



Evaluation of the  
Centre of Excellence in Scientometrics and Science, Technology  
and Innovation Policy (SciSTIP) for the period 31 March 2014 to  
30 December 2017

Host Institution: University of Stellenbosch

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## ABBREVIATIONS AND ACRONYMS

ASSAf	South African Academy of Sciences
CESTII	Centre for Science, Technology, and Innovation Indicators
CHET	Centre for Higher Education Trust
CoE	Centre of Excellence
CREST	Centre for Research on Evaluation, Science and Technology
CWTS	Centre for Science and Technology Studies
DHET	Department of Higher Education and Training, South Africa
DST	Department of Science and Technology, South Africa
DVC	Deputy Vice Chancellor
IDRC	International Development Research Centre
IERI	Institute for Economic Research on Innovation
KPA	Key Performance Area/s
NRF	National Research Foundation, South Africa
NSI	National System of Innovation
SciSTIP	Centre of Excellence on Scientometrics and Science, Technology and Innovation Policy
SGCI	Science Granting Councils Initiative
STI	Science, Technology and Innovation
SUN	Stellenbosch University
ToR	Terms of Reference
USAf	Universities South Africa

## EXECUTIVE SUMMARY

The Centre of Excellence in Scientometrics and Science, Technology and Innovation Policy (SciSTIP) is a national asset of the South African government and more broadly of the Continent. The Centre is located at Stellenbosch University (SUN) and is hosted by the Centre for Research Evaluation, Science and Technology (CREST, SUN) and the Institute for Economic Research on Innovation (IERI), which is located at the Tshwane University of Technology (TUT). The Centre was established in April 2014 with the mission to “produce high quality research and to build capacity and expertise in the areas of scientometrics and science, technology and innovation (STI) studies in South Africa and on the African continent”. The SciSTIP collaborates with the Centre for Higher Education Trust (CHET) and the Centre for Science and Technology Studies (CWTS, University of Leiden) to carry out its mandate, which falls within five main key performance areas (KPA) – (a) research and knowledge production; (b) education and training; (c) information brokerage; (d) and networking; and (e) service rendering.

A Panel of four experts that were invited by the National Research Foundation (NRF) and the Department of Science and Technology (DST) in South Africa to evaluate the performance of the Centre noted that, during the five years of its existence, the Centre has performed exceedingly well. The Panel rated its overall work as being of high quality and at the level of excellence. In terms of research and/or knowledge production, the Centre has produced over 650 publications in the form of research articles, technical reports, monographs, edited collections, chapters in edited collections, peer-reviewed conference proceedings, research reports, working papers/policy briefs, presentations, and articles in popular media. The research conducted at the centre is both self-initiated and commissioned. The Centre is actively engaged in the education and training of students, drawn from all over Africa and, to some extent, beyond the African continent, with a majority being South African citizens. The education and training offered through the Centre is at the level of post-graduate studies, and more particularly Master’s and Doctoral studies. Besides the Centre’s provision of supervisory and/or financial support to an average of 40 students annually, the Centre offers various training and capacity-training activities. Regarding information brokerage, the Centre has performed well through its sharing and dissemination of its research products with relevant stakeholders through various avenues, including the popular media. The Panel noted that the Centre’s network is relatively wide and includes partners (institutions that request for research support), funders and research collaborators. Discussions with the aforementioned stakeholders yielded impressive commendations about the work of the Centre. In terms of service rendering, the Panel noted that over the last five years, SciSTIP has had an important and relevant impact on the National System of Innovation (NSI) and a moderate impact on the transformation of the country. The impact on the NSI has been through support to science and innovation policy making in South Africa and via the education of a class of professionals at the post graduate level where the quality of research and of teaching is very high. The impact on the transformation of the country was less visible and

linked to variables which are not dependent on SciSTIP. It may be recalled that the Centre operates in the social sciences whose impact is by definition potential and indirect, and that often takes place in the long-term. The management of the Centre is satisfactory. Stellenbosch University (SUN) supports the Centre through a variety of ways, including the following: the DVC is the Chair of the Centre's Advisory Board; SUN gives considerable support to the Centre in the form of intellectual, management, administrative, infrastructural, financial, contractual and legal. SUN is strongly committed to support the Centre in the future.

In spite of the above mentioned success story and performance of the Centre, there is still room for improvement in various areas. For instance, the emphasis laid on scientometrics at the Centre calls for additional or equal focus or emphasis on studies on STI policy, which is the main area of study of the Centre. In this context SciSTIP could expand the research on the methodologies and on the evaluation of the impact of STI in the economy and society. In order to satisfy additional work requests from various users, in particular from Government agencies and universities, a moderate increase of human resources in the nature of three or four professionals is recommended. This expansion would be easily accommodated within the SciSTIP structure. Furthermore it is appropriate that the equilibrium between commissioned and self-directed research is maintained. Minor adjustments to the existing organisation and management of SciSTIP would be appropriate. These include the delegation process and the external visibility of the staff. The national transformation agenda has not been adequately addressed at the Centre and it is therefore strongly recommended that strategies be put in place to address this anomaly, especially as it pertains to student and staff recruitment. The NRF contributes roughly half of the overall budget of the SciSTIP. Given that the Centre's work is increasingly being sought out by government agencies, universities and other institutions, it is advised that the funds channeled to the Centre be increased so that the Centre can successfully execute its mandate. Finally, we recommend that a high level integration amongst the collaborators (IERI, CHET, CWTS) be implemented so as to enhance the performance of the Centre.

In conclusion, the Panel was satisfied with the performance of SciSTIP in all its KPAs. Of particular commendation, during the period under review the Centre was able to adjust to the needs and requests of a changing environment - both in the scientific and in the policy areas. However, specific areas of concern such as transformation, staff capacitation, delegation of duties and tasks, marketing of services offered at the Centre, and networking at local and regional levels, among others need the Centre Management's attention.

## BACKGROUND TO THE EVALUATION

The Centre of Excellence (CoE) in Scientometrics and Science, Technology and Innovation Policy (SciSTIP) was established on 1 April 2014, within the Centre for Research on Evaluation, Science and Technology (CREST) at Stellenbosch University (SUN), and the Institute for Economic Research on Innovation (EIRI) at Tshwane University of Technology (TUT) as co-hosts. Given that it was therefore time to assess the performance of the Centre, the National Research Foundation (NRF) and the Department of Science and Technology (DST) of South Africa invited a Panel of experts to conduct an evaluation of SciSTIP. The purpose and objectives of the evaluation, as stipulated in the Terms of Reference (ToR) (see Appendix A), was therefore to assess the performance of the CoE:

- In terms of its alignment with the CoE Model;
- In delivering on the objectives and key performance areas of the CoE Model;
- In terms of impact in South Africa and the NSI;
- To establish whether the research strategy and research priorities of the CoE are aligned with relevant government strategies and initiatives as expressed by policy documents in the focus area of the CoE.
- To make recommendations to enhance the CoE's performance; and
- To ensure sustainability, alignment of priority and relevance in its mandate as a CoE within its niche areas of specialisation.

The Panel paid special attention to specific objectives and key performance areas in order to gauge the performance of the Centre in delivering on the objectives according to the CoE model.

The objectives of CoEs are to:

- Exploit the competitive advantage vested in outstanding researchers;
- Reward, retain, sustain and improve scientific excellence within the CoE;
- Integrate smaller and related research initiatives into one programme within the niche area of the CoE;
- Achieve economies of scale through the optimization of resources and effort by sharing personnel, equipment, data and ideas;
- Provide secure and stable funds for research and knowledge dissemination within the CoE network;
- Support planned, strategic, long-term research;
- Develop human capacity;
- Contribute to the transformation of individual niche knowledge enterprise;
- Expand the national research base; and
- Contribute to the transformation of the National System of Innovation (NSI).

The key performance areas (KPA) of all CoEs are:

- Research/knowledge production;
- Education and training;
- Information brokerage;
- Networking; and
- Service rendering.

In addition, the Panel assessed the performance of the Centre in terms of its management (i.e. leadership, staffing, transformation, and commitment of institution/s hosting the CoE, location of the CoE, funding/financials and future plans).

The evaluation was carried out at the Centre's premises located at Stellenbosch University, in Stellenbosch, South Africa, from July 31 to August 2, 2018 by four Panel members:

Prof. Giorgio Sirilli (Italy, Chairperson),  
Prof. Omwoyo Bosire Onyancha (South Africa),  
Prof. Kgomotso Hildegard Moahi (Botswana),  
Prof. Noa Aharony (Israel).

During the evaluation the atmosphere was constructive, collaborative and efficient. The Director, partners and staff of the Centre were extremely helpful in expediting the process of the evaluation. The staff of NRF and DST also contributed to a smooth process by facilitating logistics and providing the Panel members with the resources required.

In terms of the methodological approach adopted for the evaluation, the Panel followed the evaluation dimensions as stipulated in the ToR whereby it met with CoE staff members, students and post-graduates, collaborators and partners of the Centre, and the representatives of host institutions. Other figures such as government agencies, e.g. DST and NRF, were also contacted. The representatives of TUT and IERI, as partners in SciSTIP, did not take part in the evaluation of the CoE.

## EVALUATION QUESTIONS THAT WERE ADDRESSED

In order to assess the SciSTIP according to the Terms of Reference (ToR), the Panel posed questions reflected in Table 1 which linked the questions with each ToR and the relevant respondent/s.

Table 1: Questions asked and corresponding respondent/s

Areas of assessment	Specific areas of questioning	Respondent/s
Alignment with the CoE Model	<p>Alignment of SciSTIP CoE with the DST CoE model</p> <p>Blurring between CREST and SciSTIP</p> <p>Progress of integration of the projects carried out by the different parties of the SciSTIP (CREST, IERI, CHET and CWTS)</p> <p>The lack of convergence of the centre's research and lack of manageable flagship programs</p>	<p>Director, ScisTIP</p> <p>Centre collaborators and researchers</p> <p>DST staff</p>
Achievement of the objectives and KPAs of the CoE Model	<p>Extent to which key performance areas have been achieved</p> <p>Focus of research on scientometrics and bibliometrics rather than science and technology information</p> <p>Need for the Director to speak to the other areas of the KPAs as the presentation largely focused on the research and training activities</p> <p>Information required regarding the brokerage activities of the centre to ensure that the results of the research reaches those who could utilize it</p> <p>Extent to which the centre has been able to build capacity and expertise</p> <p>Questions regarding the seemingly minimal networking at the local and regional (other African universities and centre) level, that is overshadowed by networking at international level</p> <p>Increased visibility of the Centre and CREST to attract more students into their research areas</p> <p>Capacity building through supervision of</p>	<p>Director, ScisTIP</p> <p>Centre Collaborators and researchers</p> <p>DST Staff</p> <p>NRF staff</p>

Areas of assessment	Specific areas of questioning	Respondent/s
	<p>masters and PhD students</p> <p>Use of PhD students for Centre research programs – by allowing them to carry out research that pushes the centre’s agenda</p> <p>Highlight initiatives in place to attract partners from other regions in Africa, and others</p>	<p>SciSTIP students, Director</p>
<p>Impact on SA and the NSI</p>	<p>The sharing of data in their databases; question on the availability and access of the databases that CREST and the CoE have developed</p> <p>Publication patterns of the centre - local versus international</p> <p>The perception of use of the indicators by the government agencies the centre functions under</p> <p>The extent to which the centre has achieved transformation (leadership, academic staff and students)</p> <p>Participation in workshops and other meetings to help in policy formulation decisions at the national and regional levels</p>	<p>Director, ScisTIP;</p> <p>Deputy Director, DST (Dr. Thomas Auf der Heyde);</p> <p>Rose Msiza, DST</p> <p>Centre researchers</p>
<p>Alignment of research strategy and priorities of the centre with government strategies and initiatives</p>	<p>The seemingly heavy focus on scientometric and bibliometric research over general science and technology areas</p> <p>The impact of this perceived heavy focus over the main objective of providing input for the development of the NSI in SA</p> <p>How projects are conceptualised and initiated</p> <p>Relationship between Centre and other stakeholders such as government agencies and universities</p> <p>Access to the databases developed at CREST and SciSTIP</p>	<p>Director ScisTIP</p> <p>DST Staff</p> <p>Centre researchers</p> <p>Partners</p>
<p>Sustainability</p>	<p>Capacitation of staff to enable them to take responsibility for a project from beginning to end</p> <p>Succession issues and the identity of the centre and that of its Director</p>	<p>DVC/Director</p> <p>Director, SciSTIP</p> <p>Graduate students</p> <p>Centre Collaborators,</p>

Areas of assessment	Specific areas of questioning	Respondent/s
	<p>Alignment of student projects to the work of the centre</p> <p>How expertise has been built in the country; use of individuals in other SA universities and the rest of Africa to assist with the demand for research that the centre has</p> <p>How available expertise in the country has been used to facilitate capacity building</p> <p>Financial sustainability looking at the budgetary allocations to the centre</p>	Partners and Researchers
Recommendations to enhance CoE performance	<p>The expectations on CoE and the possibility of support for the future (on CoE marketing and visibility &amp; encouraging the dissemination of the centre's research work into public domain)</p> <p>Opportunities for DST to work with the CoE to build an appreciation of scientometrics and bibliometrics</p> <p>Strengths and weaknesses of the CoE</p> <p>What mechanisms can be put in place to encourage the centre to collaborate with other universities and open up their research activities to other experts</p>	<p>Deputy Director, DST (Dr. Thomas Auf der Heyde)</p> <p>Director ScisTIP</p> <p>Centre Collaborators, Partners and Researchers</p> <p>Post graduate students</p>
Management of the Centre	<p>The issues around implementing and managing the CoE</p> <p>Support (administrative and other logistical) for CoE operations</p> <p>Questions surrounding the centre's sustainability</p> <p>Promotion of the centre and its training programs</p> <p>Recruitment and attraction of talent</p> <p>Succession planning</p> <p>Challenges and successes of collaboration and partnering with the centre</p> <p>Suggested improvements within the centre</p>	<p>DVC, Research, Professor Eugene Cloete</p> <p>Director ScisTIP of the CoE</p> <p>Centre collaborators, partners and researchers</p>

<b>Areas of assessment</b>	<b>Specific areas of questioning</b>	<b>Respondent/s</b>
	Recruitment, attraction of collaborators and researchers	

## KEY FINDINGS

The findings are presented in line with the KPAs and objectives for CoEs as stipulated in the ToR under the following headings: research, education and training, information brokerage, networking, service rendering, and management of the Centre.

### *Research/knowledge production*

Research is perhaps the main activity of the Centre; most probably because the objectives of CoEs are formulated in such a way that research takes center stage. The Panel was guided by the CoE's objectives, as outlined in section 2 of the ToR document, to present the key findings and would like to report as follows:

- **Exploit the competitive advantage vested in outstanding researchers:** The Centre has engaged and/or collaborates with outstanding researchers with exceptional research expertise in the area of scientometrics, research evaluation and science and innovation policy. The collaborators are widely spread with the CWTS researchers being the main external collaborators outside of the African continent. The Panel believe that this type of collaboration provides researchers based at the Centre an opportunity to not only share knowledge but also exploit the competitive advantage vested in international/external expertise. The Panel however noted that the Centre has not exploited the opportunities of local collaboration with scientometrics researchers on the African Continent. The Centre, through its Director indicated that they have tried to reach out to such researchers for collaboration purposes but are unable to secure relevant expertise.
- **Reward, retain, sustain and improve scientific excellence within the CoE:** The Centre has managed to recruit quality researchers in the field of scientometrics and STI policy. There are a total of 16 senior researchers, all with PhD qualifications, in the Centre, spread across three units that constitute the Centre, namely CREST, IERI and CHET. In addition, the Centre has engaged the services of research fellows to assist with the heavy research workload. It is worth mentioning that the field of scientometrics and STI policy is relatively new in Africa and therefore there are only a handful of researchers on the Continent and specifically in South Africa. This is a huge challenge for the recruitment of qualified or quality researchers. The staff members showed enthusiasm and contentment as far as their treatment at the Centre is concerned. The reward system was not clearly reported by the researchers. However, they all indicated that they are well supported in a variety of ways, including funding and conference grants.
- **Integrate smaller and related research initiatives into one programme within the niche area of the CoE:** The Centre, by virtue of being multidisciplinary, undertakes or supports a variety of research, both commissioned and self-initiated. Whereas the commissioned research initiatives depend on industry and public/government service needs and therefore differ from one commissioning institution to another, the self-initiated research projects are largely scoped within the

Centre's research niche areas. All commissioned research is also within the focus areas of the Centre and are directed to the relevant unit (i.e. IERI, CREST or CHET) for execution. The Panel commends the Centre for its efforts to handle such a complex web of researches which are, largely, multi-disciplinary in nature. However, the Panel concurs with some of the researchers who pointed out that the Centre should try as much as possible to merge the many projects that it undertakes into fewer and more manageable projects for efficiency sake.

- **Achieve economies of scale through the optimization of resources and effort by sharing personnel, equipment, data and ideas:** The Centre Management is cognizant of the benefits associated with managing and optimizing resources in order to maximize the Centre's potential. The fact that the Centre is under-capacitated in terms of the number of researchers and research supervisors (for student projects), optimization of resources and efforts to share personnel, equipment, data and ideas becomes increasingly important. The Panel noted that the Centre has brought on board researchers from other academic departments within Stellenbosch University (SUN) and limited staff exchange with CWTS as a way of sharing personnel. In terms of equipment, the Centre has development databases which are used by various stakeholders, including researchers within and outside the Centre, to conduct various research-related activities. The Centre is considering the sharing of data publicly, as it continues to develop the appropriate infrastructure, policies and security measures to guide and/or safeguard the quality and safety of the data. The Panel commends this initiative as some of the participants in the interviews questioned the rationale of non-accessibility of the databases, especially those that are publicly funded. The Panel hopes that the Centre will follow through with their plans to share the data - taking into account the institutional and commercial constraints - in order to optimize its utilization and increase its impact within South African academia and society at large.
- **Provide secure and stable funds for research and knowledge dissemination within the CoE network:** The Centre has managed to secure funding from a variety of sources, as follows: NRF core grant (48.9%), CREST research income (through, for example, commissioned research) (21.1%), Stellenbosch University (23.0%), NRF supplementary grant (6.6%) and TUT (0.3%). It is commendable to note that the Centre continues to supplement its funding through commissioned research, keeping in mind that self-directed research guarantees independence and academic credibility. This strategy guarantees some financial stability and sustainability of the Centre. The Panel also noted that the University, as reported by the Deputy Vice Chancellor (DVC), has invested substantively in the Centre, a situation that secures the Centre, financially. It is however not clear why the Tshwane University of Technology's (TUT) share of the 'income' is almost negligible. The Panel was unable to get answers on the aforementioned as TUT representatives were unable to participate in the deliberations.
- **Support planned, strategic, long-term research:** The Centre reported that there are numerous

research projects being conducted within the Units that constitute the Centre, spanning five research focus areas (RFA). The projects are broad enough and require a minimum of three years to complete, and therefore can be termed as long-term. There are 24 SciSTIP-funded ongoing research projects. CREST has the highest number of ongoing projects (i.e. 14). The other projects belong to CHET, IERI, and CWTS. When the Panel sought clarification on whether the listed projects are commissioned or self-initiated, the respondents indicated that most of their researches are self-initiated but in consultation with the Centre Management (in this case the Director). It was further noted that the research initiatives are well within the Centre's strategic plan and mission.

- **Develop human capacity:** The Director reported that the “education and training of skilled human resources for the NSI form a central component of the activities of the SciSTIP”. The development of human capacity takes the form of (a) continuing and expanding the existing postgraduate programmes (masters and PhD) in Science and Technology Studies offered by CREST, (b) providing supervisory and/or financial support to an average of 40 students annually, and (c) offering various training and capacity-building activities, ranging from hosting training workshops to presenting, by invitation, individual workshops, sessions and lectures. The Director further informed the Panel that the Centre has struggled to achieve the desired employment and equity profiles with respect to recruitment of staff and students as well as their capacity building. Indeed, a session with both the students and staff revealed that the national demographics are not fairly represented at the Centre. When prodded to respond to the over-representation of the white community, the Director was apologetic of non-interest in scientometrics and STI policy studies by potential students and researchers in South Africa, in specific, and Africa in general. The Panel however noted that the Centre could create more aggressive and client-oriented initiatives to market and publicize their programmes and the Centre. The initiatives that are currently being undertaken to reach potential clients, especially non-white groups, seem not to yield the expected results and may have to be re-evaluated. Some students indicated that they were sought out/after by the Director and/or researchers, a strategy that seems to be working and that can be extended to other communities. Finally, there was an almost unanimous agreement among all interviewees, including students, researchers, and the Deputy Vice Chancellor [in charge of Research, Innovation and Postgraduate Studies, hereafter simply referred to the DVC] that the Centre is under-capacitated in terms of the staff and more so in the field of the NSI indicators.
- **Expand the national research base:** The Panel commends the Centre for exceeding its expected research outputs. It is amazing how such a small team of researchers have managed to produce research outputs beyond what the Centre originally committed to produce. According to the Director, the Centre has produced a total of 608 publications (see Figure 1). All the publications bear the SUN affiliation, thereby contributing to the national research base. The Panel however observed and heard that majority of the outputs are scientometrics-based and very few are specifically focused on STI

policy. But, when the Panel drew the Director's attention to the nature of the Centre's research outputs, he replied that the Centre's scientometrics-based outputs actually addressed STI policy issues. The Panel believe that the Director's view mitigates the perceived emphasis on scientometrics through taking the broadest possible interpretation of scientometrics, which, according to him, also covers STI policy studies. The Panel was of the view that the Centre should strive to promote STI policy as per their mandate.

DOCUMENT TYPE	NUMBER
<i>Monographs</i>	2 <sup>8</sup>
<i>Edited collections</i>	10
<i>Chapters in edited collections</i>	69
<i>Peer-reviewed articles</i>	70
<i>Peer-reviewed conference proceedings</i>	37
<i>Research reports</i>	60
<i>Working papers/policy briefs</i>	23
<i>Presentations</i>	316
<i>Articles in popular media</i>	21
<b>TOTAL</b>	<b>608</b>

Figure 1: SciSTIP Research outputs, 2004 – 2017

The multi-disciplinary nature of the research conducted at the Centre is clearly visible and there is a reasonably balanced approach between the "curiosity driven" research and commissioned research.

- **Contribute to the transformation of the National System of Innovation (NSI):** The Director of the Centre and affiliate units (e.g. CHET) had a long discussion with the Panel members on the contributions that the Centre has made to transform the National System of Innovation, with special focus or reference to its impact on NSI and STI policies. In its assessment of the Centre's contribution to the transformation of the NSI, the Panel selected to focus on the Centre's impact in South Africa and the NSI as stipulated in Section 3 of the ToR (see purpose of the evaluation). The Director highlighted that the Centre has had direct and strong to weak as well as indirect and weak impact on policy initiatives in South Africa and the NSI, for example:
  - The Centre has conducted a variety of policy-oriented research projects, commissioned by Government agencies and universities, thereby influencing policy development/formulation decisions in the agencies and institutions (e.g. ASSAf, DHET, DST, DST/USAF, NRF/SGCI/IDRC, etc.)
  - A number of researchers and managers associated with the Centre have been involved in different forums meant to shape STI and NSI policies, for example (a) Prof Kahn, Prof Maharajh and Prof Mouton were invited to comment on Draft White Paper on STI; (b) Prof Mouton was invited to comment on NRF Statement on Predatory Publishing; (c) Prof Botha leads a team that is drafting a Policy Framework for the Internationalisation of Higher

Education in South Africa; and (d) Prof Cloete is invited to comment on various HE policies.

- Researchers at the Centre have conducted studies that are geared to influence and/or transform STI and NSI in South Africa. The studies have focused on a variety of issues, including innovation indicators and their applications and implications in Africa; young scientists; educational differentiation; doctoral education; inclusive innovation and related topics and

Given that the time allocated to complete the evaluation exercise was limited, the Panel did not delve into assessing the extent of the Centre's actual impact in transforming NSI in South Africa but rather accepted the partners (agencies and institutions that have made use of the Centre's services) acknowledgement of the Centre's contribution to their operations and more particularly in terms of policy formulation.

### ***Education and Training***

Education and training of skilled human resources for the NSI forms an important component of the activities of the Centre. This component takes off from the good ground laid by CREST which the Panel was informed has had 54 Masters and 35 PhD students. The Centre also provides capacity building through hosting training workshops to presenting, by invitation, individual workshops and lectures, as narrated by some of the Centre partners and other government agencies.

CREST continues to play an important role as an academic department in Stellenbosch in the training and education of postgraduate students. Currently the Centre has 10 full-time PhD students, some of whom the Panel were able to have conversations with. A consideration of the demographic profiles of student enrolment between 2014 and 2017 revealed a significant number of black students. This pattern is in line with the national transformation agenda. However, it was noted that a good number of the black students are not South African, a point that was also highlighted by the Director who acknowledged the need to graduate more black South African students. As a result, the Director reiterated the Centre's commitment to continue pursuing the agenda of attracting and recruiting South African black students so as to meet the national transformation goals. It was pointed out that part of the difficulty in attracting local black students was the lack of knowledge about the field and its perceived limited employment opportunities and as such the course was mostly attractive to students who are currently employed in the NSI area.

The low staff FTE of the Centre, coupled with the increased demand for commissioned research also creates a challenge for postgraduate supervision, and the Panel learnt that the supervision load of the Director of the Centre was quite high. The Panel is of the view that there is need to provide more capacity for the Centre in order for the education and training mandate to be effectively carried out.

A roundtable discussion with the Masters and PhD students revealed that:

- All the students are undertaking their studies within CREST which is one of the affiliate SciSTIP units. Essentially therefore SciSTIP does not have students of its own. Given that the existence of SciSTIP is dependent on its performance, the Panel believes that the students' attachment to CREST which is a SUN academic unit guarantees sustainability of the academic programmes offered at the Centre.
- Students are satisfied with the support and facilities that the Centre provides. They all felt that their individual and collective works will improve their abilities to effectively and efficiently operate within the NSIs.
- Most students identified their own research problems and topics but were guided to formulate them to fit within the Centre's and supervisors' areas of research interest. A few students' research projects are affiliated to projects that were already running at the Centre.
- Students felt isolated and therefore requested for more opportunities (such as in-house fora) for them to present their work to each other and obtain feedback.

### ***Information Brokerage***

The Centre considers information brokerage in its broadest sense, namely knowledge brokerage but defines it within a narrower scope to refer to the dissemination of its own research. As a result, the Centre reported thus "from its establishment in 2014, SciSTIP has identified four modalities for making its knowledge and expertise widely available". The modalities are (a) academic knowledge brokerage, (b) knowledge brokerage through research reports, working papers and policy briefs, (c) through the media, and (d) data sharing and management. The Panel observed that the provision of certain databases as open access will increase this level of information brokerage but also raises concerns as it involves contractual agreements, which restricts open and free access, for example Clarivet Analytics' Web of Science data. The seminars and congresses, as modes of knowledge brokerage have been successful so far. What was not clear to the Panel is the extent to which the Centre brokers external knowledge (knowledge produced outside the Centre) for the public good. The Director was requested to shed light on the brokerage of external knowledge and he reiterated that the plans to share data might conform to brokerage of external knowledge. The Panel nevertheless was of the opinion that the NRF and the Centre should make a decision on whether or not this aspect falls or should fall within the objectives of the CoE. All in all, knowledge brokerage, as it relates to the Centre's own knowledge, is so far satisfactory mainly because the Centre has adopted a workable policy wherein Centre pays attention to the diffusion of the results at the planning stage of research projects..

### ***Networking***

The Centre has developed a network in which different institutions and individuals actively participate for mutual benefit but more so in pursuit of enhancing the Centre's performance. The CoE network involves

some 150 individuals and 50-60 institutions. The network consists of partners, collaborators, funders, and the two host institutions. It was noted that most of these individuals and institutions are located in South Africa. The Director reported that the Centre has continued to build and expand the network to include international players such as public speakers who have participated in seminars organized by the Centre. The extent to which these individuals have remained active partners of the Centre was however not clear.

The Panel noted, with concern, that the regional and local network, particularly with researchers in the fields focused on at the Centre, is almost non-existent. When asked to elucidate on this, the Director indicated that the Centre has tried to reach out to researchers within South Africa, and Africa in general, in vain. According to the Director, the researchers that are available in the field of scientometrics and STI in the continent do not have the same common research interests as the Centre. However, the Centre is still keen to appoint research fellows from Africa, including South Africa. In that respect, the Centre has one South African research fellow in the area of scientometrics. The Panel observed that the Centre has an opportunity to expand to other countries in the Global South.

The network that exists among researchers at the Centre and beyond seems to be working well. The Panel heard that the Centre has provided several fora such as workshops, seminars, congresses and conferences where researchers meet to share knowledge and establish further networks. However, some of the researchers requested the establishment of informal fora, within the Centre, to aid internal sharing of knowledge. Students put the same request forward as they felt that they also needed a forum where they could share the progress of their research among themselves, in the presence of supervisors and senior researchers.

A video conference that the Panel held with the Centre partners at CWTS at Leiden revealed a good working relationship between CWTS and SciSTIP. The two researchers who participated in the online interview indicated that they are satisfied with the Centre's performance regarding their collaborations in research but requested for more engagement, for example through staff exchange. They proposed that the Centre should send their staff to Leiden and vice versa so as to increase researchers' knowledge. The Panel was told that this request is already being addressed as one of the senior researchers at the Centre is planning to travel to Leiden, by September 2018, to engage with his peers at the CWTS.

### ***Service Rendering***

Service rendering is one of the core activities of the Centre. Apart from the information provided in the self-evaluation and in the annual reports which include participation in various policy bodies in South Africa, participation in various committees and projects, editorial boards, and so on, the Centre is used as a data service. Some partners informed the Panel that the Centre provides them with information extracted from

databases at the Centre for use in their own activities. A concern was however raised on government departments having to pay for this information when, according to the partners, the Centre was established to provide the data free of charge. However, when the Panel followed up with the Centre for explanation, the Director and his staff indicated that there was some data that they could not make freely available. In addition, some of the data, such as the Clarivate Analytics micro-data, is not only very expensive but under subscription licences which specifically prohibits sharing. The Centre needs to generate money to cover the expenses of subscription and service offered to partners. The Director said that there were some data that they hope to make open access in the near future. It also emerged that the Centre was used to provide workshops and other training activities on research management. The Panel was of the opinion that, as important as service rendering is, it has to be balanced with the production of new knowledge. Finally, it was noted that the Centre largely offers one form of services, namely academic citizenship, and therefore the Panel wonders whether community engagement (e.g. career expo, among others) is within the mandate of the Centre.

### ***Management of the Centre***

In view of the Panel's mandate to evaluate the Centre in terms of its management, the Panel considered the following aspects as outlined in Section 5.7.6 of the ToR: leadership, staffing, transformation, commitment of institutions hosting the CoE, location of the CoE, funding/financials, and future plans. The relevant information was sought from the Director, the DVC, Centre Manager, students, staff, partners and collaborators. The Panel reports as follows:

- The Centre's location and historical development seems to be influential factors as far as the management of the Centre is concerned. SciSTIP is co-hosted by Stellenbosch University (SUN) and Tshwane University of Technology (TUT). It is located at SUN in Stellenbosch, South Africa. It was therefore not surprising to note that the administrative office for the Centre is situated at SUN. The Centre's location is strategic given that it consists of Units that are located within the University.
- The Panel observed that the Centre is run by personnel who are affiliated with SUN. Further, the Panel observed that TUT's role in the management of daily activities of the Centre is minimal. The Panel was not able to obtain information that could explain the minimal role that TUT plays in the management of the Centre as TUT representatives were unavailable for the discussions/interviews. In addition, it was not possible to evaluate the overall contribution of TUT to the operations of the Centre.
- The Panel noted that the organizational arrangement of the Centre is rich and complex, with four different partners collaborating in its activities and management. Despite the complex web of its organization, the Centre is well managed. It is however the Panel's view that, although there are four main partners, the Centre for Research on Evaluation, Science and Technology (CREST) is more

visible in the Centre's management than any other partner. This may also explain CREST's huge contribution to the operations (including research productivity) of the Centre.

- In line with the above observation, the Panel struggled to distinguish SciSTIP from CREST. In fact, several individuals that were interviewed kept referring more to CREST than SciSTIP. When asked whether they have ever heard of the CoE, some of the respondents could not recall ever hearing of SciSTIP. This blurred distinction of the two centres emanates largely from the fact that SciSTIP grew out of CREST, which has continued to play a significant role in its operations and activities. This relationship between the two centres was somewhat challenging for the Panel as it almost felt as if it was CREST being evaluated rather than SciSTIP. It was not possible to evaluate SciSTIP without taking into consideration the performance of CREST; yet the latter was not within the Panel's ToR. Ultimately, the Panel chose to evaluate the CoE as a holistic structure comprising the four units listed above. It was not however lost on the Panel that CREST tends to cloud the visibility of and therefore overshadows the CoE.
- The Panel noted some partners' concerns regarding 'succession' – that is, the Centre's plans to fill the Directorship position once the current Director vacates the office. The Panel members shared the partners' concerns especially in view of the fact that Prof Mouton, who is the current Director, exhibits an almost iconic status at the Centre and beyond. As one interviewee (partner) quipped, "Prof Mouton is well known and respected in South Africa and beyond. I however would like to know the Centre's succession plan. I am aware that having a charismatic leader has advantages but it also brings challenges and therefore there is need to address this issue to allay the partners' fears". When the DVC was queried on this matter, he assured the Panel that the Centre's structure is strong enough to face any succession transition. It was reported that the University has plans to extend Prof Mouton's appointment/contract, for at least five years, as Director of the Centre beyond his retirement date. He has about three years left before he retires.
- Further related to the Director's iconic status, the Panel observed that other staff members (researchers at the Centre) have limited visibility particularly with respect to commissioned research. Several partners indicated that they only know the Director and as such it is only him that is often approached for services. One partner said that "the Centre is associated with the academic leadership of Prof Mouton, who is highly respected but it is not clear who else is involved". The non-visibility of other researchers/ academic staff at the Centre, particularly in connection with the partners, is closely linked to minimal delegation of work.
- In terms of the support offered by the host institutions and their future plans for the Centre, the Panel heard that SUN has committed to support the Centre even if NRF reduces or even stops its support. The Panel's discussion with the DVC further elucidated the elaborate support that the University offers the Centre. He reported and concurred with the Director that currently SUN supports the Centre through a variety of ways, including the following: the DVC is the Chair of the Centre's

Advisory Board; SUN gives considerable support to the Centre in the form of intellectual, management, administrative, infrastructural, financial, contractual and legal.

- As was mentioned in the section labelled ‘human capacity building’, the Centre is considered to be under-staffed. The Centre has 10 dedicated researchers and two dedicated post-doctoral fellows. In terms of Full-Time Equivalent (FTE) staff members, the Centre comprises 6 researchers and 8 support staff. This is an issue that came up during the interviews with the Centre Manager, the Director, academic staff (researchers), and the DVC.
- Regarding transformation, the Director and the DVC registered their frustrations in meeting the national transformational requirements in terms of recruitment of staff members. Despite the Centre’s efforts to identify suitable candidates for employment through repeated advertisements, reaching out to other CoEs and communications through a variety of networks, the Director indicated that the Centre has not been able to receive any application from black female candidates. Hence, the Centre does not have a black employee. When asked about the future plans to address this matter, the Director said that the transformation challenge remains high on the agenda of the Management Committee of SciSTIP. The strategy currently being embarked on is to ‘grow the Centre’s own timber’, and identify promising black students.
- During the visit the Panel did not perceive any conflicts or tensions, but rather a friendly and constructive atmosphere.

## **RECOMMENDATIONS**

In view of the key findings outlined above, the Panel makes the following recommendations to enable the Centre to maximize its potential:

- The Centre is co-hosted by SU and TUT, but the contribution of TUT to the overall performance of the CoE was not clear to the Panellists, mainly because they did not participate in the evaluation exercise. It would be important to clarify TUT’s contribution in this regard since they are very important partners. This would provide a more holistic picture of the CoE’s performance and identify any issues in that relationship.
- The work of the centre is rather divergent and there is a need for a convergence and a synergy, possibly in the form of flagship projects that would involve 3 or more of the 4 groups. This is particularly important to avoid spreading the already stretched human resources over many projects. Such a move would help clearly delineate the Centre’s research areas, elevate its profile, and assist in the identification of areas that require more attention or bolstering. This would have the impact of achieving planned, strategic and long-term research.

- Greater attention is required to the provision of additional resources in the form of additional staff (3-4) and an increased number of postdocs. The current staffing levels in the Centre are not optimum given the amount of research (commissioned and as per the research strategy), and it would be in the interest of DST, NRF and the National System of Innovation to consider increasing provision for additional staff. At the same time, the Centre should more aggressively seek to recruit post-docs who have the potential of building scientific excellence within the Centre.
- SciSTIP has the potential to be a knowledge hub in the Global South and should engage more with international partners, through reaching out and taking the lead as a model. This move would aid in identifying outstanding researchers that could form part of the team at the Centre in the same way that those at CWST have.
- Informal collaborations with Stellenbosch and other colleagues, which is somehow unrecorded but which is very important, should be further promoted; however it is suggested that more diverse opportunities could be created through the offering of formal open calls for research proposals that are in line with the work of SciSTIP. This could be a very important strategy for optimization of resources and effort.
- Increased effort must be made to forge connections with more local universities. The Centre should escalate its efforts to exploit the opportunities of local collaboration with scientometrics researchers in South Africa and the Continent. The Panel learnt that within South Africa, there are pockets of expertise that could be harnessed to assist the centre which we learnt was not adequately capacitated to handle the increasing demands for commissioned research.
- Although the Director has argued that their work on scientometrics feeds into science and technology policy, it surfaced that the Centre is under-capacitated in terms of staff in the field of NSI indicators. It is recommended therefore that staff in that area be recruited. In addition, the analytical capacity of the CoE in the area would greatly benefit from collaboration with the Centre for Science, Technology, and Innovation Indicators (CESTII) - this would complement the scientometrics indicators with research and innovation indicators.
- The Panel noted that the reputation of the Centre was tied up with that of the Director who is a well known scholar of great repute. It would therefore be appropriate to make the Centre's staff members more visible by delegating more responsibilities in the areas of research, brokerage, networking and service rendering. This would allow the structure to be less dependent on a single person.
- One of the concerns raised by the Director was the challenge of attracting students to the Centre. This points to the need for aggressive and client-oriented initiatives to market and publicise their programmes and Centre. Increased publicity would also serve the purpose of advancing awareness and appreciation of the fields of study the Centre is engaged in.

- The student experience and enhanced capacity building would be advanced by the institution of in-house fora for students of the Centre. This is an important aspects of helping them attain more clarity of their research and methodological issues.
- Despite the difficulties articulated at the Centre regarding the demographic transformation of staff and students involved in the Centre, the Panel is of the view that more concerted effort could be expended to redress the admitted imbalance. This would boost the objective of developing human capacity in South Africa and beyond.
- The Centre should follow through with their plans to share their data, taking into account the institutional and commercial constraints so as to optimize its utilization and increase its impact in the South African academe and society at large. This is important for achieving the objectives of contributing to the transformation of the NSI, and economies of scale by sharing data and other equipment.
- As important as service rendering is to the work of the Centre, it is recommended that a balance between the production of new knowledge and service rendering be considered and implemented going forward. Increased focus on new knowledge production in the Centre's niche areas would serve as contribution to the NSI.
- The NRF and the Centre should make a decision on whether or not the aspect of brokerage of external knowledge (knowledge produced outside the Centre) for the public good should fall within the objectives of the Centre, as it will also contribute to the transformation of the NSI.

## CONCLUSION

The Panel was satisfied with the performance of the Centre and takes this opportunity to commend the Centre Management Committee and the host institutions for their good work. The Panel takes note that the CoE is a national asset in the country. The Centre has performed well in terms of its alignment with the CoE model, although it was brought to the Panellists' attention that it differed somewhat from other existing CoEs in that it was a multi-site/institution Centre and one that was focused on the social sciences. Considering the objectives and key performance areas of the Centre, the Panelists were particularly impressed with its delivery on the research/knowledge production given the full time equivalent staff it has. This aspect of its work seems to be the most successful although there was some concern regarding the balance of its work on scientometrics and that of science, technology and innovation policy. There was also some concern regarding the divergent nature of the projects being undertaken.

The work that the Centre does has had some impact in South Africa and the NSI, and this came out clearly in the areas of information brokerage and service rendering. The overall picture of SciSTIP is of a Centre that is pursuing its mandate to the best of its ability given its resources, but needs to refocus a little bit to be able to

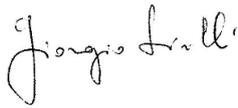
fully achieve that mandate. In our view, the Centre is worth continued funding and other support from DST, NRF, and its hosting institutions.

We have noted a number of areas that require improvement, as outlined in the section on recommendations, so that the Centre can achieve the refocus alluded to above. Some of these areas are significant, such as an increase of capacity, especially in STI; the consolidation of the diverse research projects into a few flagship projects; increased marketing of the Centre and its activity to increase visibility and to attract staff and students; extend its network to include local and African based expertise in the area; the increased projection of the other staff members of the Centre to avoid the conflation of the Centre and the current Director; and the transformation of the NSI, as well as the demographic mix of staff and students.

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This report was prepared by:

Prof. Giorgio Sirilli  
(Chairperson)



Date: 21 August 2018

Prof. Omwoyo Bosire Onyancha



Date: 22 August 2018

Prof. Kgomotso Hildegard Moahi



Date: 22 August 2018

## ANNEXURES

Annexure	Title	Document
1	Terms of reference	 <b>Annexure 1_ToR.pdf</b>
2	Review Agenda	 Annexure 2_Program for Evalu
3	Attendance register	 <b>Annexure 3_Attendance Regis</b>