listened to the urgent call to develop industrial design and gone some measure, as described earlier, of developing industrial design.

It is important to then investigate the reasons why industrial design has again ‘slipped off the radar’ of the national development agenda. To do this, it is necessary to give a broad overview of the current situation of industrial design in South Africa.

The broader aims of developing a national system of innovation stem from the national economic policy of government and this is described as follows:

*“To develop South Africa as an outward orientated, modern, competitive knowledge economy”.*

The greatest barrier to achieving the above, as described in government's National Industrial Policy Framework by the Department of Trade and Industry (Dti), is to overcome the reliance on resources and to move to a more balanced economy by developing value-added products for export. This is described by the Dti as follows: ... " characterised particularly by movement into non-traditional tradable goods and services that compete in export markets as well as against imports".

The proof of the above need is evident by South Africa's growing trade deficit. This is a worrying situation whereby as a country, we import far more than we export. Added to this is that we import value-added technology products and export raw materials. In simple economic terms, we export wealth and import poverty. This is a contradiction to the very aims of AsgiSA to halve poverty by 2014.

This is a grave situation, despite stable (but not accelerated) growth in the South African economy since 1994.

### 3. INDUSTRIAL DESIGN AND INNOVATION IN SOUTH AFRICA

Industrial design can be defined as follows:

"Industrial Design involves a complex design process of cognitive, creative and problem solving skills to configure diverse elements and constraints of a product idea into an industrialised, saleable product.

An industrial designer must incorporate and consider the specific technology of the product, ergonomics and user needs, functionality and 'look and feel', production methods, assembly and repairs, international safety standards, materials, aesthetics, marketing and branding, finishes, global trends and costs of industrialisation against other competitive products. Industrial designers 'humanise technology' in the creation of competitive, mass-manufactured products designed for a specific user need or purpose".

Simply put, industrial designers transform technology ideas into commercial products.

If industrial design were defined in one word it would be: INNOVATION.

There is no other activity or profession that is involved as consistently with innovation as industrial design. The outcomes of this constant innovation are not simply ideas but real mass-produced, value-added products that literally generate 'billions' of export income for a country. Added to this is that industrial designers generate significant value by the creation of intellectual property – patents, design registrations and trademarks. Industrial designers are therefore truly involved with the generation and harnessing of knowledge.

Industrial design is the only profession that combines a strong creative talent with technological know-how and a unique ability to merge these elements in the creation of innovative products.

Industrial design is 'cross-cutting' to many industry sectors such as automotive, aerospace, electronics, consumer goods, appliances (white goods), healthcare and pharmaceuticals, wood and furniture.

Industrial Design is an extremely rare skill in South Africa; so much so that it is not even listed in the 'scarce as a skills' audit in South Africa.

Approximately 20 industrial designers graduate every year from only two tertiary institutions, with a third starting in Tswane during 2008. Of these, only two on average will make a career of Industrial Design. This is due to the historical disadvantage of this sector not being developed and the resultant 'ignorance' of the manufacturing industry to use the services of industrial designers to improve the international competitiveness of their products.

It is of great concern that the training of industrial designers and the graduation and flow into industry is extremely poor – particularly given the skills shortages in South Africa.

This is different by comparison to countries such as South Korea who have created a powerful industrial economy with intense intervention and strategies in government for industrial design. South Korea graduates around 3 700 industrial designers from over 100 tertiary institutions with a flow-rate to industry of over eighty percent.

The South African industry manufactures 89% of products under license to overseas firms; there is no real culture for 'local design and innovation'. South Africa literally boasts a 'handful' of professional industrial designers – around 100 at most who are active in industry. Of these, there are approximately 25 who are involved on a daily basis with 'world-class' industrial design. The remainder is involved with other design disciplines due to the ignorance of industry of the value of industrial design, thereby causing industrial designers to seek employment elsewhere.

The very few industrial designers we do have are world-class. Many suffer through a lack of R&D funding in industry and are generally unfairly remunerated for their innovation. Many have resorted to developing products for international companies because such companies appreciate the value of industrial design and these international companies pay designers well. However the outcomes and products developed in this manner contribute in making other countries wealthy and NOT South Africa.

The word 'culture' has been used in this submission to describe the need to develop a 'national design culture'. Although national strategies are critical to developing innovation in South Africa, 'culture' or the lack thereof is of equal importance and is critical in creating a national mindset that channels all collective energies towards a specific goal; in this case, around the development of a national system of innovation.

Culture, by simple definition means '*a way of life*'. If design and innovation were a 'way of life' in South Africa i.e. if government and business were committed to this goal and all the stakeholders are fairly included, then progress will be made.

However, our history has carved a very different 'culture' concerning innovation, one that is not conducive to international competitiveness. It is important that this be explored and understood in order to be able to define a new way forward.

Culture could also be described as 'social capital' – the collective 'fabric' that binds a group or country around a common goal. Social capital can be 'good' or 'bad'. The

historical Research and Development and innovation culture of South Africa was generally 'bad' or more descriptively put, it was a 'bastardised' culture.

#### 4. THE BASTARDISED INNOVATION CULTURE IN SOUTH AFRICA

The fact that government is serious about developing a 'national system of innovation' is proof that, as a country, we are extremely poor at developing value-added products. Surely one must then ask the question: why we are so inept at this wealth creating activity?

The business plan for the establishment of the TIA attempts to go some measure to answer this through a study undertaken by the DST titled "Lost Opportunities: South African Case Studies" (point 2.5 pg. 15). We do not believe this is an exhaustive study but nevertheless shows how much technological know-how, intellectual property and opportunities are lost by the simple inability for South Africa to transform product ideas into market reality and international trade. It also demonstrates a pathetic record for harnessing intellectual property.

What is missing from this study are any reasons for this seemingly bizarre situation. A study that should be included is one that investigates the effects of the "apartheid military industrial complex". Some would argue that this was a time of considerable innovation in South Africa, when the then government poured billions into creating a military force to protect the laager of apartheid.

The saying goes that "war is the mother of invention". This has been true for other countries across the globe. Germany, Japan and the USA, to name a few, emerged from WW2 as industrial giants. The huge technological advancements made during the war were immediately translated into commercial products and are traded still today through constant innovations and improvements by huge companies and brands – the products we purchase every day.

So why NOT this industrial revolution in South Africa? However bad apartheid was, surely this technological knowledge could have been transformed into value-added products to put South Africa on a path for accelerated economic growth and wealth creation, job creation and poverty alleviation? South Africa must be the ONLY country ever to have NOT harnessed this knowledge on a significant scale.

Other developing countries who were far behind South Africa in technological terms, have progressed their knowledge and innovation into mass-produced products trading in international markets far exceeding any progress by South Africa. Brazil manufactures its own aeroplane (Ambraer) and commands 10% of the world market from giants such as Airbus and Boeing. India manufactures cars, printing presses and electronic products and sells them to South Africa and other world markets. China designs and manufactures cars and markets these products in our own back yard.

With an abundance of raw materials added to this scenario, why is our country so far behind in value-added and advanced manufacturing? In 2005, the Engineering News printed a cover story with this heading: "De-industrialisation in South African Manufacturing". This article proves that indeed, South African manufacturing is not only static but it is declining.



Most answers to this strange phenomenon can be traced back to the isolated and inward-focused development policy of the 'apartheid industrial military complex' for the following reasons:

- Contrary to popular belief, much of the so-called technological innovation during apartheid was through devious 'copying' of other countries' technology.
- Sanctions imposed on South Africa during apartheid caused an unprecedented culture to ignore international intellectual property laws with the growth of the "pirate parts" industry. This infiltrated nearly the entire manufacturing industry.
- Many South African manufacturing companies turned to military development. This R&D was heavily funded by government and the military products developed and 'copied' by these companies were sold back to government thereby reaping unrealistic profits for military companies.
- The majority of technology products developed were for local conditions and were designed on a 'function basis' only. In other words, these were 'ugly, over-engineered' products. Such products did not have to 'compete' with international rivals and so a local 'bastardised' R&D culture and environment emerged, oblivious of the advancements in competitive innovation trends elsewhere in the world.

A simple comparison between two product developments demonstrates the South African bastardised R&D and innovation phenomenon.

Let us consider the development of the South African Rooivalk attack helicopter that started during the apartheid era. This process has taken the best part of twenty years with costs to the taxpayer of R 7 Billion. By all accounts, despite numerous attempts to sell the locally developed helicopter to world markets, the project is a total failure. The 'return-on-investment' to the South African economy is nil.

Now consider the international company Gillette who manufactures shaving products. A few years ago, Gillette invested R 7 Billion in the R&D of a simple shaver to be named 'Mach 3'. This is the same amount invested by the apartheid government for the entire development of a sophisticated and complex military attack helicopter. The Mach 3 design and development process took just under two years. The return on investment was tenfold within the following two years. While huge profits were made through the sale of this product across the globe, Gillette was already onto their next R&D exercise with the design and development of the next generation shaver, the Gillette Fusion.

One may argue whether this is measuring 'apples with apples'; however, some basic facts emerge about the development culture in South Africa. These are:

- The amount of money dedicated to R&D is too low and 'skimpy' to be able to compete in a sustainable manner in world markets.
- South Africans do not think GLOBAL in developing products – this inward-focused development culture of the apartheid era does not 'cut it' in international markets.
- International companies combine technological innovation with industrial design, marketing and branding. In the case of Gillette, the brand is the product and the product is the brand i.e. the sophistication of industrial design, technology and production blend in a product that people just want to buy. South African companies do not do this – they ignore the value of 'industrial design'.
- South African companies do not know what 'innovation' means. This is probably our greatest shortcoming. Innovation means 'improvement'; therefore, in the case

of Gillette, constant innovation through design and development is perpetual with 'new' products being constantly launched. This is 'sustainable innovation'. This is what drives economic growth. The same goes for car manufacturers, cellphone makers, toothbrushes etc, etc. There are countless 'lost opportunities' where South African innovators have indeed developed something special. And then they manufacture a short run only to stop further development. Just as in the case of the Rooivalk.

- Where South Africans do have innovative technology products, they are usually ugly, over-engineered, unprofessional and unappealing to the international markets (unless industrial designers were involved – this can be proved with a few exceptional examples). South Africans fail to understand that international consumers are sophisticated and acutely tuned to 'good design' in technology products. Industrial Designers in South Africa can name countless technology products and opportunities that have failed due to this serious shortcoming.
- South African companies fail to grasp the seriousness of 'time-to-market'. This is crucial for international competitiveness and market success of products. Industrial design technologies have advanced enormously with tools such as computer-aided-design, parametric solid modelling and rapid prototyping. Although there are some efforts by government to recognise this, it is far short of meeting international standards. Most industrial design companies are small. The cost of these technology tools plus training and upgrading of sophisticated software is extremely expensive and unrealistic for such small companies to sustain. Added to this is that industrial designers are not paid a fair wage compared to the value they add, making investment in such technology to remain competitive almost impossible.

## 5. POST-APARTHEID INNOVATION AND DESIGN

There has been numerous research and papers concerning the effects of the apartheid military industrial complex in pre- and post-apartheid South Africa. One such paper submitted for the Truth and Reconciliation hearings by Laurie Nathan, Peter Bachelor and Guy Lamb describes the 'cosy relationship' developed between big business and the apartheid state. The three biggest technology firms that benefited from this relationship are named as Reunert, Altech and Grintek.

During apartheid, Reunert's connection to military technology development and manufacturing constituted 95% of it's total business. From 1994 to date, Reunert has engineered an about-turn whereby their military business now constitutes less than 5%. However, Reunert has not by any means transformed it's technology prowess from the apartheid military complex into value added commercial products but instead, has taken an 'importing' strategy through businesses such as Panasonic and Nashua.

Where they have on a smaller scale attempted to develop commercial electronic products for international markets, some extremely concerning trends have emerged. Firstly, because these companies do not understand the importance or value of industrial design to be competitive in international markets due to their 'apartheid development culture', the work of industrial designers contracted to such companies is extremely difficult.

Secondly, due to being heavily subsidised by the apartheid state for R&D, they do not accept normal global business practice that industrial design is an expensive exercise. In simple terms, they do not understand that industrial design is something

you pay for, just like the services of any other profession – be it lawyers or chartered accountants.

Thirdly, as a result of ignoring international intellectual property laws during apartheid, this culture has spilled over in their post-apartheid business dealings. Intellectual property is just simply ignored.

It is important to give these case studies, just as the Department of Science and Technology provides case studies to justify the establishment of the TIA. It has been well documented that in one case, Reunert forced a small industrial design company to share in the risk of a major technology product development to tender for an international RFID asset-management contract in the UK. The significance of this situation is important to understand.

For example, in the Business Case for the establishment of the TIA, (page 27) it is stated:

*“Investment in R&D is deemed highly risky, with the ever-present uncertainty of product failure or even market failure. A case in point is the early involvement of the CSIR in the development of Radio Frequency Identification (RFID) technology, and the absence of a commercialisation partner in the South African economy. RFID is poised to become the ‘next big thing’ with market values in the billions of dollars”.*

By coincidence, the Reunert development as explained above, was exactly for the design and development of a technology product using RFID technology.

However, there is a clear unfairness in forcing a small industrial design company (of six people) to shoulder half the risk of such a huge development where in comparison, Reunert is a listed company with a market capitalisation at that time of over R 8 billion. Therefore, the risk carried by industrial designers is ‘a thousand times’ that of the client. But the worst is to come.

When the four-year development realised the successful awarding of the international contract and Reunert boasted huge export revenues, they then simply ignored the royalties payable to the industrial design firm that developed the product to world-class standards. They also ignored the intellectual property rights owned by the industrial designer according to the agreement at the start of the project.

As in the case above, this is proof that the bastardised development culture from apartheid is ruining any attempts by government to implement a national system of innovation. In this particular case, the industrial design firm presented this case of abuse and fraud in a 22-page letter to President Thabo Mbeki as the effects of the non-payment by Reunert resulted in bankrupting the industrial design company, which could have continued to contribute positively to economic growth and development. This case was taken up by the office of The Presidency and a meeting was held with the industrial designer involved. However the case is not resolved and could lead to serious embarrassment for South Africa as a whole.

This is because by intellectual property law, the industrial designer in this case, secured the rights to the entire product range until he was paid in full, including royalty fees. This effectively gives the industrial designer the power to have ALL the products being exported (in many countries) by Reunert recalled as Reunert does not have the right to export a technology product that they do not own – until of course, they have paid for it in full.

This would have the same effect and meaning as for example, if due to fraudulent activities, South Africa had to hand the Webb Ellis Trophy back to England in shame – and our hard-earned World Cup Rugby Champion status revoked.

This is maybe a good comparison concerning ‘competitiveness’ and the notion of ‘culture’. South Africa is known as a rugby nation – it is a ‘way of life’ for many South Africans. We can confidently, and proudly so, claim that we have a strong ‘rugby culture’. It is a culture that rallies the support of the entire country. It gives us national pride and encourages nation building. Certainly amongst the rugby fraternity, it has created a powerful form of ‘social capital’.

Vast amounts of money are poured into developing a ‘winning rugby team’. This is not unlike the aims of economic strategies of government – both have the single aim to be ‘internationally competitive’. We can only be ‘World Rugby Champions’ if we are internationally competitive. However, rugby does not make a cent for the South African economy. In fact, the cost of developing and maintaining a winning rugby team is massive. It does not by any significant measure create jobs or eradicate poverty and it does not accelerate or contribute to economic growth. It makes most South Africans ‘feel good’.

Yet the winning of the export contract by Reunert has generated over R 500 000 000 in foreign earnings to date. The treatment by Reunert, however, of the industrial designers who developed a product that is an ‘international winner’ is the same as if our international rugby heroes were not paid a cent for their great talent, hard training and skill in winning the Rugby World Cup.

This situation is not resolved and could result in an embarrassing recall of products from all countries to which they are being exported. This would tarnish any progress made by government to promote the export of innovative products.

This contempt and ignorance of big business and the manufacturing industry towards industrial designers is wide spread in the new South Africa. In 2007, an international survey on design by the International Design Alliance (IDA) has been supported and funded by government through the Dti and SABS. The preliminary report on this survey confirms this very situation in South Africa. This data is evidence of the extremely detrimental situation in terms of developing technology products for export. Many professional industrial designers are forced to either leave the country or to simply not practice industrial design.

Ironically, the industrial design firm responsible for the success of the Reunert project was overall winner in the Technology Top 100 Awards for “most innovative technology company in South Africa” in 2001. The award was presented by President of South Africa, Thabo Mbeki. The industrial design firm was also applauded for the “contribution to the economy”.

It is clear that government is at least trying to foster a culture of innovation, however, companies like Reunert are destroying any such progress being made. Many national workshops for industrial design have been held the past decade and the same lament, as in the case of Reunert, is expressed time and again by many industrial designers.

Simply put, if industrial designers are not paid fairly for their contribution in developing world-class technology products and, if the profession of industrial design is not afforded the respect it deserves from industry, then the national system of innovation will simply NOT work.

## 6. THE TECHNOLOGY INNOVATION AGENCY

The business plan for the establishment of the TIA is based on the recommendations as set out in the National Research and Development Strategy (NRDS). The business plan for the TIA (July 2007) states that the reason for establishing the agency is because many strategies and funds, such as the AMTS and Innovation Fund, have not been efficiently managed by state institutions such as the CSIR and NRF (page 33).

Some questions need to be answered concerning the above.

- Firstly, why has it taken the DST so long to establish an innovation agency when this was stipulated at the promulgation in cabinet of the NRDS in 2002? It should take a maximum of a year to establish such an agency yet this has taken DST six years.
- This brings into question how other national strategies such as the AMTS were managed by the CSIR that has serious consequences such as the unconstitutional exclusion of industrial design in the national system of innovation.
- The Business Case for the establishment of the TIA makes constant reference about implementing policies as set out in the White Paper for Science and Technology and the NRDS. The White Paper stipulates the need to create 'centres of excellence' that will assist in the national system of innovation. In 2000, DST therefore established the 'National Product Development Centre (NPDC)' for this very purpose. In 2005 this centre was closed (under dubious circumstances by CSIR). Then in 2007, DST laments about the poor 'product development' of the country? Why then, was the NPDC closed?

It is important that these issues be discussed in more detail.

## 7. THE ADVANCED MANUFACTURING TECHNOLOGY STRATEGY (AMTS)

The preamble to the DST's document for the AMTS (2002) is quoted as follows:

*"The National Advisory Council on Innovation (NACI) advises the Minister of Science and Technology on Strategies for the promotion of technology innovation; international scientific liaison; science and technology policy and the co-ordination and stimulation of the National System of Innovation.*

*In May 2002, NACI identified the need for developing a National Advanced Manufacturing Technology Strategy for South Africa.*

*This document (AMTS) presents the National Advanced Manufacturing Technology Strategy (AMTS) for South Africa. The process for developing the strategy was one of extensive consultation within the private, public and education sectors, and care was taken to ensure strategic fit with other national strategies and the avoidance of unnecessary duplication.*

*The contributions received from many industrialists, academics and government officials have added significant value to date and the solicitation of further comments is encouraged”.*

The significance of the above is that for the first time since industrial design was debated in parliament in 1947, industrial designers were called to give advice and contribute to a national strategy (AMTS) that would include industrial design in the national development agenda.

Of coincidence and significance was that industrial designers themselves had approached government through NACI to identify the great need to develop industrial design around the same time as the AMTS was being formalised during 2002. This was also a consultative process with major stakeholders. It was decided to then include the industrial designers’ submission with NACI as part of the AMTS strategy documentation under “Advanced Product Technologies”. As mentioned at the beginning of this submission, the industrial designers’ submission to NACI formed the basis for DST to later launch an in-depth baseline study into industrial design with the aim to develop a separate ‘Industrial Design Strategy’ for South Africa.

We would like to discuss the implementation plan for Advanced Product Technologies within the AMTS (taken from the AMTS website; strategies; “Implementation of the AMTS”; Friday 20<sup>th</sup> July 2007).

Point 2 describes the “Definition and Scope” of Advanced Product Technologies within the AMTS as:

“Technologies, methodologies and systems used to develop new products from idea to manufacturability, as well as the redesign and re-engineering (innovation) of existing products”.

This is almost word-for-word, the same aims for the establishment of the TIA. The implementation of this was specified to be carried out by the CSIR’s “National Product Development Centre” (NPDC). The document reads further:

*“New initiatives should acknowledge existing successful R&D programmes, which are aligned with the National Integrated Manufacturing Strategy and the NRDS, and build on these”.*

Concerning the development of industrial design in particular, point 6.2 “initiative 2” states:

*“A co-ordinated programme to improve South African industrial design competence and capacity should be launched. This should include:”*

- *Implementation of design as a generic subject in schools, impacting on various disciplines, with computer-aided design (CAD) as an enabling design technology.*
- *Establishment of a nationally co-ordinated design education curriculum at tertiary level throughout South Africa. This curriculum should align with modern new product development approaches, such as Rapid Product/Process Realisation (RPPR) and Integrated Product/Process Development (IPPD), and should highlight the need for integrated Project Teams (IPT).*

Point 6.2.1 describes 'the implementation plan' as follows:

- *The recommendations of the NACI Workshop on Industrial Design held on 12 August 2002 should serve as input to the establishment of a Design Council.*
- *Design should be included as a subject in the Manufacturing, Engineering and NQF – including CAD...*
- *CAD-In-Schools program, driven by a public/private partnership, should be rolled out the country as fast as possible and extended to technical colleges that do not present CAD training.*
- *A representative national advisory committee should be established to coordinate the design education presented at tertiary education institutions.*

Point 6.2.2 states the expected impact of the initiative as follows:

- *The quality and marketability of locally manufactured products could improve with increased earnings for industry.*
- *Job creation will be stimulated.*

Point 6.2.3 states the risks if the initiative is not implemented as follows:

- *South Africa will continually lose foreign currency earnings because of inferior products.*
- *South Africa will continue to lose its best designers to international product manufacturers.*
- *The growth of the South African manufacturing sector will be undermined.*

The following describes how industrial design was developed and implemented within the Advanced Manufacturing Technology Strategy.

At the end of 2002, a national job application for Portfolio Manager for Industrial Design at CSIR, Manufacturing and Materials Technology Unit, National Product Development Centre (NPDC) was advertised.

An industrial designer, Mr Bernard Smith was appointed to the position. Within the following four years, together with colleague industrial designer Gold Mametja, ALL of the national industrial design plans as described in the AMTS were developed for implementation under the "DESIGNation" initiative, launched in August 2003.

The DESIGNation initiative was developed for a fifteen-year period as stipulated in the AMTS. The aim of DESIGNation is described as follows:

***"DESIGNation is an initiative aimed at developing the PRODUCT DESIGN capabilities of our nation, for sustainable economic growth through the creation of a powerful national design culture".***

The description above clearly aligns to the aims of the TIA and, as explained, was developed according to the 'implementation plan of the AMTS'.

DESIGNation was developed as a systematic and articulated strategy between schools, tertiary institutions, industry and government.

## 8. THE ADMINISTRATION OF THE AMTS

The establishment of the TIA by DST has highlighted the inefficiencies of the management of the AMTS. The AMTS was managed by the CSIR within the then Manufacturing and Materials Technology Unit (M&Mtek) at the NPDC and co-ordinated by the Department of Science and Technology.

The implementation of the AMTS had specific funding obligations towards the various initiatives that were to be developed in order to ensure their success. For this reason, funding was earmarked for the DESIGNation CAD-In-Schools project and the broader DESIGNation initiative.

Proposals were developed for such funding in consultation with the DST during 2003. However NO funding was forthcoming. This made implementation extremely difficult for industrial design and was clearly against the mandate and aims of the AMTS. The initiative had to do with around R4 million which was made up of a special grant by DST preceding the AMTS for the CAD-In-Schools project, some parliamentary grant and a R 2 million funding partnership with the Automotive Industry Development Centre (AIDC) for the CAD project only. This was inadequate funding for a national initiative the size of DESIGNation. For example, other national initiatives also developed within the AMTS framework, such as the Advanced Metals Initiative, has received funding in excess of R 60 million for implementation by DST through the AMTS.

The DESIGNation project was undermined by being denied proper funding. M&Mtek was appointed by DST at this time to manage the AMTS.

Further changes at CSIR during the "Beyond 60" restructuring process confirmed these suspicions whereby firstly, the National Product Development Centre was closed down without a proper consultative process and before this, the DESIGNation project was 'shelved' by the Executive Director of M&Mtek. It was later discovered, without consultation, that the DESIGNation CAD-In-Schools project was secretly 'given' to a school where the Executive Director and Centre Manager had connections and influence. Mr Bernard Smith and Gold Mametja were also transferred to a new unit established at the CSIR that did not receive any parliamentary grant or funding. This unit was named Knowledge Services whereby the main function of the unit was for 'routine commercial services' such as laboratory services. Clearly, industrial design was wrongly placed in this unit and that by denying a national initiative funding would destroy the initiative. No other national initiative was placed in Knowledge Services.

Despite the above, Mr Bernard Smith and Mr Gold Mametja uncovered the plot to remove the DESIGNation CAD-In-Schools project and this was returned to the CSIR, including all the intellectual property through proper process by CSIR legal services. Mr Smith was ordered to continue with the DESIGNation project.

Rolling out an AMTS project without funding is a daunting task; however, within four months Mr Bernard Smith and Mr Gold Mametja managed to secure significant industry partners. These partners included: The AIDC, The Da Vinci Institute of Technology, ProductONE Pty (Ltd) (for a R1.9 billion CAD software and training sponsorship for schools throughout South Africa), Woolworths (through the 'My School project'), Sappi, Design Indaba, Sci-Bono Discovery Centre, Western Cape Education Department, Kwa-Zulu Natal Education Department and Gauteng Department of Education.



Just four months after being 'wrongly placed' with no funding in Knowledge Services, the CSIR retrenched both Mr Bernard Smith and Mr Gold Mametja. This again signified the scrapping of DESIGNation which was just starting to be implemented nationally with all the partners.

However, this retrenchment was stopped by DST who informed CSIR that they were extremely impressed with the progress of DESIGNation and the work of Mr Bernard Smith and Mr Gold Mametja for the national development of industrial design. Added to this, is that based on the good work in developing DESIGNation, the DST appointed Mr Bernard Smith and Mr Gold Mametja to develop the National Strategy for Industrial Design in South Africa, incorporating DESIGNation.

One must appreciate that this was indeed an honour and something that industrial designers have been lobbying for almost sixty years in this country. Finally, government had understood both the concerns and the value industrial design could add to the economy and to the national system of innovation.

However, Mr Bernard Smith and Mr Gold Mametja have since been retrenched another three times within a year at CSIR. This clearly shows the conflicting understanding of the implementation of government policies within the various institutions.

We feel it is inappropriate to discuss the details leading up to the final retrenchment and scrapping yet again of the national DESIGNation project by the CSIR in this submission. However, it should be mentioned that in various discussions with the Executive of CSIR, extremely disturbing comments were made concerning industrial design.

These included the CSIR Executive claiming that:

- Government did not view industrial design important to the economy. This statement was later retracted by the CSIR after a serious challenge by Mr Smith and Mr Mametja that proved otherwise.
- That the DST were of the opinion that "industrial design is well integrated into the sector; therefore, DST do not see the need for any interventions (for industrial design).

Mr Bernard Smith and Mr Gold Mametja retaliated against these statements and requested of CSIR Executive to name who at DST had made such false statements about industrial design. CSIR refused to name the person but promised to supply a letter within a week from this person at DST, verifying the statements. NO letter has been received. Mr Smith and Mr Mametja wrote an affidavit capturing what was said at this Executive meeting – this was stamped by the South African Police.

Mr Bernard Smith and Mr Gold Mametja then wrote a series of documents, proving the CSIR Executive wrong. Among these was a quote from an official speech by the Deputy Minister of the Department of Science and Technology, who stated the following:

*"International experience indicates that design, one of the most powerful forms of embodied knowledge, should be seen as an indispensable value-adding factor in bridging this gap in the technology R&D and innovation process. Our own national studies **and initiatives** (such as DESIGNation) have also confirmed that **industrial design should be a strong imperative in South Africa's research, innovation and technology development and application plans**".*

The above quote by the Deputy Minister proved the statements (which led to the retrenchment of the industrial designers leading the national development for industrial design), completely false.

Of worse consequence is, that all the time effort and money on behalf of government (and taxpayers) and the good progress made for industrial design has been lost through incompetence and false statements being made about the value of industrial design in this country.

Clearly, government at one point was serious about industrial design because industrial designers were appointed by them to develop the National Strategy for Industrial Design.

## 9. RECOMMENDATIONS/ACTIONS TO THE PROPOSED TIA BILL

The point of concern surrounding these bizarre outcomes is of national concern. They are of national concern because this work and the projects were part of a national strategy, namely the AMTS which falls under the Department of Science and Technology. Such national strategies are promulgated in parliament, accepted by cabinet and funded by public money in order to contribute to developing the national economy, in this case for industrial design through the national system of innovation.

The Department of Science and Technology is responsible and accountable to government and to the people of South Africa to implement national strategies and national initiatives.

The question begs that should DST have established a Technology Innovation Agency earlier, as stipulated in the NRDS, the AMTS would probably have been managed very differently. The outcomes for the development of industrial design would surely have progressed and not suffered the unconstitutional fate as described in this document.

Therefore, the Industrial Designers Association South Africa are not against the aims of the TIA, we are against the fact that the development of industrial design has been excluded, through stopping the implementation as stipulated in the AMTS.

Therefore, considering the information as presented in this document, the Industrial Designers Association South Africa are of the collective opinion that the interests of industrial design have been unconstitutionally ignored in the TIA and national system of innovation.

We hereby object to the passing of the Bill (B49-2007) for the establishment of the Technology Innovation Agency until the following actions are taken:

- The termination of the DESIGNation initiative by DST through the CSIR, aligned to the implementation plan as set out in the Advanced Manufacturing Technology Strategy for Industrial Design should be investigated.
- The obligation to be honoured by DST to the persons as mentioned, appointed by the Department of Science and Technology to develop the National Strategy for Industrial Design in South Africa, according to the Baseline Study for Industrial Design conducted by DST during 2005.

- That the initiative DESIGNation be funded as other national initiatives have been and as initially specified by the AMTS and consideration for this to be managed and run by the Industrial Designers Association of South Africa (IdeaSA).
- That the role and development of Industrial Design is officially acknowledged, supported, respected, promoted and included in ALL relevant development strategies in South Africa including the valuable role that Industrial Design will make to the 'national system of innovation' and the specific role in bridging the 'innovation chasm' and the contribution of industrial design to the building of a prosperous, modern knowledge economy for the benefit of all the people of South Africa.

## 10. CONCLUSION

This document has attempted to describe the extended struggle that the profession of industrial design has endured in this country. This has been a struggle for acknowledgement as a profession for the constitutional right to be able to use the knowledge, talents and skills to contribute to the development of our country.

It remains a mystery that 'intelligent people' cannot understand the value of industrial design for economic growth – particularly given the highly industrialised age we live in and the products we use and interact with every day, that make our lives easier.

South Africa has made some good progress since 1994 with massive changes to our economic and social lives. But there are also gaping chasms – unemployment and poverty. And the 'innovation chasm'.

We are not saying that industrial design will solve all problems. However, any plans, strategies, agencies or national initiatives to put South Africa on an accelerated path for economic growth in developing technology products for export WILL NOT SUCCEED without the development of INDUSTRIAL DESIGN.

We hope and trust that our government will take appropriate action to ensure that industrial design is included in the development agenda of our country, that democracy will prevail.

For and on behalf of the Industrial Designers Association of South Africa (IdeaSA).

**BS SMITH**  
(CHAIRPERSON)

*Please note: This document is written without prejudice*