



Framework for the Promotion of Excellence in a National Network of Science Centres



science
& technology

Department:
Science and Technology
REPUBLIC OF SOUTH AFRICA



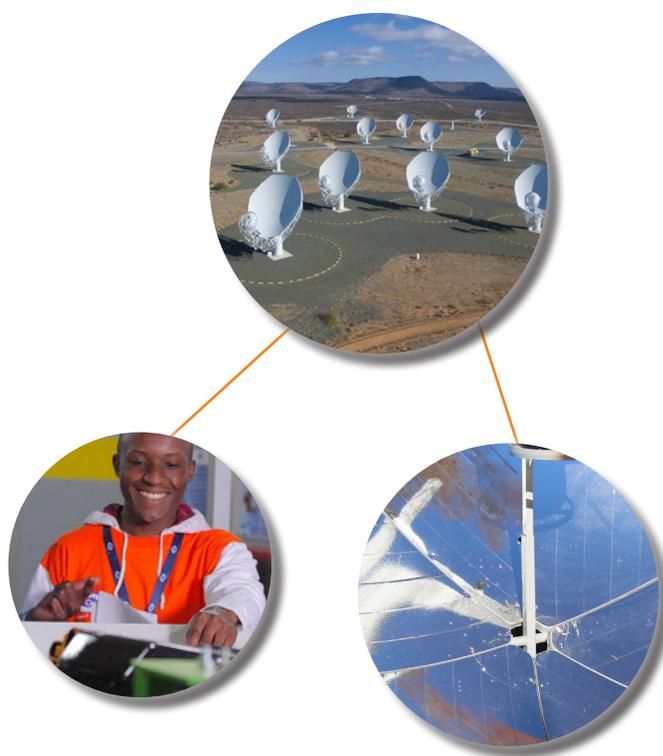
SAASTA
South African Agency for Science
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I. BACKGROUND

The White Paper on Science and Technology (1996) seeks to build a healthy National System of Innovation (NSI) that advances the social and economic development priorities of the country. Building an effective and successful NSI requires a society that to some extent understands science, engineering and technology (SET), and that values the critical role they play in ensuring national prosperity and a sustainable environment. The White Paper advocates a twotier campaign to promote awareness and understanding of SET, namely, (a) promoting science and technology literacy, and (b) promoting awareness of the power of science and technology.

Through the Department of Science and Technology (DST), the government of the Republic of South Africa instituted the delivery of SET awareness campaigns in collaboration with various institutions, including science centres. Using interactive and/or hands-on exhibits and related programmes, science centres provide a platform for society to engage with SET. Science centre programmes also complement formal teaching

and learning of mathematics and science. These subjects are critical in the development of SET human capital, which is also an enabler for the building of a healthy NSI. The DST contributes to the development of an effective NSI through various strategic interventions, including science centre-driven initiatives targeting both the general public and the youth.

Against this background, the DST approved the *National Norms and Standards for a Network of Science Centres in South Africa*, which articulates the following four goals for science centres in South Africa:

- To promote science and technology literacy among young people and the general public.
- To contribute to the enhancement of learner participation and performance in science, technology, engineering and mathematics (STEM).
- To identify and nurture youth talent and potential in STEM.
- To provide career education in STEM-based disciplines.

2. PURPOSE OF THE FRAMEWORK

In its pursuit of the above four goals, the DST regards a national network of science centres as the ideal infrastructure for the delivery of SET public awareness and SET youth development programmes.

This framework uses accreditation and quality assurance to guide the establishment and maintenance of a national network of science centres.

The framework recognises the **potential benefits** of rigorous accreditation practices for members of the network:

- Accreditation against a clear set of criteria would lend credibility to a science centre. This would have many benefits, including indicating to potential sponsors that the centre is worthy of support.
- Benchmarking could support the development of existing science centres and guidelines for the establishment of new science centres.
- Accreditation would develop a useful database of contact details and services (including exhibitions and programmes) and would provide a platform for communication and the sharing of relevant information, ideas and expertise among accredited science centres within the science centre community in South Africa and with other countries.
- Accredited centres would qualify to apply for financial grants, support and/or subsidies from the DST.
- Accredited centres would qualify to make use of a pool of exhibit expertise and travelling exhibits, training and shared programmes.
- Accreditation would provide a platform for international recognition.

The framework acknowledges the need to minimise the **potential constraints** inherent in any form of regulation. Implementation plans such as the Quality Assurance Manual for the Promotion of Excellence in a National Network of Science Centres (Annexure 1) and the Accreditation Criteria for the Promotion of Excellence in a National Network of Science Centres (Annexure 2) should be developed with end-users in mind and with ease of use and accessibility as key criteria for its approval.

An accreditation approach will be used to admit individual science centres to the network. This statement needs to be placed in perspective. A mechanistic accreditation approach could have a range of unintended consequences. A checklist-driven accreditation approach should be avoided as it could focus the science centre community on compliance with minimum externally set requirements rather than on continuous improvement towards a centre's own mission-appropriate goals.



3. POLICY DESIGN AND APPROVAL PROCESS

In 1999, the then Department of Arts, Culture, Science and Technology conducted a study to inform the development of an effective infrastructure that would be used to implement strategies of the Department to support science centres. This would be coordinated centrally under a representative umbrella body linked to education at both national and provincial levels. It was also advised that the proposed body should be government-funded and officially mandated to carry out its duties and to raise additional funding from the private sector.

In 2005, the DST approved a policy framework for a network of science centres in South Africa (referred to as the *National Norms and Standards for a Network of Science Centres in South Africa*).

The DST intends to create an environment for science centres to function optimally and improve target audiences' access to services rendered by these science centres. This will include establishing a national network of science centres. Against the above background, the DST embarked on a process to develop this *Framework for the Promotion of Excellence in a National Network of Science Centres*, which uses the accreditation approach to admit science centres to the envisaged national network of science centres in South Africa.

4. DEFINITION OF CONCEPTS

- A **national network of science centres** in the context of this framework refers to a group of science centres to which membership may be gained through a process of accreditation.
- A duly mandated **accreditation body** will make recommendations on accreditation and maintenance of membership of the network to the DST. The body is the custodian of the accreditation process, and is as such responsible for advice to candidate and member centres with regard to the accreditation process.
- A **science centre** is a permanently established educational facility that offers an informal educational experience in STEM through interactive exhibits and/or displays and/or interactive programmes.
- A **member science centre** is a science centre which has been admitted to the network through a process of accreditation, and whose accreditation is current. Member science centres are aligned to and supported by the DST.
- A **candidate science centre** is a science centre which has submitted a formal application for accreditation, but has not yet received formal accreditation.
- The **Quality Assurance Manual** contains the criteria for the accreditation and continued membership of science centres, describes the various steps in the accreditation

- and peer-evaluation processes, and contains the protocols and templates for the various steps to be followed when planning and executing the peer-evaluation site visit. These include protocols for the selection of panels, the format of preparatory documents (including the standard accreditation application form with supporting documents), a pro-forma site visit programme, generic terms of reference guiding the self-evaluation, and a site visit and peer-evaluation report (to be customised for each site visit). The processes described in the manual also inform the design specification of the electronic information management system and contain standard operating procedures for all core work processes (manual and electronic) that support the implementation of the framework and associated procedures. The Quality Assurance Manual is an annexure to the framework, but will be available separately in hard copy, in digital format and online.
- **The Accreditation Criteria** document has been developed as a separate document, as an Annexure to the framework. It contains the criteria to be used for self-evaluation of a science centre and will also be the basis for the peer-evaluation panel to use during an external evaluation. It will be available in hard copy, in digital format and online.

5. PURPOSE

This framework aims to establish a national network of science centres to which science centres voluntarily subject themselves, by –

- assigning responsibility for articulating the process and developing minimum criteria (compliance) for admission of a science centre to the network and for developing the criteria for self and peer evaluation (developmental approach) to maintain membership status.
- establishing a mechanism and implementation capacity (within the South African legislative environment) to make and report on accreditation decisions, and to maintain the process for ongoing monitoring and evaluation.
- articulating the need for appropriate information management procedures and a supporting

electronic system to be developed and maintained by the accreditation body.

The framework makes provision for the admission and the management of ongoing membership of a diverse range of science centres. The framework acknowledges the diversity of science centres with regard to their areas of specific focus, developmental stage, and resourcing.

The intention is not to create a one-size-fits-all system. The implementation mechanisms for this framework are designed to accommodate diversity of service offerings by centres, but with the explicit proviso that all member centres should demonstrate a commitment to continuous improvement.



6. ARTICULATING PRINCIPLES AND VALUES

The DST intends to create an enabling environment for science centres in the network to function optimally and improve target audiences' access to services rendered by the national network of science centres.

The underpinning principle for this framework is to design and implement a developmental approach that will support continuous improvement rather than compliance with minimum requirements.

A fair and transparent process based on peer evaluation will afford participating science centres the opportunity to share best practices by –

- demonstrating standards and practices that other science centres can aspire towards;
- articulating the criteria against which science centres can be funded;
- providing a benchmark against which the success of science centres can be measured.

A developmental approach would require a **candidate centre** to demonstrate that –

- its mission statement supports one or more of the goals articulated in the National Norms and Standards;
- the mission is appropriate to the specific centre;
- a clearly articulated implementation plan serves to guide the centre to achieve the objectives articulated in its mission statement.

Continued membership would require the **member centre** to –

- have a clearly articulated and appropriate strategy for continuous improvement towards the realisation of its own mission;
- demonstrate that it is making satisfactory progress towards implementation of its strategy.



7. ACCREDITING BODY

It is the responsibility of the DST to establish and maintain an appropriate accreditation body in consultation with the science centre community.

The accreditation body will have two roles:

- Through its accreditation process, it will admit science centres to the national network of science centres. A fitness-for-purpose approach will ensure that a centre admitted to the network shares the DST's vision as set out in the four goals articulated in the National Norms and Standards.
- In support of its quality assurance activities, it will facilitate a peer-evaluation process to monitor continuous improvement towards mission-appropriate goals, with fitness for purpose being the key driver.

The accreditation body will be responsible for overseeing the implementation of the Quality Assurance Manual and the Accreditation Criteria document to support the above roles. Provision is to be made for two types of panels, with the appropriate support, to assist the accreditation body:

- The accreditation committee will consist of a minimum of three and a maximum of four members. It will include at least one person representing the local community of science centres, at least one third-party member who is not closely associated with a South African science centre, and at least one representative designated by the DST. The accreditation committee may co-opt persons to assist it in its work. The members of the accreditation committee are selected for a fixed term of 18 months, and may be reselected for a second term.
- The members of a peer-evaluation panel are selected for each site visit. The protocol for the selection and confirmation of the panel is described in the Quality Assurance Manual. The panel will consist of a minimum of three and a maximum of four members. It will include at least one member representing the local community of science centres, at least one third-party member who is not a member of the science centre community, and at least one representative designated by the DST. If possible, a panel member from abroad will be selected for each peer-evaluation site visit. The intention is two-fold:





- o To create an opportunity for input by credible peers from outside South Africa with a view to continuous improvement.
- o To familiarise peers from abroad with the operational standards upheld by South Africa's national network of science centres.

The DST will appoint a custodian for the accreditation body, which will be appropriately resourced to manage the process.

The accreditation body will be charged with receiving applications for accreditation from candidate science centres, managing the approved processes in respect of such applications, maintaining accreditation, facilitating the logistics and report writing for peer-evaluation visits, and managing the information associated with the processes.

As the custodian of the process of accreditation and maintenance of membership, the accreditation body will also have the following responsibilities and tasks:

- Liaising with role players on all matters related to accreditation (including national authorities and other relevant accreditation bodies).

- Representing the local science community on all matters related to accreditation and membership of the national network of science centres.
- Providing advice to candidate science centres on the accreditation process.
- Engaging with member science centres on the development, continuous improvement and implementation of the Quality Assurance Manual and the Accreditation Criteria document.
- Assisting fledgling centres to incorporate appropriate quality management practices into their planning and operational activities, and promote the sharing of good practice. (This is to be done in a capacity-building role rather than as a form of inspection.)
- Providing a records management service on the accreditation status of members and the tracking of the accreditation applications of candidate centres.
- Providing administrative and logistical support with regard to peer-evaluation processes, including site visits.
- Developing and maintaining the database and its user interface.

All applications for accreditation will be processed by the accreditation body, which will make recommendations to the accreditation committee in this regard. If and when approved by the accreditation committee, the accreditation body will submit recommendations for accreditation to the DST for a final decision.

8. DEVELOPMENT OF A NATIONAL ROLL/DATABASE OF SCIENCE CENTRES IN THE NETWORK

- The specifications for the database are derived from the roles of the accreditation body and specific tasks allocated to it.
- The database should support workflow and reporting capabilities, as well as automated feed to a website to ensure appropriate access to accreditation-related information by the envisaged network of science centres, the DST and the general public.
- The database for the network should not be just a list, but should be designed to manage the initial accreditation (listing of centres that meet minimum requirements, in categories as set out in the National Norms and Standards) and the process flow related to the initial listing, as well as all quality management activities associated with maintaining accreditation status. The system should be designed to serve as a tracking system for accreditation applications and other

processes related to quality management. The output of the system should be accessible to member science centres and the general public via the websites of the Southern African Association for Science and Technology Centres (SAASTEC), the South African Agency for Science and Technology Advancement (SAASTA) and the DST.

- The database should, in addition to the above functionalities, enable the public to search for existing members of the network and, among other things, check the status of member science centres with regard to the minimum recommended specifications for the relevant category or type of science centre.
- Categories of information to be collected and housed in the database will be identified early in the design phase of the system and agreed upon by stakeholders before inclusion in the signed off system design specification.

9. HIGH-LEVEL PROCESSES ASSOCIATED WITH ACCREDITATION

The following processes are recommended for science centres that wish to apply for accreditation. Time frames for these are articulated clearly in the Quality Assurance Manual.

9.1 Application process

- Science centres that wish to apply for accreditation will submit a completed standard application form with supporting documents.
- Forms will be available in hard copy, in digital format and online on a website established and maintained for the purpose. Applications will be accepted through all three of these media.
- On receipt of an application form, the accreditation body will acknowledge receipt and assign a reference number to the application, after which the accreditation official will liaise with the candidate science centre and formally initiate the accreditation procedure.
- The accreditation procedure will involve an analysis of the application form and support documents, and a site visit by an accreditation panel convened by the accreditation body.
- The accreditation body will develop and run periodic accreditation training courses for science centre staff who, once trained, will be eligible to serve on peerevaluation panels.
- There will be multiple categories of accreditation, defined broadly by the size and scope of services offered by science centres. The accreditation categories and the criteria governing the accreditation of science centres will be agreed upon and included in the Accreditation Criteria document and the Quality Assurance Manual.
- The categories of accreditation will be determined by the following criteria, which will be included in the Accreditation Criteria document and the Quality Assurance Manual:
 - Alignment of the vision and mission with the four goals articulated in the National Norms and Standards and other appropriate objectives.
 - Governance structure.
 - Sustainability planning.
 - Systems and procedures for data collection and impact assessment.
 - Total budget of the centre, including income and expenditure.
 - Size of staff (full-time and part-time staff).
 - Physical size of the centre.
 - Number and nature of exhibitions, exhibits and displays.
 - Scale of centre-based STEM projects, programmes and events, and the budget, reach and impact of each.
 - Number and nature of visitors hosted in situ, categorised in groupings such as learners, educators, the general public, etc.
 - Scale and scope of outreach projects, programmes and events and the number of participants reached.

- Extent of engagement with the provincial education department and local schools.
- Accessibility for disabled visitors.
- Health and safety policies, procedures, systems and monitoring.
- On receipt of an application for accreditation, the accreditation body will be required to convene a peerevaluation panel in line with the guidelines outlined in the Quality Assurance Manual. The panel will be responsible for assessing the application and conducting a peerevaluation site visit in line with the accreditation criteria. A full report will be drafted, indicating the findings and a recommendation. All criteria will be checked, and all decisions and recommendations will be based on verified evidence.
- The accreditation process for an application for membership will be completed within six months of the date the application is received by the accreditation body (except where an extension is mutually agreed to in writing to make provision for the inclusion of an appropriately qualified foreign panel member).
- The peer-evaluation process for the maintenance of membership is outlined in the Manual, and is maintained as a five-year rolling plan that is approved by the DST.

Science centres outside South Africa may apply to be accredited by the body, but the costs will be borne by the applying centre or its government and not by the DST. Accredited science centres outside South Africa will not be entitled to the benefits made available by the DST to local accredited science centres.

9.2 Renewal of accreditation

The Quality Assurance Manual contains the rules for how renewal of accreditation status should be handled. It is envisaged that science centres will be notified by the accreditation body six months before the end of a five-year cycle. Science centres that move from one category to another before the end of the five-year cycle would be entitled to request reassessment.

9.3 Accreditation decision process

The following steps will be followed by the accreditation body when arriving at a decision about whether a candidate science centre will be accredited.

The ideal expressed in the framework document is that this process will be managed online. Where possible the process will therefore be supported online for those candidate and member centres that have access to the necessary technology.

A member or candidate centre will not be penalised for not having access to the online platform.

An application will be received and acknowledged by the accreditation body, after which the process below will be followed.

Step 1 The accreditation body will assign an application reference number and a deadline for concluding the accreditation procedure. This may be done electronically. The application will be reported on and recorded in the minutes of the following accreditation committee meeting.

Step 2 The accreditation body will convene a peer-evaluation panel and arrange for a site visit.

Step 3 The accreditation body will adopt a supportive approach to accreditation and will seek to assist and facilitate the accreditation of new science centres. During the period in which the application is being processed, the accreditation body will attempt to assist the candidate science centre to comply with the criteria for accreditation, should this be necessary.

Step 4 Once all investigations have been completed, a full accreditation report with recommendations will be drafted and submitted to the accreditation committee, which will consider the recommendations and make a decision. This will not necessarily be at a meeting, but may be done via email or teleconferencing.

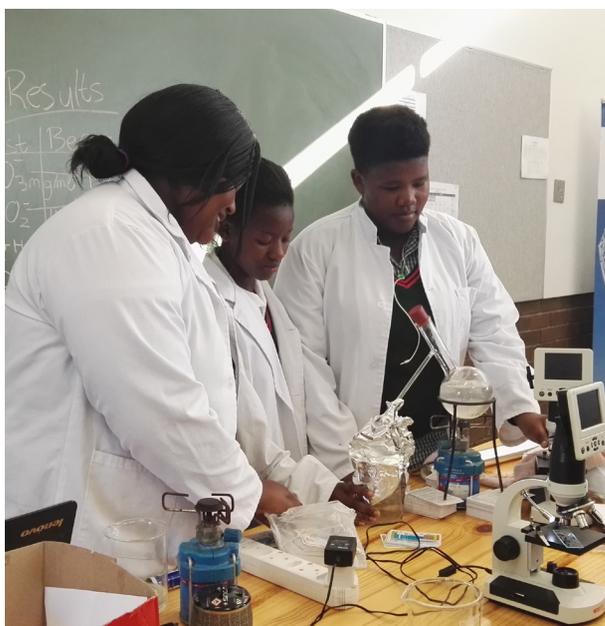
Step 5 The accreditation body will then send a formal recommendation to the DST.

Step 6 The DST will respond by either accepting or rejecting the recommendation.

Step 7 If the DST approves a recommendation that a centre be accredited, it will instruct the accreditation body to accredit the centre. If the DST rejects a recommendation that a centre be accredited (for which written justification must be provided), or approves a recommendation that a centre not be accredited, it will instruct the accreditation body to respond to the candidate science centre either by rejecting the application or by awarding conditional accreditation, setting conditions and providing a support plan to assist the candidate science centre towards full accreditation. The default intention will be to assist the candidate centre to fulfil the requirements for accreditation.

Step 8 The accreditation body will proceed to respond to the candidate science centre.





9.4 Appeal of a decision

An appeals process will be available to any science centre which has an application rejected or which is awarded conditional accreditation pending compliance with conditions set for full accreditation. Appeals should be lodged within three months. Appeals should be lodged with the accreditation body, which will forward them to the DST. An appeals panel will be convened by the accreditation body. The panel will consist of a minimum of two people and a maximum of three people, none of whom was involved in the original application. It will include at least one member of the local community of science centres, at least one third-party member who is not a member of the science centre community, and at least one representative designated by the DST.

9.5 Redress

The procedures according to which complaints against accredited science centres or the accreditation body should be dealt with are contained in the Quality Assurance Manual.

9.6 Withdrawal from the accreditation process or from the network

Science centres may withdraw from the accredited network under the following conditions, in consultation with the accreditation body and on the recommendation of the accreditation committee:

- Lack of funding.
- Lease not being renewed/being terminated.
- Natural disaster or political unrest.
- Insufficient staff.
- Any other reason regarded as valid by the accreditation body.

The DST may, on the recommendation of the accreditation body, terminate a science centre's accreditation if the centre fails to maintain the norms, standards and criteria contained in the Quality Assurance Manual and the Accreditation Criteria document, or if it fails to meet conditions set for accreditation in a site visit report within the prescribed time.

9.7 Monitoring and evaluation guidelines

Protocols for monitoring and evaluating the performance of individual members and the whole national network of science centres, which were designed collaboratively by stakeholders, are set out in the Quality Assurance Manual.

The monitoring and evaluating process will be facilitated by the accreditation body, and will be reviewed at least every five years by the DST or a body delegated by the DST. The process will have to be approved by the Minister.



ANNEXURE I

- Quality Assurance Manual for
- the Promotion of Excellence in
- a National Network of Science Centres

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I. OUTLINE OF THE QUALITY ASSURANCE MANUAL FOR A NATIONAL NETWORK OF SCIENCE CENTRES



Appendix A gives a summary of the Quality Assurance Manual for a National Network of Science Centres.

The manual contains the process for the accreditation and continued membership of science centres, describes the various steps in the accreditation and peer-evaluation processes, and contains the protocols and templates for the various steps to be followed when planning and executing site visits.

These include protocols for the selection of panels, the format of preparatory documents (including the standard accreditation application form with supporting documents), a pro-forma site visit programme, generic terms of reference guiding self-evaluation, and site-visit and peer-evaluation reports (to be customised for each site visit).

The processes described in the manual also inform the design specifications of the electronic information management system and contain standard operating procedures for all core work processes (manual and electronic) that support the implementation of the policy and associated procedures. The *Framework for the Promotion of Excellence in a National Network of Science Centres* and its annexures (this manual and the Accreditation Criteria document) are available in hard copy and in digital format, and may be accessed from the websites of the Southern African Association for Science and Technology Centres (SAASTEC), the South African Agency for Science and Technology Advancement (SAASTA) and the Department of Science and Technology (DST).

2. STAKEHOLDERS IN THE ACCREDITATION PROCESS

Appendix B shows the pyramid of stakeholders in the accreditation process.

2.1 Department of Science and Technology

The DST approved the *National Norms and Standards for a Network of Science Centres in South Africa* in 2005. The DST is the custodian of the *Framework for the Promotion of Excellence in a National Network of Science Centres* and provides the governance structure and resources for its implementation. It will oversee the establishment and operations of the accreditation body for the network of science centres.

2.2 Accreditation body

The duly mandated accreditation body is the custodian of the accreditation process, and is responsible for advice to candidate and member science centres with regard to the accreditation process.

The accreditation body will have two roles:

- Through its accreditation process, it will admit science centres to the national network of science centres. A fitness-for-purpose approach will ensure that a centre admitted to the network shares the DST's vision as set out in the four goals articulated in the National Norms and Standards.
- In support of its quality assurance activities, it will facilitate a peer-evaluation process to monitor continuous improvement towards mission-appropriate goals, with fitness for purpose being the key driver.

As the custodian of the process of accreditation and maintenance of membership, the accreditation body will also have the following responsibilities and tasks:

- Liaising with role players on all matters related to accreditation (including national authorities and other relevant accreditation bodies).
- Representing the local science community on all matters related to accreditation and membership of the national network of science centres.
- Providing advice to candidate science centres on the accreditation process.
- Engaging with member science centres on the development, continuous improvement and implementation of the Quality Assurance Manual and the Accreditation Criteria document.
- Assisting fledgling centres to incorporate appropriate quality management practices into their planning and operational activities, and promote the sharing of good practice. (This is to be done in a capacity-building role rather than as a form of inspection.)

- Providing a records management service on the accreditation status of members and the tracking of the accreditation applications of candidate centres.
- Providing administrative and logistical support with regard to peer-evaluation processes, including site visits.
- Developing and maintaining the database and its user interface.

The accreditation body will establish the accreditation committee and accreditation office for the ongoing management of the accreditation processes.

2.3 Accreditation committee

The accreditation committee will consist of a minimum of three people and a maximum of four people. It will include at least one person representing the local community of science centres, at least one third-party member who is not closely associated with the South African science centre community, and at least one representative designated by the DST. Persons may be co-opted by the accreditation committee to assist the committee in its work. The members of the accreditation committee are selected for a fixed term of 36 months, and may be reselected for another term.

The duly mandated accreditation committee makes recommendations on accreditation and maintenance of membership of the National Network of Science Centres to the DST. If and when approved by the accreditation committee, the accreditation body will submit recommendations for accreditation to the DST for a final decision.



2.4 Accreditation office

An appropriately resourced accreditation office will be established and maintained to manage the accreditation processes on behalf of the accreditation body. The accreditation office will be the custodian of the processes of accreditation and maintenance of membership of the network.

The accreditation office will be charged with receiving applications for accreditation from candidate science centres, managing the approved processes in respect of such applications and maintaining accreditation, facilitating the logistics and report writing for peer evaluation visits, and managing the information associated with the processes.

All applications will be processed by the accreditation office, which will make recommendations to the accreditation committee in respect of all applications for accreditation.

The accreditation office will have capacity to –

- engage with science centres on the development, continuous improvement and implementation of the accreditation framework, the accreditation criteria and the quality assurance manual;
- assist with site visits;
- assist fledgling centres with the development of appropriate quality management practices for their planning and operational activities; and
- promote the sharing of good practice.

This is to be conducted in a capacity-building role rather than as a form of inspection.

The accreditation office will also provide administrative assistance for –

- site visit logistics, data management and communicating with and reporting to stakeholders in the agreed format;
- technical expertise for the development and maintenance of the database and the associated graphical user interface.

2.5 A proposed national network of science centres

A national network of science centres in the context of this document refers to a local group of science centres to which membership may be gained through a process of accreditation. The members of the network are aligned to, interconnected and supported by the DST. The network is formally recognised as the officially sanctioned umbrella body representing the interests of DST-aligned science centres in South Africa. Members of the network will be expected to support, facilitate and implement all national policies, strategies and initiatives aimed at achieving the four goals chosen by the DST for science centres, namely, the promotion of science awareness among learners and the general public, contributing to the learning and teaching of mathematics, science and technology,

the promotion of science, engineering and technology careers, and contributing to the identification and nurturing of learners with talent and potential.

2.6 Science centres

The DST defines a science centre as “a permanently established educational facility that offers an informal educational experience in science, technology, engineering and mathematics (STEM) through interactive exhibits and/or displays and/or interactive programmes”.

In order to assist fledgling or newly established science centres in their growth phase, the accreditation process will acknowledge that all science centres that apply to become members of the network will be regarded as such and will therefore be supported by the DST. Members will initially be grouped in different phases of membership according to their own levels of development towards full membership. The network will therefore have the following categories of membership: applicant, candidate, member and foreign member.

An **applicant science centre** is a science centre that has applied to join the national network of science centres. The accreditation office will discuss the eligibility of the applicant science centre with the centre and then arrange a site visit. It is also possible that, owing to the developmental approach, the applicant science centre may be asked to submit itself to management help from the accreditation body during an initial growing phase towards application for membership. The science centre will then remain in the applicant phase on the network database until the required development has been completed (a period not exceeding 18 months). An applicant science centre will still be regarded as part of the network and as such will be able to apply for support towards reaching its goals. A visit by a peer-evaluation panel to the science centre may not be required in this instance.

A **candidate science centre** is a science centre which has submitted a formal application for accreditation with supporting documentation, but has not yet been formally accredited. The accreditation process in this phase will be completed within a period of six months from the date the application is received. A site visit from a peer-evaluation panel will be called for, but an additional foreign panel member is not always required.

A developmental approach would require that a candidate science centre should be able to demonstrate the following:

- Its mission statement supports one or more of the goals articulated in the National Norms and Standards.
- The mission is appropriate to the specific centre.
- A clearly articulated implementation plan serves to guide the centre to achieve the objectives articulated in its mission statement.



A **member science centre** is a science centre that has been admitted to the network through a process of accreditation for the next five years. To keep its member status current the member will be required to do annual threshold reporting in years two and three of its membership, as well as reapply for membership towards the end of the five-year accreditation cycle. The member will be notified of the date of the accreditation visit for the next cycle six months before the visit.

Membership from outside South Africa

Science centres outside South Africa may apply to be accredited by the accreditation body, but the full cost of the accreditation process will be borne by the applying science centre or its government and not by the DST.

These centres will follow the same processes and phases as the South African applicants.



3. THE ACCREDITATION PROCESS

A typical accreditation workflow is set out in Appendix C.

The ideal is that the accreditation process will be managed online, although a member or candidate centre will not be penalised for not having access to the online platform.

3.1 Broad outline of the accreditation process

- a. Science centres that wish to apply for accreditation must submit a completed standard application form with supporting documents.
- b. Forms will be available in hard copy, in digital format and online on a website established and maintained for the purpose. Applications will be accepted through all three of these media.
- c. On receipt of an application form, the accreditation office will acknowledge receipt and assign an accreditation reference number to the application and a deadline for concluding the accreditation procedure (this may be done electronically). The application is reported on and recorded in the minutes of the following accreditation committee meeting together with an indication of the scope of and terms of reference for the external evaluation and a list of possible panel members.
- d. The accreditation official will liaise with the candidate science centre and formally initiate the accreditation procedure.
- e. The accreditation body adopts a supportive approach to accreditation and seeks to assist and facilitate the accreditation of new science centres. During the period in which the application is being processed, the accreditation office will if necessary assist the candidate science centre to comply with the criteria for accreditation.



- f. The accreditation procedure will involve an analysis of the application form and supporting documents and a site visit by an evaluation panel convened by the accreditation body.
- g. The accreditation body will develop and run periodic accreditation training courses for science centre staff and, once trained, these individuals will be eligible to serve on peer-evaluation panels.
- h. Self-evaluation of a science centre will be guided by the following accreditation criteria:
 - Alignment of the vision and mission with the goals of the Youth into Science Strategy and other appropriate objectives.
 - Governance structure.
 - Sustainability planning.
 - Systems and procedures for data collection and impact assessment.
 - Total budget of the centre, including income and expenditure.
 - Size of staff (full-time and part-time staff).
 - Physical size of the centre.
 - Number and nature of exhibitions, exhibits and displays.
 - Scale of centre-based STEM projects, programmes and events, as well as the budget, reach and impact of each.
 - Number and nature of visitors hosted in situ, categorised by specific groupings such as school learners, educators, the general public, etc.
 - Scale and scope of outreach projects, programmes and events and the number of participants reached.
 - Extent of engagement with the provincial education department and local schools.
 - Accessibility for disabled visitors.
 - Health and safety policies, procedures, systems and monitoring.

On receipt of an application for accreditation, the accreditation body will be required to convene a peer-evaluation panel in line with the guidelines outlined in paragraph 3.3. The panel will be responsible for assessing the application, and physically conducting a peer-evaluation site visit in line with the accreditation criteria. A full report will be drafted on the findings with a recommendation. All criteria will be inspected in detail and all decisions and recommendations will be based on verified evidence only.

The accreditation process for each application for membership will be completed within a period of six months of the date the application is received by the accreditation office (except where an extension is agreed on in writing to allow for the inclusion of an appropriately qualified foreign panel member).

3.2 Application

A science centre that wants to become part of the network can apply to the accreditation office on a standard application

form. Templates for the supporting documentation to go with the application will also be available in hard copy as well as electronically. On receipt of the application and supporting documentation, the accreditation office will register the application on the system, send a receipt to the science centre and make an initial appointment for discussion of the application.

(a) Reason for an accreditation visit

An accreditation visit may be undertaken –

- in response to an application by a new member;
- in response to a request from a science centre;
- in response to a request from the DST; and
- if for development reasons it is deemed appropriate.

(b) Briefing meeting/visit/talk and confirmation of eligibility

The accreditation office plays a supporting role and has a capacity-building remit, especially with regard to emerging and fledgling centres. The first contact between the accreditation office and the science centre will determine the eligibility of the science centre. The science centre will then be registered as an applicant or candidate centre on the system.

(c) Science centre applicant/candidacy status

The applicants on the list are considered for eligibility using a list of criteria that govern the accreditation office's decision when granting applicant or candidacy status.

A centre will be registered as an applicant centre when it is not yet considered ready for the accreditation process. Areas still needing attention will be highlighted and the accreditation office will assist such a centre with development in those areas needing attention before a site visit will be considered. The maximum time available for this phase is 12 months. If, after 12 months, the centre is still not ready for formal accreditation, it will temporarily be taken off the system. The centre may reapply for application after improvements have been effected in specified areas.

A centre will be registered as a candidate centre when accepted for the accreditation process. This phase will be completed within six months. In the case of a foreign panel member being invited to the panel, the time frame can be adjusted to make provision for international travel arrangements.

3.3 Scope and terms of reference for the external evaluation process

Appendix D gives a summary of the external evaluation process.

When commencing the process of accreditation with a science centre, the scope and terms of reference for the external evaluation will be discussed between the accreditation office

and the science centre, as this will differ for each individual science centre. The science centre will then base the self-evaluation process and the self-evaluation report on the agreed scope and terms of reference.

3.4 Selection of peer-evaluation panel

When a science centre is ready for a site visit, the accreditation office will support the selection and appointment of a peer-evaluation panel.

The members of a peer-evaluation panel are selected for each site visit and the protocol for selection and confirmation of the panel is as follows:

- A peer-evaluation panel will consist of a minimum of three and a maximum of four members. It will include at least one member representing the network, at least one third-party member who is not a member of the network, and at least one representative designated by the DST.
- If possible, a panel member from abroad will be selected for each peer-evaluation site visit. The intention is twofold:
 - o To create an opportunity for input by credible peers from outside South Africa with a view to continuous improvement.
 - o To familiarise peers from abroad with the operational standards upheld by a national network of science centres.
- A suggested panel member should have no conflict of interest with the science centre or relation to any of their staff.

After the selection and confirmation of panel members, the selected members will be sent an initial invitation by the accreditation office to serve on the panel for a site visit. After confirmation of their participation, the accreditation office will take responsibility for sending the following documents by courier to the selected members of the panel at least four weeks in advance of the visit:

- Invitation confirmation.
- The self-evaluation report of the applicable science centre.
- Supporting documentation to the self-evaluation report.
- Suggested programme for the site visit.

Panel members will also be asked to sign an agreement incorporating Conflict of Interest, Non-disclosure and Confidentiality protocols, before the site visit.

3.5 Self-evaluation process

A science centre that has applied for membership of the network and is in the accreditation process will be required to do self-evaluation according to the terms of reference

agreed upon for the external evaluation, as well as the criteria provided, and subsequently complete a self-evaluation report. This report will be sent to the panel members in advance of the visit to familiarise them with the science centre before commencement of the accreditation process. It will also be used during the site visit for verification of statements made in the self-evaluation report.

(a) Criteria for self-evaluation

Appendix E gives a summary of the accreditation criteria.

A set of criteria has been developed for the evaluation of science centres applying for membership to the network. The document containing the accreditation criteria is handled separately as Annexure 2 (*Accreditation Criteria for the Promotion of Excellence in a National Network of Science Centres*) to the *Framework for the Promotion of Excellence in a National Network of Science Centres*. This is for ease of use as only the criteria document will need to be supplied to science centres that are in the process of accreditation, and not the full framework document or this manual.

The criteria function as evaluation tools to enable the science centre and the peer-evaluation panel to focus on quality management. The criteria take into account the science centre community and the environment in which its members function, both in South Africa and abroad. The criteria are benchmarked on national and international quality management trends.

The criteria will serve as a guideline for a science centre when doing self-evaluation and compiling their self-evaluation report. The visiting peer-evaluation panel will apply the criteria to the designated audit areas with due consideration of the science centre's mission, goals and level of development. Not all areas or questions posed as examples in the criteria document will be applicable to every science centre. A science centre should use what is applicable, but should also state, giving reasons, why certain aspects have not been dealt with.

Areas in the governance and management of a science centre to be evaluated according to the criteria are the following:

A	Organisational profile.
B1	Governance and management.
B2	Service offering.
B3	People.
B4	Communication.



(b) Self-evaluation report and supporting documentation

The self-evaluation exercise is aimed at assisting science centres to do self-evaluation through a process of gathering detailed information, analysing the activities of the centre and indicating areas of strength and areas requiring improvement. The outcome of the self-evaluation process serves as the basis for the self-evaluation report. The questions asked in the criteria document should serve as an inducement to plan further development and improvement in the relevant science centre.

The use of the information in the self-evaluation report will enable a science centre to manage its programmes, exhibitions, etc., and to supply potential sponsors and donors with documentary evidence of their activities. Hence, the self-evaluation report serves as a form of capacity building.

Supporting documentation will have to be supplied for all statements made in the self-evaluation report. A selection will go with the report to the panel members before the visit, while the remaining documentation must be ordered and ready for perusal during the peer-evaluation panel site visit.

3.6 Site visit

The accreditation office, with the help of the science centre, will organise the following logistical arrangements well in advance of the visit:

- Facility preparation.
- Budgeting for the visit (remuneration for panel members included).
- Travel and accommodation for the visitors.
- Catering during the site visit.
- Suggested programme for the visit.
- Preparing the self-evaluation report.
- Gathering and ordering supporting documentation for the statements made in the self-evaluation report.

All expenditure for a site visit will be for the account of the accreditation body and will be in accordance with government guidelines.

The actual site visit will take place over at least one full day, but will be no longer than three days in duration. Panel members will be requested to arrive at the site on the day before the site visit starts. A short briefing meeting will be held to familiarise the members of the peer-evaluation panel with their role and duties during the site visit and the programme will be discussed. A chair for the panel will be selected by the panel members and this person will be responsible for the finalisation of all reports by the panel.

The panel will follow the programme for evaluations and meetings with different stakeholders during the site visit. The panel will triangulate the information supplied in the self-evaluation report against information gathered during the site visit and supporting documentation made available at the site.

The panel will be responsible for assessing the application and conducting a peer-evaluation site visit in line with the accreditation criteria. Decisions and recommendations will be based on verified evidence only.

3.7 Accreditation decision

The following steps will be followed in the accreditation decision process:

- Once all investigations have been completed, a full accreditation report with recommendations will be drafted and submitted to the accreditation committee, which will consider the recommendations and make a decision. This will not necessarily be at a meeting, but may be done via email or teleconferencing.
- The accreditation body will then send a formal recommendation to the DST.
- The DST will respond by either accepting or rejecting the recommendation.
- If the DST approves a recommendation that a centre be accredited, it will instruct the accreditation body to accredit the centre. If the DST rejects a recommendation that a centre be accredited (for which written justification must be provided), or approves a recommendation that a centre not be accredited, it will instruct the accreditation body to respond to the candidate science centre either by rejecting the application or by awarding conditional accreditation, setting conditions and providing a support plan to assist the candidate science centre towards full accreditation. The default intention will be to assist the candidate centre to fulfil the requirements for accreditation.
- The accreditation body will proceed to respond to the candidate science centre.

(a) The findings of the peer-evaluation panel

The peer-evaluation panel will give their findings and the result of their formal assessment with recommendations to the accreditation committee in the following way:

- An oral report and an executive summary on the last day of the visit.
- A full report within four weeks of the visit, together with a recommendation on the accreditation of the science centre (responsibility of the chair of the panel).

The panel will be required to comment on the overall analysis (strengths, weaknesses, opportunities and threats) of the science centre, keeping in mind the criteria, the self-evaluation report and supporting documentation, while physically assessing the science centre and their facilities.

The reports of the panel will highlight both strengths and weaknesses observed at the specific science centre, as well as in the broader sector. Tendencies can therefore be included in a collective report to the DST in the form of a trend analysis. This information can then be used as a baseline for decision-making and capacity building in the science centre community.

(b) Response of the science centre

The contact person at the science centre will receive the full peer-evaluation panel report via the accreditation office. The science centre will have four weeks to respond to the factual correctness of the report.

The centre must plan and implement improvements and changes as required and suggested when receiving an interim, conditional or provisional accreditation recommendation. Improvement plans and/or progress reports will be requested by the accreditation office to further eventual compliance.

A science centre is also entitled to request to be reassessed at a later date if they can provide sufficient evidence of improvement since the previous site visit.

(c) Appeal of decision

An appeals process is available to any science centre which has an application rejected or which is awarded conditional accreditation pending compliance with conditions set for full accreditation. Appeals will be lodged with an appeals panel, which will be convened by the accreditation body. The panel will consist of a minimum of two people and a maximum of three people. It will include at least one network member whose science centre was not involved in the original application, at least one third-party member who is not a member of the network, and at least one representative designated by the DST.

Appeals should be lodged within three months after the final decision of the DST has been communicated to the science centre.

The accreditation body will receive the recommendation from the appeals panel and will then forward the appeal and possible recommendations to the DST for their decision.

3.8 Membership status

Once all investigations have been completed by the peer-evaluation panel, a full accreditation report and recommendation will be drafted and provided to the accreditation committee, which will consider the recommendations and agree on a decision. This will not necessarily be at a meeting, but may be done via digital correspondence or teleconferencing. This decision will be submitted to the DST, which will then decide on membership status as follows:

- Full membership for the next five years.
- Interim membership, implying certain issues have to be resolved within a certain time frame.
- Conditional membership, implying that a concern exists and has to be resolved, or certain aspects do not fully meet criteria and have to be corrected.

The accreditation office will communicate the recommendation of the DST to the science centre. It will also assist science centres that receive conditional membership from the Department with ongoing development.

Immediate risks and serious non-compliance will be identified by the accreditation committee and brought to the attention of the DST.

(a) Improvement plan

A science centre that received an interim, conditional or provisional accreditation recommendation has to complete an improvement plan within the first six months of the evaluation visit. Conditions set in the communication from the DST have to be met within the given time frame and communicated in the improvement plan.

(b) Progress report

A science centre that received interim, conditional or provisional accreditation recommendation has to provide regular progress reports on improvements and other changes as requested or prescribed by the accreditation body.

(c) Continued membership

Continued membership would require the member centre to –

- have a clearly articulated and appropriate strategy for continuous improvement towards realisation of its own mission;
- demonstrate that it is making satisfactory progress towards implementation of its strategy;
- commit itself to annual threshold reporting;
- reapply for accreditation every five years.

(i) Annual threshold reporting process

Reaffirmation of continued accreditation will happen in two ways:

- Accreditation is renewable in a five-yearly cycle.
- Threshold reporting by each member of the network of science centres will take place annually on the applicable templates.

Non-compliance with the timely providing of the annual threshold report can result in the accreditation body withholding financial assistance from a science centre for a specified period of time. In the case of total non-compliance, membership of the science centre to the network can be temporarily suspended.

Monitoring and evaluating the performance of individual members and the collective national network of science centres is done according to DST benchmarks by annual threshold reporting. When annual threshold reporting by science centres flows into an annual trends analysis, the accreditation body can identify risks and serious noncompliance that can be pointed out to the DST. Positive and negative trends identified during the accreditation process can be used in the capacity-building process.

It is envisaged that science centres will be notified by the accreditation office six months before the end of a five-year cycle. Science centres that moved from one phase to another before the end of the five-year cycle would be entitled to request reassessment.

(ii) Withdrawal from the accreditation process or from the network

Science centres may withdraw from the accredited network under the following conditions, in consultation with the accreditation body and on the recommendation of the accreditation committee:

- Lack of funding.
- Lease not being renewed/being terminated.
- Natural disaster or political unrest.
- Insufficient staff.
- Any other reason regarded as valid by the accreditation body.

The DST may, on the recommendation of the accreditation body, terminate a science centre's accreditation if the centre fails to maintain the norms, standards and criteria contained in the Quality Assurance Manual and the Accreditation Criteria document, or if it fails to meet conditions set for accreditation in a site visit report within the prescribed time.

(iii) Redress

The procedures according to which complaints against accredited science centres or the accreditation body should be dealt with are widely available to the general public, including the SAASTEC, SAASTA and DST websites.

The complaining party should complete the redress template to report the problem to the DST, which will then take further action.

REFERENCES

The following documents guided and informed the compilation of this document:

1. Department of Science and Technology: Youth into Science Strategy, 2006.
2. Department of Science and Technology: National Roll-Out Plan to Establish the Network of Science Centres in South Africa (2007/08 – 2032/33)
3. Department of Science and Technology: Terms of reference for the development of the accreditation policy and procedure for a network of science centres in South Africa
4. Department of Science and Technology: National Norms and Standards for a Network of Science Centres in South Africa, 2005
5. Council on Higher Education: Framework for Institutional Audits, 2004

APPENDIX A

Summary of the Quality Assurance Manual for a National Network of Science Centres

1. Outline of the Quality Assurance Manual

2. Stakeholders in the accreditation process

- Department of Science and Technology (DST)
- Accrediting body (DST)
- Accreditation committee
- Accreditation office
- Proposed national network of science centres

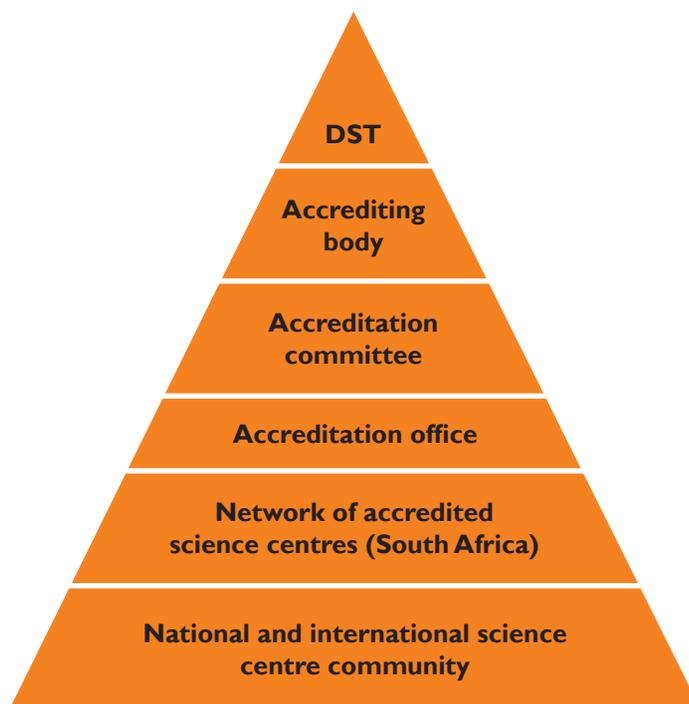
3. The accreditation process (5-year cycle, 6-month duration)

- 3.1 Outline of the accreditation process
- 3.2 Application
 - Reason for accreditation visit
 - Briefing meeting and confirmation of eligibility
 - Science centre applicant/candidacy status
- 3.3 Scope and terms of reference of the external evaluation process
- 3.4 Selection of peer-evaluation panel
- 3.5 Self-evaluation process
 - Criteria for self-evaluation
 - Self-evaluation report and supporting documentation
- 3.6 Site visit
- 3.7 Accreditation decision
 - Findings of the peer-evaluation panel
 - Response of the science centre
 - Appeal of decision
- 3.8 Membership status
 - Improvement plan
 - Progress report
 - Maintenance of membership
 - Annual threshold reporting process
 - Withdrawal
 - Redress



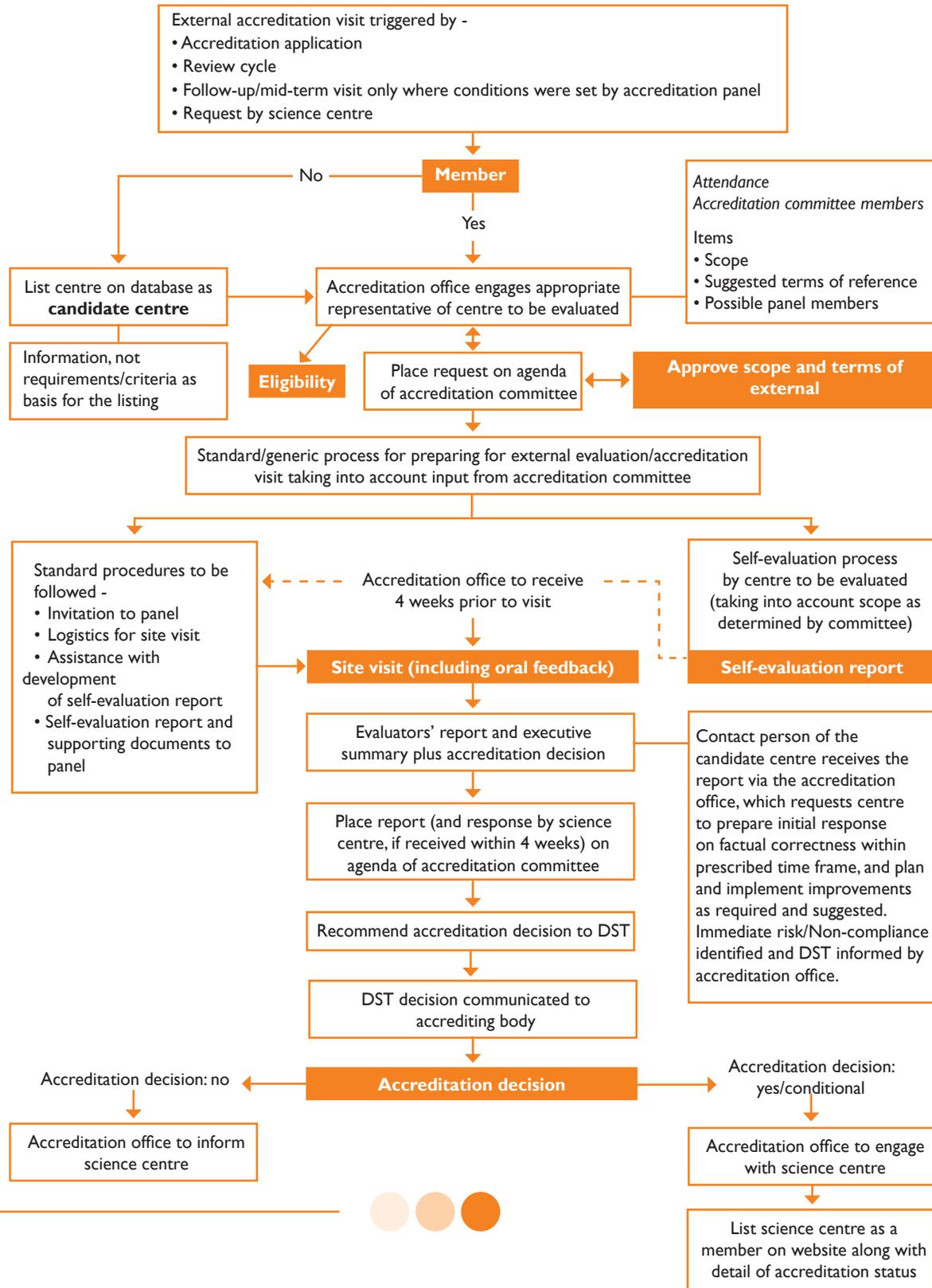
APPENDIX B

Pyramid of stakeholders in the accreditation process



APPENDIX C

Admission to network of science centres: Typical accreditation workflow



APPENDIX D

Summary of the external evaluation process

1. Reason for an accreditation application/visit
2. Determine scope and terms of reference for evaluation with science centre
3. Selection of peer-evaluation panel
4. Criteria provided for self-evaluation of science centre
5. Self-evaluation report compiled by science centre under review
6. Documentation sent to peer-evaluation panel
 - Self-evaluation report and supporting documentation
 - Skeleton report and/or skeleton mind-map
 - Programme for the actual site visit
 - Scope and terms of reference
7. Documentation sent to accreditation body
8. Site visit
9. Receive report from panel on the last day of the external evaluation visit
 - Verbal report
 - Executive summary and accreditation recommendation
10. Receive full report from the chair of the panel within four weeks of external evaluation visit
11. Accreditation decision made and status confirmed
12. Summary of findings to be compiled according to requirements of the network/DST
13. Summary of findings feeds into trends analysis relevant to the particular year



APPENDIX E

Summary of accreditation criteria

A Organisational profile

- Name, location and ownership
- Governance system and Organisational structure
- Vision, mission and purpose
- Key relationships
- Outline of Service Offering
- Competitive environment
- Outline of Financial planning

B1 Governance and planning

- Leadership
- Strategic planning
- Financial planning
- Sustainability and future relevance
- Regulatory environment
- Corporate governance
- Risk

B2 Service offering

- Exhibits
- Teaching and learning programmes
- Events

B3 People

- Staff profile
- Recruitment
- Succession planning
- Performance management
- Organisational learning
- Career and skills development
- Interns and volunteers
- Specialists
- Stakeholder management

B4 Communication

- Communication channels
- Marketing
- Science communication
- Information management
- ICT

B5 Quality management and benchmarking

- Standards and evaluation
- Procurement/manufacturing
- Asset management
- Health and safety

APPENDIX F1



A National network of science centres

Examples of templates, documents and checklists for the accreditation process

1. Network annual planning session

- 1.1 Annual planning session – invitation
- 1.2 Annual planning session – agenda
- 1.3 Annual planning session – site visit provisional budget

2. Application process

- 2.1 Application for membership of the network
- 2.2 Receipt of application

3. Peer-evaluation panel

- 3.1 Composition of panel
- 3.2 First invitation to panel members
- 3.3 Final invitation to panel members

4. Site visit

- 4.1 Accreditation visit planning – agenda
- 4.2 Accreditation visit planning – budget

5. Accreditation decision process

- 5.1 Confirmation of full membership/conditional membership
- 5.2 Science centre response to conditional accreditation, request for full accreditation

APPENDIX F2

A national network of science centres

Network planning session: Provisional budget for a site visit at a science centre

[Insert logo]

Travel

Return air tickets (national)
Return air tickets (international)
Travel agency service fee

Shuttle service to and from airport

Per person return

Accommodation

Per panel member per night (guesthouse)

Honorarium

External panelist per day

Corporate material

Versatile briefcase with logo

Other

Transfer of guests between guest house and science centre

Food and beverages

Dinner (first evening/at guesthouse)
Luncheons:
Panel and stakeholders
Panel only
Cocktail function
Dinner at restaurant

Administrative services

Printing
Telephone (mobile phone vouchers)
Stationery
Internet access

Preparation of the office/venue and facilities

(All expenditure for a site visit will be for the account of the accreditation body and will be in accordance with government guidelines.)

APPENDIX F3

Date

Dear Members of the Accreditation Committee

[Insert letterhead]

Peer-evaluation panel: Composition of panel and nomination procedures

The proposed scope for the upcoming external evaluation visit for ... (name of science centre to be evaluated) will be placed on the agenda of the meeting of the accreditation committee on ... ddmmyyyy.

Please prepare a list of potential reviewers for the evaluation of ... (name of science centre) to reach the accreditation office not later than ... ddmmyyyy.

Please note that the proposed panel members should not be contacted at this stage, and any possible conflict of interest that you may be aware of should be declared (including past cooperation with the science centre or members of staff with regard to visits, training, etc.).

A peer-evaluation panel will consist of a minimum of three and a maximum of four members. It will include at least one member representing the national network of science centres, at least one third-party member who is not a member of the network, and at least one representative designated by the Department of Science and Technology.

If possible, a foreign panel member will be selected for the site visit in order to create an opportunity for input by credible peers from outside South Africa with a view to continuous improvement, and to familiarise peers from abroad with the operational standards upheld by South Africa's network of science centres.

The accreditation committee must nominate at least two potential panel members in each of the following categories (where there is more than one distinct area/discipline within the science centre, please ensure a suitable spread of expertise for the areas to be reviewed):

- **Department of Science and Technology:** One representative
- **National Network of Science Centres:** One member representing the Network
- **Stakeholder/Third party:** South African expert from outside the local science centre community – from business, the professions or the public service, as appropriate.
- **Peer from abroad, where applicable:** A director/executive/senior manager from a foreign science centre.
- **Internal evaluators:** To be appointed by the accreditation body

In addition to the requirements listed above, race, gender and regional diversity should be taken into account as far as possible.

The director/manager of the science centre may also decide to nominate other potential reviewers, and will submit a list of proposed panel members and their CVs to the accreditation committee for a final decision.

Once the accreditation committee has made a decision, the accreditation office and science centre will be informed and the necessary letters will be prepared by the accreditation office.

The peer-evaluation panel will be requested to appoint a chair from among its members.

Please contact the accreditation office should you require further information or assistance.

Yours sincerely

Project coordinator



APPENDIX F4



Accreditation visit planning: Agenda for discussion of the accreditation visit of ...
(name of science centre) on (ddmmyyyy)

[Insert logo]

Date:

Time:

Venue:

Invitees: Representative of accreditation office plus invitees as determined in collaboration with science centre director

1. Welcome

2. Finalisation of agenda

3. Generic accreditation process

- 3.1 Date of visit
- 3.2 Steering group/Project leader
- 3.3 Scope of and terms of reference for external evaluation
- 3.4 The peer-evaluation panel
- 3.5 Self-evaluation process and self-evaluation report
- 3.6 Logistical planning for site visit: venue, budget, programme, visitors, staff, etc.
- 3.7 Panel reports: Oral feedback, executive summary and full report with accreditation recommendation
- 3.8 Response of the science centre
- 3.9 Improvement plan
- 3.10 Progress reports

4. Previous external evaluation: References to

5. General

APPENDIX G I

Glossary

Concept/Term	Definition	Source
accrediting body	A duly mandated <i>Accrediting body</i> (“the Body”) makes recommendations on accreditation and maintenance of membership of the Network to the Department of Science and Technology. The Accrediting body is the custodian of the accreditation process, and is as such responsible for advice to candidate and member centres with regard to the accreditation process.	Framework document
accreditation committee	The <i>Accreditation committee</i> makes recommendations on accreditation and maintenance of membership of the Network to the Department of Science and Technology	Framework document
accreditation office	The <i>Accreditation office</i> will be the custodian of the processes of accreditation and maintenance of membership to the Network. The office will manage the accreditation processes on behalf of the accrediting body.	Framework document
applicant science centre	An <i>Applicant Science Centre</i> is a science centre which has submitted a formal application for accreditation, but of which the formal accreditation process is held back. Applicant science centres are aligned to and supported by the Department of Science and Technology.	Framework document
candidate science centre	A <i>Candidate Science Centre</i> is a science centre which has submitted a formal application for accreditation, but of which the formal accreditation finding is outstanding or contested by the candidate centre. Candidate science centres are aligned to and supported by the Department of Science and Technology.	Framework document Policy
member science centre	A <i>Member Science Centre</i> is a Science Centre which has been admitted to the network through a process of accreditation, and whose accreditation is current. Member science centres are aligned to and supported by the Department of Science and Technology.	Framework document
network of science centres	A <i>Network of Science Centres</i> (“the Network”) in the context of this Framework refers to a group of science centres to which membership may be gained through a process of accreditation.	Framework document
Quality Assurance Manual	The <i>Quality Assurance Manual</i> describes the various steps in the accreditation and peer evaluation processes, and contains the protocols and templates for the various steps to be followed when planning and executing the site visit. These include protocols for selection of panels, format of preparatory documents (including the standard accreditation application form with supporting documents), a pro forma site visit programme, generic terms of reference guiding the self-evaluation and a site visit and peer evaluation report (to be customised per site visit). The processes described in the Manual also inform the design specification of the electronic information management system and contain standard operating procedures for all core work processes (manual and electronic) that support the implementation of the framework and associated procedures. The Quality Assurance Manual will be available in hard copy, in digital format and online on appropriate websites.	Framework document
science centre	The Department of Science and Technology defines a <i>Science Centre</i> for the purposes of the Framework as follows: “A <i>Science Centre</i> is a permanently established educational facility that offers an informal educational experience in science, technology, engineering and mathematics (STEM) through interactive exhibits and/or displays and/or interactive programmes.”	DST

APPENDIX G2

List of acronyms

Acronym	Name
DBE	Department of Basic Education
DST	Department of Science and Technology
FET	Further Education Band
GET	General Education Band
MST	Mathematics, Science and Technology
NRF	National Research Foundation
NSMSTE	National Strategy for Mathematics, Science and Technology Education
PUSET	Public Understanding of Science, Engineering and Technology
S&T	Science and Technology
SAASTA	South African Agency for Science and Technology Advancement
SET	Science, Engineering and Technology
STEM	Science, Technology, Engineering and Mathematics
YISS	Youth into Science Strategy





ANNEXURE 2



Accreditation Criteria for the Promotion of Excellence in a
National Network of Science Centres

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INTRODUCTION



This document contains the accreditation criteria and guidelines for self-evaluation for inclusion in the national network of science centres in South Africa.

The criterion is based on the following core values and concepts:

1. Impact (outreach, individual).
2. Capacity building (skills development, and promoting science, technology, engineering and mathematics (STEM)) subjects.
3. Sustainability (forward thinking).
4. Quality (measurement).

The criteria aim to provide answers to the following overarching questions:

1. What is the science centre trying to do?
2. How is the science centre trying to do it?
3. How does the science centre know that it is achieving its objectives?
4. How does the science centre bring about improvements where needed?

This document is divided into two sections. Section A covers the organisational profile and Section B covers the five criterion

areas. Both sections will form part of the self-evaluation report, which will be used during the site visit.

The organisational profile (the centre and its context, priorities, relationships and challenges) forms the basis of the application for interim registration. This will be used during the review of the initial application of every science centre.

The five areas in Section B are as follows:

1. Governance and planning.
2. Service offering.
3. People.
4. Communication.
5. Quality management and benchmarking.

Each area has several topics with guiding questions to assist the science centre in describing how it meets the requirements for each criterion. Not all questions will be relevant to every science centre, but if a science centre deems a question irrelevant, it should provide reasons for this.

During the site visit, science centres will have to provide supporting documents as evidence of statements made in the self-evaluation report.

1. ORGANISATIONAL PROFILE

The organisational profile provides a snapshot of your science centre and the key components of your operational, relational and strategic realities.

1.1 Name, location and ownership

Describe your science centre by answering the following:

1. What is the name of your science centre?
 - 1.1 What is the registered name of your centre?
 - 1.2 What name is commonly used to refer to your centre?
2. Is your science centre part of a larger organisation?
3. Where is your science centre located? Province, district municipality and area?
4. Why is it located there?
5. Who owns the premises and/or facility?
6. How far is your closest community?
7. What is the total size/floor space of the premises and/or facility?
8. Specify the allocation of floor space in terms of exhibits, training, laboratories, storing, administration, auditorium, etc.
9. Who sponsors the activities of the science centre?

1.2 Governance system and organisational structure

Describe the structures you have in place to govern and manage your science centre by answering the following questions:

1. Under what legal category is your centre registered?
2. What governance structure do you have?
3. To whom and how often does the governance structure report?
4. Provide the organisational structure (both the management and governance) of your science centre.

1.3 Vision, mission and purpose

Describe the key strategic drivers of your science centre by answering the following questions:

1. What is your stated vision?
2. What is your stated mission?
3. If your science centre is part of a larger organisation, how do your vision and mission align with those of the larger organisation?
4. What is your purpose as a science centre?

1.4 Key relationships

Specify and describe the key relationships your science centre has by answering the following questions:



1. Identify all the science centre's key relationship groups
 - 1.1. Sponsors e.g. government, private sector, individuals
 - 1.2. Customers e.g. learners
 - 1.3. Partners
 - 1.4. Staff e.g. complimentary staff from the larger organisation
 - 1.5. Visitors
 - 1.6. Interns and volunteers.
2. Answer the below questions by completing the table below:
 - 2.1. What should each identified group be informed about on a regular basis?
 - 2.2. Specify the communication mechanisms you use to communicate with each identified group (e.g. meetings, reports, newsletters).
 - 2.3. How often do you communicate with each group?

Key Relationship Group	Regular informed about	Form of Communication	Intervals of Communication
Sponsors			
Customers			
Partners			
Staff			
Visitors			
Interns and volunteers			

1.5 Outline of service offering

Describe the services offered by your science centre as in the table below:

Service category	Activities per target public									
	Learners	Educators	Students	Tourists	Industry	Scientists and researcher	Science interpreter	Decision makers	General public	Journalists
To promote science literacy										
Enhance learner participation in STEMI										
Identify and nurture youth talent and potential										
Provide STEMI career education										

1.6 Competitive environment

Describe the competitive environment in which your science centre operates by answering the following questions:

- Briefly elaborate the competitive environment for your science centre for the items in the table below:

Competitive environment	Elaborate	Competitive advantage
Funding		
Customers		
Staff		
Members, partners		
Visitors		
Visibility in the community		
Media attention		

- What differentiates your science centre from other centres?

1.7 Outline of operational planning (business and financial)

Please provide the following documents for the past three years:

- Annual business plan and budget.
- Audit reports.

1.8 Monitoring and evaluation

- How do you assess and ensure the quality of your service offering (e.g. maintenance or programme reviews)?
- How do you track target publics' participation in your activities? Produce evidence.
- Alignment with the goals of the network of science centres in South Africa (fitness for purpose):

- Describe how your science centre contributes to the goals of the network of science centres in South Africa in terms of the table below:

GOAL OF THE NETWORK OF SCIENCE CENTRES				
Target group	Identifying and nurturing young people's talent and potential in STEM.	Promoting science literacy among the youth and the population in general.	Enhancing learner participation and performance in STEM.	Providing young people with career education, particularly related to STEM.
Educators				
Learners				
Permanent staff				
Interns and volunteer				
Surrounding community				
General public				
Researchers and scientists				
Journalists				
Science interpreters				
Tourists				
Decision-makers				
Industry				

- b. Describe and, where possible, provide evidence of the impact of your efforts to achieve the goals of the network of science centres in South Africa in terms of the following:
- c. Describe your plans to improve your efforts to achieve the goals of the network of science centres in South Africa in the table below:

#	Goals of the network Elaborate	Plans to improve efforts to achieve the goals
i)	Identifying and nurturing young people's talent and potential in STEM	
ii)	Promoting science literacy among the youth and the population in general.	
iii)	Enhancing learner participation and performance in STEM.	
iv)	Providing young people with career education, particularly related to STEM.	



2. CRITERIA

2.1 Governance and planning

The science centre plans for a sustainable future by taking its operational realities and responsibilities into consideration.

Comment on and provide evidence of how you focus on and develop in the areas of leadership, strategic planning, sustainability and future relevance, the regulatory environment, corporate governance and risk.

The questions below are intended to guide your response to demonstrate that you meet the criterion. They should be used as appropriate to your science centre, i.e. not all questions may be relevant and you may in some instances wish to add to the list.

2.1.1 Leadership

Describe how you select, develop and manage leaders for your science centre.

1. On what basis do you select members to the leadership team?

1. What are your key core business, financial and human resource challenges and advantages with regards to organisational sustainability?

Key areas	Challenges	Advantages
Core business		
Financial resources		
Human resources		

2. Describe strengths, weaknesses, opportunities and threats (SWOT) of your centre in the table below:

Strength	Weaknesses
Opportunities	Threats

3. How have you responded and/or plan to respond to the outcome of the SWOT analysis done above?

Responses/plan	
Strength	Weaknesses
Opportunities	Threats

2. What impact has the leadership team had on the following?
 - a) Science centre.
 - b) Staff.
 - c) Customers.
 - d) Stakeholders.
 - e) Surrounding community.
 - f) Meeting the strategic goals of the National Network of Science Centres.
3. Explain how you ensure sustainability regarding the leadership of the centre.
4. How active is the leadership team in marketing and promoting the science centre?
5. How active is the leadership team in networking with all stakeholders?

2.1.2 Strategic planning

Describe how your science centre evaluates itself at a strategic level, looking at its current state in detail and making decisions for the future based on this information.

2.1.3 Sustainability and future relevance

Describe what your science centre has in place to ensure its existence and impact in the next five years.

1. Does your science centre have a consistent, sustainable income?
2. If so, how do you guarantee it?
3. If not, what are you doing to obtain a sustainable income?
4. Does your science centre have more than one income stream?
5. If so, please specify the sources.

6. How are you staying abreast with technical and organisational innovations and implementing them where possible?
7. What does your science centre need to maintain relevance in five years' time?
8. How are you planning to meet these needs?
9. Describe the key needs that would be difficult to address

2.1.4 Regulatory environment

Describe the regulatory environment within which your science centre operates.

1. Specify legal, financial, ethical, environmental, and health and safety regulations and standards that are applicable to your science centre

Legal	Financial	Ethical	Environmental	Health and safety regulations

2. How do you ensure compliance with these regulations?
3. Specify policies, accreditation or registration requirements that your science centre has to comply with?
4. How do you ensure compliance with these policies, accreditation or registration requirements?

2. How do you ensure that data gathered and stored as required by management is accurate and stored properly for informed decision-making and quick access?
3. How do you ensure that accurate reporting commitments to stakeholders are always met?
4. Are the information communication technology platforms (e.g. Internet access, record-keeping software, backup) you use adequate to assist you in managing your data correctly?

2.1.5 Corporate governance

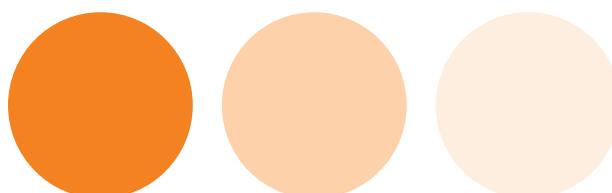
Describe the practices you have in place in your science centre to ensure the integrity of your people and processes.

1. State how you ensure that the following bad practices do not occur:
 - a) Labour relations – Unfair labour practices
 - b) Legal - Failure to satisfy contractual obligations
 - c) Financial – Misappropriation of funds
 - d) Ethical - Failure to uphold the constitution of the country
 - e) Health and safety – Violation of health and safety requirements
 - f) Environmental laws – Violation of environmental laws

2.1.6 Risk

Describe the science centre's plans and procedures for reducing risk.

1. List your top five (5) risks.
2. What mitigating plans have you implemented and/or will you implement to deal with these risks?
3. Do you have a risk register?
4. If so, how often do you review it?
5. Upload register.





2.2 Service offering

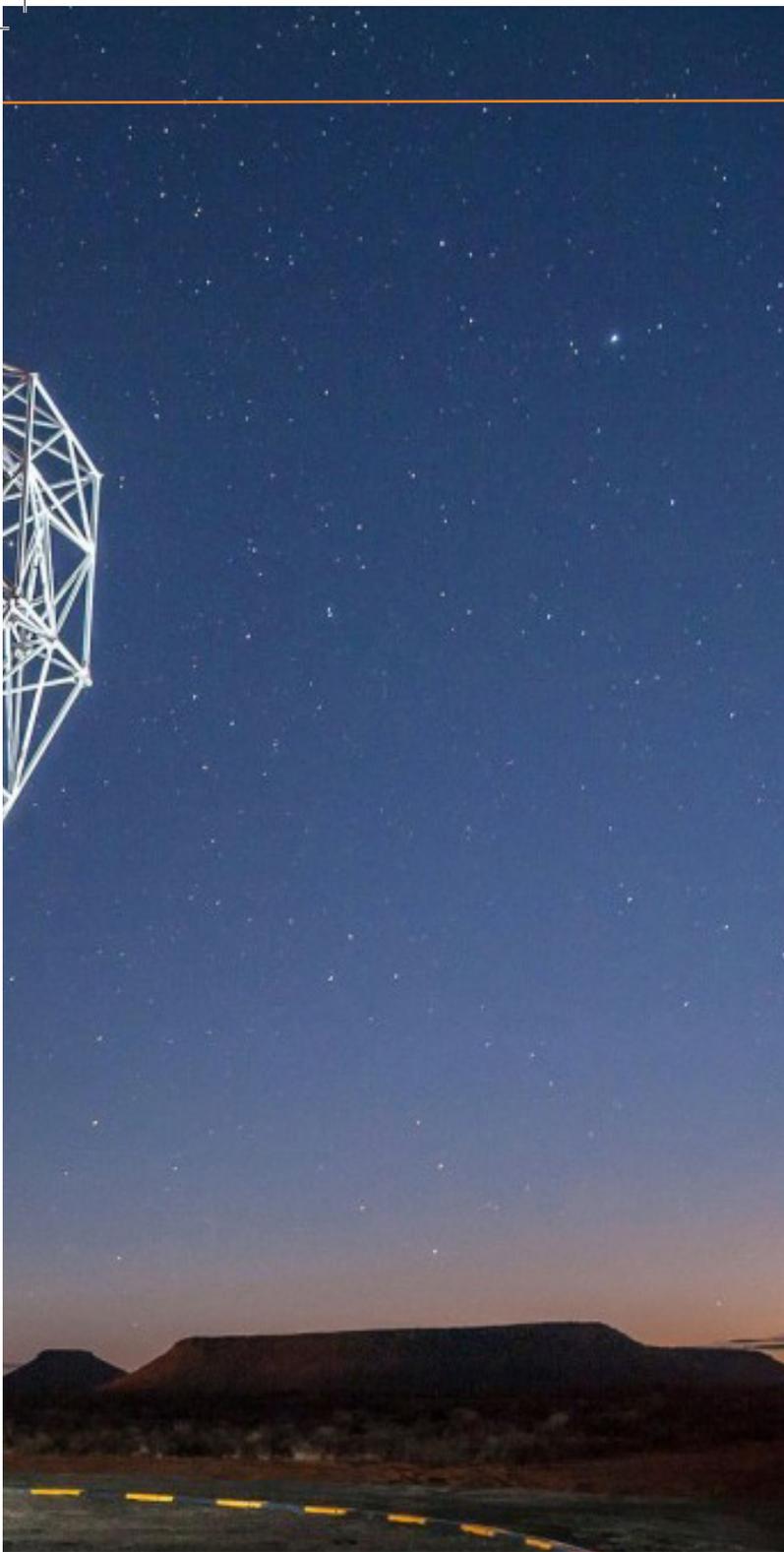
The science centre offers its customers services and products that have measured impact, value and success.

2.2.1 Basic service offering

List all exhibits, programmes, events and other relevant means within the context below.

- STEMI Promotion
- STEM Education Support
- STEM Career Awareness
- STEMI talent nurturing





2.2.2 Information about key service approaches

2.2.2.1 Exhibits

1. How many exhibits does your science centre have?
2. List and describe the exhibits used by your science centre, including themed exhibits and displays.



Name of exhibit	Short description	Hands-on	Permanent	Mobile	Facilitator	Target audience (List them)	Impact measuring instrument	Cost (R)	Sponsor (Provide name)	Exhibit document	Maintenance plan	Outcomes (List them)



3. Provide the following information for each of them:

- a. What is the name of the exhibit?
- b. Provide a short description of the exhibit.
- c. Is the exhibit interactive/hands-on?
- d. Is the exhibit permanently placed or mobile?
- e. Has this exhibit been used for any outreach projects?
- f. What is the purpose of the exhibit?
- g. Who is the target audience?
- h. Does this exhibit require a facilitator?
- i. What are the learning outcomes?
- j. How do you market and promote this exhibit?
- k. How do you measure the impact of this exhibit in terms of its popularity, success in conveying knowledge, etc.?
- l. What is the cost of the exhibit?
- m. Who sponsors the exhibit?
- n. Has this exhibit ever been on loan?
- o. Are there documented building plans for this exhibit?
- p. Are these plans being made available to other science centres and/or training workshops?
- q. Are there any intellectual property rights associated with the building plans?
- r. What are your future plans to improve this exhibit?
- s. How do you ensure maintenance of this exhibit?
- t. How do you share your experience with this exhibit (problems and successes) with other science centres?

2.2.2.2 Teaching and learning programmes

- 1. How many programmes does your science centre offer?
- 2. List and describe the curriculum-support programmes that your science centre offers.

Name of programme	Short description	Number of learners reached per annum	In-house	Outreach	Facilitator	Target audience (List them)	Impact measuring instrument	Cost (R)	Sponsor (Provide name)	Programme document	Future plans	Outcomes (List them)

3. Provide the following information for each of them:

- a. What is the name of the programme?
- b. Provide a short description of the programme.
- c. What is the purpose of this programme?
- d. How many learners participate in this programme per annum?
- e. What is the school level of the participants?
- f. Is the programme available in house and/or through outreach?
- g. What are the learning outcomes (prescribed and other)?
- h. Who facilitates the programme (e.g. a permanent staff member, contracted educator, volunteer or an educator from a school)?
- i. Was the programme conceptualised in consultation with educators?
- j. Describe the learning materials used.
- k. What facilities are being used?
- l. What is the cost of the programme per learner?
- m. Who sponsors this programme?
- n. How does the programme serve the following groups?
 - i. Educators.
 - ii. Learners.
 - iii. Permanent staff.
 - iv. Interns and volunteers.
 - v. Surrounding community.
 - vi. General public.
 - vii. Other stakeholders.
- o. How do you market and promote this programme?
- p. How do you measure the success of this programme?
- q. What are your future plans to improve this programme?
- r. How do you ensure sustainability of this programme?
- s. How do you share your experience with this programme (problems and successes) with other science centres?



2.2.2.3 Events

1. How many events do your science centre hosts?
2. List and describe the events that your science centre has hosted in the last three years, including workshops, field trips, public talks, special days, open days, competitions and shows.

Name of event	Short description	Dates when the event took place	Place where the event took place	In-house	Outreach	Target audience (List them)	Impact measuring instrument	Cost (R)	Sponsor (Provide name)	Future plans	Outcomes (List them)

3. Provide the following information for each event in the past three years:
 - a. What is the name of the event?
 - b. When did the event take place?
 - c. How often does this event take place?
 - d. Provide a short description of the event.
 - e. What is the purpose of the event?
 - f. Who is the target audience?
 - g. Who sponsors this event?
 - h. What are the learning outcomes (prescribed and other)?
 - i. Who facilitates the event (e.g. a permanent staff member, contracted educator, volunteer or an educator from a school)?
 - j. Specify and, where possible, provide examples of the learning materials distributed during this event.
 - k. What facilities are being used?
 - l. What has been the impact of this event on the following?
 - i. Educators.
 - ii. Learners.
 - iii. Students
 - iv. Tourists
 - v. Industry
 - vi. Journalists
 - vii. Scientists and researchers
 - viii. Decision-makers.
 - ix. Permanent staff.
 - x. Interns and volunteers.
 - xi. Surrounding community.
 - xii. General public.
 - xiii. Other stakeholders.
 - m. Is the event available in-house and/or through outreach?
 - n. How do you market and promote this event?
 - o. How do you measure the success of this event?
 - p. What are your future plans to improve this event?
 - q. How do you ensure the sustainability of this event?
 - r. How do you share your experience with this event (problems and successes) with other science centres?

2.3 People

The science centre manages all its key relationships in such a way to ensure efficiency, sustainability, service and impact.

Describe and provide evidence of how you recruit, manage and develop new staff, as well as how you involve and manage other stakeholders.

The questions below are intended to guide your response to demonstrate that you meet the criterion. They should be used as appropriate to your science centre, i.e. not all questions may be relevant and you may in some instances wish to add to the list.

2.3.1 Staff profile

Describe the composition of your staff, including all permanent and temporary staff, interns, volunteers, student assistants and contractors, as well as any others involved with your centre on a regular basis.

Provide input for each member of your staff and provide substantiating documentation where possible (Table):

1. Age.
2. Position in organization.
3. Gender.
4. Race
5. Home language
6. Science qualification(s) and area of specialisation
7. Other qualifications and areas of specialisation
8. Special training in science communication.
9. Years of service in science engagement.
10. Skills.
11. Career path.
12. Developmental gaps and/or opportunities.
13. Key factors that motivate the person to engage in accomplishing your mission.
14. Any special health and safety requirements (including disability) relevant to occupation.

2.3.2 Interns, volunteers and exchange programme participants

Describe how you manage, develop and apply the skills of interns and volunteers.

1. How many of the following have been active at your centre in the last year?
 - a. Interns
 - b. National Youth Service volunteers.
 - c. Independent volunteers.
 - d. Volunteers from abroad.
 - e. Exchange programme participants.
 - f. Other, please specify.
2. How do you utilise them in your centre?
3. How do you train them?
4. How do you manage them?
5. What opportunities are there for them to help your centre innovate and change for the better?
6. What value do these interns and volunteers add to your centre?
7. How many interns and volunteers that your centre has previously hosted have obtained permanent employment at science centres?
8. How many interns and volunteers that your centre has previously hosted are still involved with science centres or related activities?

2.3.3 Specialists

Describe how you involve other science centres or appropriate specialists in your centre.

1. Do you employ or involve local people and/or foreigners in your science centre that could be regarded as leaders in their field of expertise (e.g. exhibit builders, event managers)?
2. If so, how have you managed to get them on board?

3. Do you share their input and/or expertise and/or availability with other science centres?

2.3.4 Staff recruitment

Describe your selection and employment process.

1. How do you find, recruit and place staff?
2. Briefly describe your staff retention strategy.
3. How do you ensure that they live values, culture, mission and vision of the science centre?

2.3.5 Succession planning

Describe how you plan for future needs in terms of staff.

1. Is the succession policy of your science centre documented?
2. If yes, please upload.
3. Are you investing in the development of the future leaders?
4. Do you have a succession plan for each key staff member?

2.3.6 Performance management

Describe what performance management mechanisms you have in place to ensure efficiency and staff satisfaction.

1. How do you manage the performance of staff?
2. Do you have performance review sessions at least twice a year for every staff member?
3. Do you align staff performance output with purpose of the science centre?
4. Do you recognise good performance and reward it accordingly?
5. Do you have incentives in place for top performance and consequences for poor performance?
6. Do you align the organisation's performance outcomes with the mission and purpose of the science centre?

2.3.7 Organisational learning

Describe how your science centre as a whole learns.

1. Do you facilitate knowledge transfer between staff?
2. Do you facilitate skills training, mentoring and coaching for staff?
3. Do you ensure that organisational learning is continuous?
4. How is knowledge about the science centre operations shared?

2.3.8 Career and skills development

Describe how you develop your people.

1. Do your staff members have opportunities to participate in formal career and skills development programmes, e.g. conference attendance, exchange programmes, study visits, training courses, seminars and workshops?

2. How many of your staff members have participated in such developmental programmes in the past three years?
3. How do you stay informed about available programmes and opportunities?
4. How do you identify your staff member's learning and development needs?
5. Do you budget for these programmes?
6. How do you fund these programmes?
7. How do you keep track of which staff have participated in which programmes?
8. How do you raise awareness about and encourage participation in career and skills development programmes?

2.3.9 Stakeholder management

Describe how you manage your stakeholder relationships.

1. How do you follow-up and collect feedback regarding your service offering from each of the following?
 - a. Educators
 - b. Learners
 - c. Permanent staff
 - d. Interns and volunteers
 - e. Surrounding community
 - f. General public
 - g. Journalists
 - h. Students
 - i. Tourists
 - j. Industry
 - k. Scientists and researchers
 - l. Science interpreters
 - m. Decision makers
 - n. Partners
 - o. Sponsors.
 - p. Other science centres
 - q. Governmental stakeholders
 - r. Practitioners' associations
 - s. Other stakeholders
2. How do you use the feedback gathered to improve your service offering?
3. How do you wish to influence each of these stakeholders?
4. How do you measure the change you have made on your stakeholders?
5. How do you plan to ensure that the change you have made on each of these stakeholders is sustained?



2.4 Communication

The communication methods, channels and technology used by the science centre effectively promote its visibility and brand, its interaction with stakeholders and the quality of its service offering.

Comment on and provide evidence of the effectiveness of communication channels, marketing and corporate communication, science communication, information management, and information communication technology.

The questions below are intended to guide your response to demonstrate that you meet the criterion. They should be used as appropriate to your science centre, i.e. not all questions may be relevant and you may in some instances wish to add to the list.

2.4.1 Communication channels

Describe how you use the communication channels that are available to you, such as email, text messaging, websites, social media (e.g. Facebook, Twitter and blogs), fax, print and face-to-face forums.





1. Which channels do you regularly use to communicate and manage relationships with the following?
 - a. Educators
 - b. Learners
 - c. Permanent staff
 - d. Interns and volunteers
 - e. Surrounding community
 - f. General public
 - g. Students
 - h. Journalists
 - i. Industry
 - j. Decision-makers
 - k. Scientists and researchers
 - l. Tourists
 - m. Science interpreters
 - n. Partners
 - o. Sponsors.
 - p. Other science centres
 - q. Governmental stakeholders.
 - r. Practitioners' associations
2. How do these channels promote understandable, two-way communication and transparency?
3. How often do you evaluate the effectiveness of these channels?

2.4.2 Marketing and corporate communication

Describe how you promote your centre and service offering using marketing and branding initiatives.

1. What makes your science centre different from others?
2. To whom should you communicate your science centre's uniqueness?
3. To whom do you communicate your science centre's uniqueness?
4. Do you incorporate your uniqueness in your science centre's corporate identity, which includes all aspects of external communication such as your logo, mission statements and annual reports?
5. What other methods and/or approaches do you use to communicate your uniqueness?
6. Why are you using these channels specifically?
7. Are you aware of successful marketing strategies implemented by other science centres?
8. Do you use any of the following opportunities to market and/or promote your brand?
 - a. Community involvement or outreach projects.
 - b. Conferences.
 - c. Publications.

- d. Media (e.g. Print, television)
- e. Website
- f. Other social media.
- g. Public talks.
- h. Other, specify.

2.4.3 Science communication

Describe how your science centre communicates science to its target audience and how you ensure the quality of this communication.

1. Which languages do you use to communicate with your visitors?
2. Are the facilitators at your centre skilled to communicate easily with your visitors?
3. Is your science centre equipped to communicate science to people with disabilities? If so, how?
4. How do you assist facilitators to improve their science communication skills?
5. Where do you source the majority of the facilitators you use?
6. What other methods/media types do you use to communicate scientific knowledge and concepts to your audiences/visitors (e.g. posters, signage, interactive software etc.)?
7. What measures does your science centre have in place to evaluate the effectiveness of all communication to visitors?
8. What measures does your science centre have in place to ensure scientific accuracy of all communication to visitors?
9. How do you ensure that an engaging two-way communication between science communicators and visitors exists?

2.4.4 Information communication technology (ICT)

1. Do you have ICT tools to enhance the promotion of STEMI?
2. Specify STEMI promotion areas in which your science centre currently uses ICT tools.
 - a. STEM education support
 - b. Popularization of science
 - c. STEM career awareness
 - d. STEMI talent nurturing
3. How do you ensure that the ICT tools are well-maintained, and are functioning properly



2.4.5 Information management

Describe how you manage the information that flows into and out of your science centre so that its quality is ensured and so that knowledge sharing takes place.

1. How often do you produce publications?
2. How and where do you distribute these?
3. How do you produce information in-house?
4. How do you collect information?
5. How and where do you store collected information?
6. How do you share information with your stakeholders?
7. How do you share information and knowledge with other science centres?
8. Do you keep up to date with industry trends and the most recent news and challenges that national and international science centres face?
9. Are you participating in creating a central knowledge base accessible by all science centres?
10. Is there enough opportunity to share your experiences and to learn from others?

2.4.6 Information communication technology

Describe the state of your information communication technology in enhancing internal and external communication and information management in your centre.

1. How often are your ICT tools (including software) upgraded?
2. How often are the data on the administrative computers backed up?
3. Is your internet connectivity complementary to your operational communication needs?
4. If you have inadequate or no internet connectivity, indicate what you would use it for if it were provided?
5. Does every staff member have access to a computer?

2.5 Quality management and benchmarking

The monitoring and evaluation system implemented ensures the quality of all products, the adherence of the centre to the management processes it has adopted, and the compliance of its facilities with health and safety, and disability regulations.

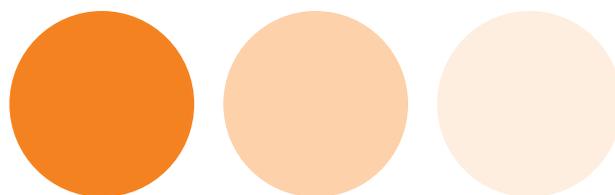
Describe how your science centre manages facilities and adherence to appropriate standards and benchmarks.

The questions below are intended to guide your response to demonstrate that you meet the criterion. They should be used as appropriate to your science centre, i.e. not all questions may be relevant and you may in some instances wish to add to the list.

2.5.1 Standards and evaluation

Describe what standards and evaluation mechanisms you have in place to ensure quality in your science centre.

1. What are the standards you set for your science centre in terms of improving and maintaining the quality of the following?
 2. Your facility and premises.
 3. Your staff (e.g. facilitators, volunteers, contractors).
 4. Internal business processes (e.g. performance management).
 5. Service offerings (e.g. exhibits, programmes and events).
6. How do you assess your science centre against these standards?
7. What is the outcome of the last assessment you undertook?
8. Do you benchmark the outcome of these evaluations against other science centres and general best practice in the industry?



2.5.2 Procurement or acquisition

Describe how you manage and maintain a cost-effective procurement or acquisition system.

1. How do you manage the procurement or acquisition of the following?
 - a. Facilities and premises.
 - b. Services.
 - c. Exhibits.
 - d. Equipment.
 - e. Materials (consumables and other).
2. How do you ensure cost-effectiveness?
3. Do you have an updated, accessible database of suppliers?

2.5.3 Asset management

Describe how you effectively manage all your assets.

1. Do you have updated, accessible lists of all assets?
2. Upload asset register.
3. How do you manage and maintain the following assets?
 - a. Facility and premises
 - b. Exhibits
 - c. Equipment
4. How do you ensure cost-effective maintenance?
5. Which items on your asset list are adequately insured?
6. What is your insurance situation for items that you borrow and lend?
7. If your insurance cover is not sufficient, why not?

2.5.4 Health, safety and environment

Describe the health, safety and environment situation in your science centre.

1. How do you ensure a safe and secure environment?
2. Which staff member is responsible for ensuring that your science centre complies with all the health, safety and environment regulations applicable?
3. Are all staff members trained in applicable health, safety and environment procedures?
4. How often do you assess your environment to ensure safety?
5. How often do you review your health, safety and environment procedures?
6. How accessible is your science centre to visitors with disability?



3. EVALUATION PROCESS: SCORING

3.1 Evaluation Criteria

The evaluation section covers the five criterion areas, which will form part of both self-evaluation and peer-evaluation process, which will be accompanied by verifiable proofs (where necessary). Each section has been assigned a weighting to reflect the relative importance of such criterion to the Evaluation Panel members.

Table 1: The five areas with their weighting

	Section	Indicators	Section Weight (%)
1	Governance and planning	Leadership	30
		Strategic planning	
		Sustainability and future relevance	
		Regulatory environment	
		Corporate governance	
2	Service offering	Exhibits	30
		Teaching and learning programmes	
		Events	
3	People	Staff profile	20
		Staff recruitment	
		Succession planning	
		Performance management	
		Organizational learning	
		Career and skills development	
		Interns, volunteers and exchange programme participants	
		Specialist	
		Stakeholder management	
4	Communication	Communication channels	10
		Marketing and corporate communication	
		Science communication	
		Information management	
		Information communication technology	
5	Quality management and bench-marking	Standards and evaluation	10
		Procurement/manufacturing	
		Asset management	
		Health and safety	

3.2 Formula

The formula was applied to calculate the weighting for each section against the total score of the system. The Final Score, S_{Final} is given by:

$$S_{Final} = \sum S_{Cont} \quad (1)$$

where

- S_{Cont} : Section contributed score
- S_{weight} : Section Weight in % (see Table 1)
- $\sum(S_{indicators})$: Sum of individual indicator score

$$S_{Cont} = S_{weight} \times \sum (S_{indicators})$$

3.3 Threshold

The Total Score for the current system is 100, which after calculations using Equation (1), resulted in the Final Score of 24 points. The overall threshold in this exercise is 40 % (9.6 points) of the Final Score. Science centres whose final evaluation points found to be at 9.6 – 24 will proceed to be accredited according to the criterion in the Table 2. Any score below 9.6 will not be accredited, but those centres will be assisted according to the needs for development to be addressed in order for them to meet the threshold.

3.4 Accreditation Categories

Table 2: Below is the analysis of the membership status levels

Final Score	Categories	* Description	Comments
9.6 – 15	Level 1	Budding	Beginning and/or showing potential
16 – 20	Level 2	Emerging	Doesn't fully satisfy key corporate governance issues & service offering
21 – 24	Level 3	Full Service / Limited Service	Satisfy key corporate governance issues & address all four strategic focus areas Meet minimum space requirements

*Description: describes the Level as per Evaluation Report



3.5 Score Board

SECTION	SECTION'S CONTRIBUTION	INDICATORS SCORE RANGE	SCORE DESCRIPTION		PUT-IN SCORES	SECTION SCORE	SECTION (%)	FINAL SCORE
			Scores	Descriptors				
Governance and planning	0.3	Leadership (0 - 5): <ul style="list-style-type: none"> • Selection of leader(s) • Development of leader(s) • Management of leader(s) • Leadership structure • Succession plan 	0	No information	5	30	9.0	24
			1	Selected only				
			2	Selected and developed / managed only				
			3	Selected + developed + managed only				
			4	Selected + developed + managed + structured only				
		5	Selected + developed + managed + structured + succession plan					
		Strategic planning (0 - 1) <ul style="list-style-type: none"> • Business Challenges - described • Operational Challenges - described • Human Resources Challenges - described • SWOT Analysis • Strategic plan - documented 	0	No Strategic Plan exists	5	30	9.0	24
			1	Any One item addressed				
			2	Any Two items addressed				
			3	Any Three items addressed				
			4	Any Four items addressed				
		5	Any Four items addressed + Strategic Plan + verifiable Proof					
		Sustainability and future relevance (0 - 5) <ul style="list-style-type: none"> • Sustainable income exist • Sustainable income do not exist • 5-year sustainability plan 	0	No information	5	30	9.0	24
			1	Sustainable Income do not exist + Plan to obtain				
			2	Sustainable Income exists + Specific (who?)				
			3	Sustainable Income exists + Specific (who?) + guarantee or 5-year plan				
			4	Sustainable Income exists + Specific (who?) + guarantee and 5-year plan				
		5	Score 4 + staying abreast with technical and organisational innovation + Proof(s)					
		Regulatory environment (0 - 5) <ul style="list-style-type: none"> • List of Regulatory environment(s) • Compliance with regulations • Policies requirement(s) • Compliance with policies 	0	No Regulatory Environment exist	5	30	9.0	24
			1	Regulatory Environment exist / or Policies+ verifiable Proof (without Compliance)				
2	Regulatory Environment exist / or Policies + Compliance + verifiable Proof							
3	Regulatory Environment exist + Policies							
4	Regulatory Environment exist + Policies + Compliance + verifiable Proof							

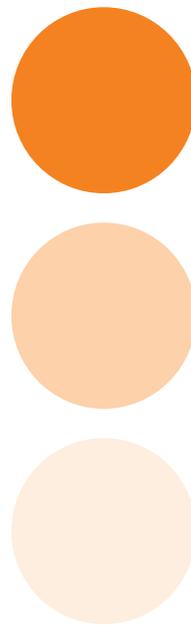
SECTION	SECTION'S CONTRIBUTION	INDICATORS SCORE RANGE	SCORE DESCRIPTION		PUT-IN SCORES	SECTION SCORE	SECTION (%)	FINAL SCORE
			Scores	Descriptors				
Governance and planning	0.3	Corporate governance (0 – 5) <ul style="list-style-type: none"> Legal requirements Information / data management Data cleansing and accuracy Reporting processes Communication technology platforms 	0	No Corporate Governance exist	5	30	9.0	24
			1	Any One of the four exist + Verifiable Proofs (column 2)				
			2	Any Two of the four exist + Verifiable Proofs				
			3	Any Three of the four exist + Verifiable Proofs				
			4	Any Four of the five exist + Verifiable Proofs				
		5	All + Verifiable Proofs					
		Risk (0 – 5) <ul style="list-style-type: none"> Instrument to identify Risks (or Risk Audit plan) List and description of Risks Plans and Procedures for Risk Reduction Plans review and updated process 	0	No information	5	30	9.0	24
			1	Instrument to identify Risk only				
			2	Instrument to identify Risk + List and description of Risks				
			3	Score 2 + Risk Reduction plans and procedures				
4	Score 3 + Verifiable Proof							
5	Score 4 + Plans review and updated process							
Service offering	0.3	Exhibits (0 – 10) <ul style="list-style-type: none"> List of Exhibits Description of each exhibit Exhibits categorised in themes Interactivity / Hands-on Costs of Exhibits Purpose and Target Audience - defined Clear learning outcomes Evaluation Insurance Documents of Exhibits 	0	No List of Exhibit	10	30	9.0	24
			1	List of Exhibit exist				
			2	List of Exhibit exist + Description				
			3	List of Exhibit exist + Description + Themes				
			4	Score 3 + other One item listed				
			5	Score 3 + other Two items listed				
			6	Score 3 + other Three items listed				
			7	Score 3 + other Four items listed				
			8	Score 3 + other Five items listed				
			9	Score 3 + other Six items listed				
10	Score 3 + other Seven items listed							

SECTION	SECTION'S CONTRIBUTION	INDICATORS SCORE RANGE	SCORE DESCRIPTION		PUT-IN SCORES	SECTION SCORE	SECTION (%)	FINAL SCORE
			Scores	Descriptors				
Service offering	0.3	Teaching and learning programmes (0 – 3) <ul style="list-style-type: none"> List of Curriculum-support programmes Description of each programme Learning Outcomes Learning Materials described Cost per learner Impact of the programme on Target Audience Marketing the programme Outreach Sustainability of the programme Evaluation of the programme 	0	No List of Curriculum-support programmes (programmes)	10	30	9.0	24
			1	List of Programmes exist				
			2	List of Programmes exist + Description				
			3	List of Programmes exist + Description + Themes + other				
			4	List of Programmes exist + Description + Themes + other				
			5	List of Programmes exist + Description + Themes + other				
			6	List of Programmes exist + Description + Themes + other				
			7	List of Programmes exist + Description + Themes + other				
			8	List of Programmes exist + Description + Themes + other				
			9	List of Programmes exist + Description + Themes + other				
	10	List of Programmes exist + Description + Themes + other						
	0.3	Events (0 – 10) <ul style="list-style-type: none"> List of Event(s) Description of each Event(s) Purpose of Event(s) Sustainability of the Event(s) Evaluation of the Event(s) Marketing the Event(s) Future plans for Event(s) Impact of the Event(s) on Target Audience Quality Data Management - verifiable Outreach Event(s) 	0	No List of Event(s) / no information	10	30	9.0	24
			1	List of Event(s) exist				
			2	List of Event(s) exist + Description				
			3	List of Event(s) exist + Description + other				
			4	List of Event(s) exist + Description + other				
			5	List of Event(s) exist + Description + other				
			6	List of Event(s) exist + Description + other				
			7	List of Event(s) exist + Description + other				
			8	List of Event(s) exist + Description + other				
9			List of Event(s) exist + Description + other					
10	List of Event(s) exist + Description + other							
People	0.2	Staff profile (0 – 2) <ul style="list-style-type: none"> Composition of staff described Health and safety requirements Staff recruitment (0 – 2) <ul style="list-style-type: none"> Selection process Employment process 	0	No information	2	20	4.0	24
			1	Composition of staff description exist				
			2	Composition of staff description + Developmental gaps and opportunities or Health and safety requirements				
			0	No information / no processes in place				
			1	Selection or employment process exist + Verifiable Proof				
			2	Selection and employment process exist + Verifiable Proof				

SECTION	SECTIONS CONTRIBUTION	INDICATORS SCORE RANGE	SCORE DESCRIPTION		PUT-IN SCORES	SECTION SCORE	SECTION (%)	FINAL SCORE
			Scores	Descriptors				
People	0.2	Succession planning (0 – 2)	0	No information	2	20	4.0	24
		<ul style="list-style-type: none"> • Succession Plan • Investing in leadership development 	1	Succession Plan + Verifiable Proof	2	20	4.0	24
		Performance management (0 – 2)	2	Succession Plan + Verifiable Proof + any two of the remaining three	2	20	4.0	24
		<ul style="list-style-type: none"> • Performance review session • Performance management mechanisms 	0	No information	2	20	4.0	24
		<ul style="list-style-type: none"> • Performance review session exist + Verifiable Proof • Performance management mechanisms + Performance review session exist 	1	Performance review session exist + Verifiable Proof	2	20	4.0	24
		Organizational learning (0 – 3)	2	Performance management mechanisms + Performance review session exist	2	20	4.0	24
		<ul style="list-style-type: none"> • Organisational learning plan • Selection criteria for staff's needs • Skills training, mentoring and coaching plans • Knowledge-sharing 	0	No information / relevant information	3	20	4.0	24
		<ul style="list-style-type: none"> • Organisational learning plan + Verifiable Proof • Organisational learning plan + Selection criteria + Verifiable Proof(s) • Organisational learning plan + Selection criteria + Mentoring & coaching + Knowledge-sharing + Verifiable Proof(s) 	1	Organisational learning plan + Verifiable Proof	3	20	4.0	24
		<ul style="list-style-type: none"> • Skills training, mentoring and coaching plans • Knowledge-sharing 	2	Organisational learning plan + Selection criteria + Verifiable Proof(s)	3	20	4.0	24
		Career and skills development (0 – 3)	3	Organisational learning plan + Selection criteria + Mentoring & coaching + Knowledge-sharing + Verifiable Proof(s)	3	20	4.0	24
		<ul style="list-style-type: none"> • Formal career and skills development Plan • Selection criteria of the staff • Budget for programmes 	0	No information / relevant information	3	20	4.0	24
		<ul style="list-style-type: none"> • Formal career or/and skills development for staff + Verifiable Proof • Formal career or/and skills development + Selection criteria + Verifiable Proof(s) • Formal career or/and skills development + Selection criteria + Budget + Verifiable Proof(s) 	1	Formal career or/and skills development for staff + Verifiable Proof	3	20	4.0	24
		<ul style="list-style-type: none"> • Formal career or/and skills development + Selection criteria + Verifiable Proof • Formal career or/and skills development + Selection criteria + Budget + Verifiable Proof(s) 	2	Formal career or/and skills development + Selection criteria + Verifiable Proof(s)	3	20	4.0	24
		<ul style="list-style-type: none"> • Formal career or/and skills development + Selection criteria + Budget + Verifiable Proof(s) 	3	Formal career or/and skills development + Selection criteria + Budget + Verifiable Proof(s)	3	20	4.0	24
		Interns, volunteers and exchange programme volunteers (0 – 2)	0	No information / relevant information	2	20	4.0	24
		<ul style="list-style-type: none"> • Job description for interns, volunteer and exchange programme • Retention plan 	1	Job Description + Verifiable Proof	2	20	4.0	24
		<ul style="list-style-type: none"> • Job description for interns, volunteer and exchange programme • Retention plan 	2	Job Description + Retention Plan + Verifiable Proof(s)	2	20	4.0	24
Specialists (0 – 2)	0	No information / relevant information	2	20	4.0	24		
<ul style="list-style-type: none"> • Experts/Specialists from other science centres • Process of involving them • Knowledge-sharing with other centres 	1	There are experts/specialists + Verifiable Proof	2	20	4.0	24		
<ul style="list-style-type: none"> • Experts/Specialists from other science centres • Process of involving them • Knowledge-sharing with other centres 	2	Experts/specialists + Process of involving them + Knowledge-sharing + Verifiable Proof(s)	2	20	4.0	24		
Stakeholder management (0 – 2)	0	No information / relevant information	2	20	4.0	24		
<ul style="list-style-type: none"> • Feedback process • Evaluation process 	1	Feedback process + Verifiable Proof	2	20	4.0	24		
<ul style="list-style-type: none"> • Feedback process • Evaluation process 	2	Feedback process + Evaluation process / plan of the feedback + Verifiable Proof(s)	2	20	4.0	24		

SECTION	SECTION'S CONTRIBUTION	INDICATORS SCORE RANGE	SCORE DESCRIPTION		PUT-IN SCORES	SECTION SCORE	SECTION (%)	FINAL SCORE
			Scores	Descriptors				
Communication	0.1	Communication channels (0 – 2) • Channels (internally) • Channels (externally) • Review of channels' effectiveness	0	No information / relevant information	2	10	1.0	24
			1	Communication channels (internally and / or externally) + Verifiable Proof				
			2	Communication channels + Review of channels' effectiveness + Verifiable Proof(s)				
		Marketing and corporate communication (0 – 2) • corporate identity • marketing strategy	0	No information / relevant information	2	10	1.0	24
			1	Corporate identity and / or Marketing strategy + Verifiable Proof				
			2	Corporate identity and Marketing strategy + Verifiable Proof				
		Science communication (0 – 3) • science communication skills development • methods used to communicate science • quality control for accuracy of science communicated	0	No information / relevant information	3	10	1.0	24
			1	Methods + Verifiable Proof				
			2	Methods + skill development + Verifiable Proof(s)				
		Information Management (0 - 1) • management - into the centre • management - out of the centre	0	No information / no systems in place	1	10	1.0	24
			1	Systems exist + Verifiable Proof				
			0	No information / relevant information				
1	Information communication technology + Verifiable Proof							
Standards and evaluation (0 – 2) • Quality standards • evaluation mechanism	0	No information / relevant information	2	10	1.0	24		
	1	Quality standards or evaluation mechanism						
	2	Quality standards and evaluation mechanism						
Quality management and benchmarking	0.1	Procurement/manufacturing (0 – 2) • Procurement system(s) • Manufacturing system(s)	0	No information / relevant information	2	10	1.0	24
			1	Procurement system(s) or Manufacturing system(s)				
			2	Procurement system(s) + Manufacturing system(s)				

SECTION	SECTIONS CONTRIBUTION	INDICATORS SCORE RANGE	SCORE DESCRIPTION		PUT-IN SCORES	SECTION SCORE	SECTION (%)	FINAL SCORE
			Scores	Descriptors				
Quality management and benchmarking	0.1	Asset management (0 – 3) • Inventory • Asset management system • Asset insurance	0	No information / relevant information	3	10	1.0	24
			1	Any one from the list				
			2	Any two from the list				
		3	All					
		Health and safety (0 – 3) • Safety Officer • Accessible to disabled visitors • Occupational Health and Safety (OHS) plan	0	No information / relevant information	3	10	1.0	24
			1	Safety Officer				
2	Any two							
3	All + Verifiable Proofs							
TOTAL SCORE					100	24		





4. REFERENCES



The following documents guided and informed the compilation of this document:

1. Department of Science and Technology. *Youth into Science Strategy*, 2006
2. Department of Science and Technology. *National Roll-Out Plan to Establish the Network of Science Centres in South Africa (2007/08 – 2032/33)*
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