SOUTH AFRICAN communications FORUM

Catalyst for the development of the South African ICT industry

SACF Contribution to ICASA's Draft IMT Roadmap for Broadband

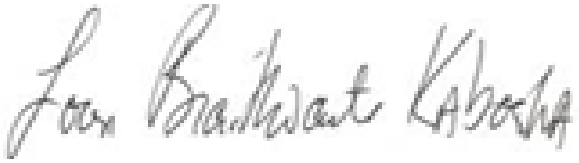
07 October 2014

Cover sheet

Title:	Chief Executive Officer
Given Name(s):	Loren
Surname:	Braithwaite-Kabosha
Representing (self /organisation):	Organization
Name of organisation:	South African Communications Forum
Contact telephone number:	+27 11 315 0590/0597
Contact email address:	info@sacomforum.org.za
1.1 Confidentiality:	Nil

1.2 Declaration

I confirm that the information supplied on the cover sheet may be incorporated into a formal consultation response: it can be published by ICASA, unless otherwise specified on this cover sheet, and I authorise ICASA to make use of the information in this response to meet its legal requirements.

Signed  **At** Midrand

Date 07 October 2014

Preamble

The South African Communications Forum (SACF) is a Chapter 21 (not-for profit) institution serving the needs of a diverse group of private and public sector companies active in the South African ICT sector.

The diversity of SACF members range from very large ICT network operators and service providers in all ICT sub-sectors, through specialised support organizations active in national ICT sector support which includes consultancy services, capacity and skills development, and R&D, to active and emerging SME companies building capacities to contribute to South Africa's growth and development through ICT.

The highly competitive nature of South Africa's ICT sector and its constituent companies, demands that their industry association, the SACF, provides responses on issues in which consensus has been agreed, and those that relate to the long term future evolution of the industry, leaving company-specific responses with competitive implications to member's own contributions. This SACF response is crafted along such an understanding.

General comments on the ICASA process (1)

In preparing this response, the SACF drafting team notes several areas that can be considered to improve South Africa's utilization of the spectrum with its natural capacity limitations:

1. It has been noted by several leaders in the South African ICT sector that Africa's inclusion in ITU Region 1 is rather restrictive: it constrains Africa's flexibility on spectrum management use through association with Europe's more advanced networks, economies, and geographic and demographic topologies;
2. A separate Region 4 dedicated to addressing Africa's unique needs has been suggested, but changing the status quo in the short term is a formidable task. A continental approach is needed, through appropriate continental instruments within the AU. In practice, Region 4 concepts could be promoted by identifying specific constraints within the Region 1 based roadmap that can be addressed in other less restrictive ways, e.g. low fixed broadband rural and urban penetration that inhibits flexibility in spectrum utilization.
3. The concept of an Afro-centric Region 4 initiative was not fully supported by all SACF members, particularly by those with strong historical links to European network operators and equipment vendors. Consensus within the South African ICT ecosystem remains a work in progress.

General comments on the ICASA process (2a)

SACF notes also that ICASA's focus on Spectrum alone when dealing with global arrangements for spectrum management is logical, however there are other non-spectrum-specific factors that influence South Africa's spectrum management strategy and utilization efficiency:

1. There are numerous interrelated national initiatives either in progress or planned that have a direct impact on how spectrum usage can be improved, but which are not fully accommodated in this roadmap. Some of these raised by SACF members during preparations of this response include:
    - The seemingly separate ICASA inquiry into the state of competition in the ICT sector and its significant section dealing with spectrum issues;
    - The ICT development objectives and targets in related national plans, including the National Development Plan; the Broadband Policy and related working groups and commissions; the Wholesale Open Access studies and discussions; the Broadcast Local Content discussions and their implications on the evolution of a fully converged ICT ecosystem, etc. They all have an impact on the final spectrum strategy and should be fully integrated.

General comments on the ICASA process (2b)

2. The state of fixed broadband infrastructure development in both the backhaul and direct access domains, and its potential impact on spectrum utilization:
   - Well-developed fixed broadband infrastructure enables creative use and re-use of spectrum through cell reduction, data off-loading, and reduced cost of IMT infrastructure development, and facilitates early migration to fully converged technologically neutral network architectures;
   - The presence of fixed broadband points of presence in or passing rural communities and similar enclaves enables creative use of spectrum for last mile connectivity, e.g. low power licensed and unlicensed wireless technologies within the whole range of 802.xxx standards, and all new evolving wireless technologies including white space spectrum utilization. South Africa is making some progress in this regard, e.g. Fibreco's open access pops in or near rural communities, and the rollout of FTTH in general that can lead to creative multi-services use of the fibre capacities;

South Africa's broadband infrastructure is comparatively under-developed: 2.5% penetration in 2013 compared to 9.5% in Brazil and 14.5% in China. South Africa's long term strategies should focus on integrated fixed and wireless infrastructure for improved spectrum utilization.

General comments on the ICASA process (3)

1. SA is unusual in that its operators have had to launch LTE networks using re-farmed frequency, preferring not to wait for new spectrum assignments;
2. In order to achieve SA Connect objectives and meet the ambitious set targets (such as minimum data rates and related coverage), the need for urgency in spectrum assignments has been recognised by all stakeholders. ICASA must respond to this recognised urgency.
3. There is some lack of clarity about the intended outcome of the document and proposed roadmap: will it lead to further policy and regulatory development, or will it result in immediate spectrum assignment after its completion? The concern is about the exact sequencing of the regulatory development processes leading to actual spectrum assignments. The IMT Roadmap document states that these consultations would be shortened, but can they be shortened based on the outcome of this roadmap alone?
4. For example, if this is merely a discussion document, it is very broad; far greater focus on the development of a formal regulation leading to early conclusion of this spectrum allocation/assignment is required.
5. This SACF members' concern is allied to the concern that the ICASA 30 day escape clause is being invoked too frequently, bypassing the critical consultation process vital for a successful conclusion.

Detailed Submission

2.1. IMT 450

2.1.1. SACF views on IMT usage in general in 450-470MHz

SACF acknowledges the potential of this band to bridge the spatial digital divide;

However, SACF notes there is only 20 MHz available, which is too small a band to divide between operators, nor should it be assigned to a single operator who would therefore gain unfair competitive advantage

SACF considers the ecosystem to be immature, with relatively few devices, and in early days of its evolution. It is therefor not beneficial to finalise plans for this band at this early stage without further studies and consultations that lead to more effective and creative use of this invaluable spectrum band.

It is important to take full advantage of dynamic downlink/uplink flexibility arising from LTE TDD to cater for different service needs especially given the very limited bandwidth available

SACF notes that as this spectrum band, and the associated PPDR are linked with government functions, and in accordance with Section 16 of the ECA, there is a need to coordinate consultations between government and the industry.

Detailed Submission

2.1.2. SACF views on IMT paired spectrum usage for PPDR

SACF endorses the use of this band to provide PPDR services, but with creative designs that maximise the potential of this invaluable spectrum band.

The lower frequency lends itself to this purpose, and is suited for both urban and rural requirements.

As stated, the 20MHz band available is too small to divide up between operators, creative reviews of licensing policies should be considered to prevent monopolization of this spectrum band.

SACF believes that advances in LTE TDD at any frequency band, especially in the 450 MHz band, and new opportunities presented by convergence, are sufficient to provide PPDR services with the requisite QoS guarantees, in fully integrated and converged networks, and without resorting to specific spectrum allocation and assignment.

Detailed Submission

2.1.3. SACF views on IMT paired spectrum usage for the SA Connect initiative.

SACF acknowledges the technologically-driven rise of unpaired spectrum utilisation (e.g. LTE-TDD), and recommends that ICASA favours such usage in the SA Connect initiative as a more effective and future-proof technology that can address South Africa's critical broadband digital divide and declining broadband global competitiveness.

ICASA should finalise plans for this band in line with unfolding international developments in IMT450.

The potential for this spectrum to contribute to the initial SA Connect targets (for 2016 and 2020) is impacted by this relative immaturity of the IMT450 ecosystem, and the slow pace of concluding the spectrum allocation and assignment process in South Africa

Detailed Submission

2.1.4. SACF views on IMT unpaired spectrum usage for M2M and smart energy/grid applications in South Africa.

SACF does not see a need to dedicate spectrum for one type of application or narrow service. Individual operators should be allowed to determine what services to offer on the network

SACF is of the opinion that all M2M applications which form part of the whole range of the emerging “internet of everything”, and which includes smart energy/grid applications, are best integrated into fully converged network architectures using unpaired spectrum plans with software defined QoS provisions.

Detailed Submission

2.1.5. SACF views on the migration of incumbents (Transnet, SAA, Telkom, etc.) out of the 450-470 MHz band.

SACF is of the opinion that the value of the 450-470 MHz band in terms of coverage and therefore significant cost reductions for nation-wide rural broadband far exceeds the intrinsic value of current incumbent services that occupy this band.

SACF therefore recommends that the Authority examines ways of integrating these services into the proposed nationwide competitive wholesale open access infrastructure based on this frequency band, or if this is impractical for any reason, to initiate the earliest migration of these services out of this invaluable spectrum band.

Detailed Submission

2.1.6. SACF views on the migration time line.

SACF is of the opinion that migration in principle has cost implications for incumbent operators, and must therefore be implemented with the utmost sensitivity taking into account existing licence provisions and expiration dates, all associated cost implications of migration, and all legal and regulatory provisions for such migration. Such intricate details cannot be generalized as per this Authority's question, and must be dealt with on a case-by-case basis. The fundamental principles of freeing valuable occupied spectrum must however form the non-negotiable foundation for such migration through regulatory intervention.

The 3 phases proposed provide ample time but must be expedited, monitored and enforced.

Detailed Submission

2.1.7. SACF views on destination bands.

SACF believes that the question of migration, as stated in our response to previous questions, is complex and cannot be generalised as suggested by this question. SACF believes that the following principles should guide the Authority's process in this regard:

- Destination bands should not be based on obsolescent and/or traditional spectrum utilisation, but should be fully integrated into the emerging converged ICT environment in which all services are provided on a common technologically neutral packet-switched transport platform;
- Choice of destination bands should be in line with ITU/SADC/National Frameworks
- If interim measures require allocation of unique temporary destination bands, these should be selected such that the services are provided using future-proof converged network and service structures so that costs of the final migration are minimised, and customer and user service disruptions are reduced;

Detailed Submission

2.1.8. SACF views on any other inputs that must be taken into consideration when finalising plans for the IMT 450 band

As stated in previous SACF responses, the basic principles guiding the use of the IMT 450 band should lead to a fully converged network architecture and services environment that focusses first on the national interest to bridge South Africa's digital divide. Given the capacity limitations of the 20 MHz available under the existing plan in this band, ICASA, in conjunction with the national ICT industry, and taking into account all international agreements, should seek ways of expanding this band, and introducing new converged technology concepts and applications that enable seamless integration of the services based on other packet-switched spectrum bands. Promotion of a competitive (no monopolies) wholesale open access network (WOAN) model will go a long way towards meeting this converged network vision.

Detailed Submission

2.2. IMT700

2.2.1. SACF views on Option 1 (ITU Region 3).

SACF does not support this option and believes the result of implementing this option would be a failure to realise requisite economies of scale (based on prevailing trends). The requirements for the dual (2x30MHz) duplexers are too expensive and the option is less spectrally efficient than Option 2.

Detailed Submission

2.2.2. SACF views on Option 2 (ITU Region 1).

SACF regards this as the overwhelmingly agreed preferred option. Access to the additional 15MHz of TDD spectrum is welcomed, together with the increased flexibility this offers. South Africa will benefit from the broader international support enjoyed (in terms of there being more devices available, from more regions), which increases economies of scale and facilitates outbound and inbound roaming.

SACF would like to highlight that alignment with IMT800 is crucial.

Detailed Submission

2.2.3. SACF views on Option 3 (ITU Region 1)

SACF reiterates that this Option is not supported, for reasons similar to those articulated in 2.2.1 and 2.2.3.

In particular, 5MHz of valuable TDD spectrum is lost under this Option (due to the reduction in available spectrum from 15 MHz to 10 MHz) and a further 3MHz cannot be practically deployed

Detailed Submission

2.2.4. SACF views on 2 × 3 MHz IMT band of ITU Region 1 solution.

SACF reiterates that it endorses only Option 2 and does not consider deployment of this 3MHz band to be practical.

Detailed Submission

2.2.5. SACF views on other ITU Region 1 based suggestions.

SACF does not have further suggestions in this regard

Detailed Submission

2.3 IMT750

2.3.1 SACF views on IMT unpaired spectrum in the coverage band of 750 MHz.

SACF endorses this proposal as it is more spectrally efficient and is (partially) in line with band 44.

Proceeding with this proposal will enable roaming with a broader range of countries

The suggestion that the whole 50 MHz available in this spectrum band should be assigned to a single wholesale operator to “strengthen the TDD ecosystem in South Africa” is not supported by SACF. SACF questions if such a monopolistic view is the only way to promote or strengthen the TDD ecosystem? Are there other possibilities that multiple competitive wholesale operators bidding for specific geographic regions and or service types that might offer better ways of meeting the stated objectives? What impact on innovation?

This decision should be aligned with the current policy and regulatory level consultations in progress on wholesale open access networks(WOAN).

Detailed Submission

2.4 IMT800

2.4.1 SACF views on Option 1 (ITU Region 3).

SACF comments on this are as for 2.2.1

Detailed Submission

2.4.2. SACF views on the 2 × 3 MHz IMT band of Option 1 (ITU Region 3).

SACF responses on this are as for 2.2.4

Detailed Submission

2.4.3. SACF views on Option 2 and 3 (ITU Region 1)

As with the general discussion for IMT700 and responses in 2.4, SACF supports Option 2

Detailed Submission

2.5. IMT850

2.5.1 SACF views on the migration of incumbents (Neotel, etc.) out of the band.

SACF supports this proposal, based on the principle that South Africa should align with the standard band definitions.

SACF notes the strong move to GSM-R and believes that band plans should be accommodated accordingly, and consistent with ITU definitions.

SACF requests that further technical studies be undertaken on the feasibility of the migration, which would include determination of a standard minimum guard band to be specified between the uplink and downlink allocations

Detailed Submission

2.6. GSM900 spectrum consolidation

2.6.1 SACF views on spectrum consolidation.

SACF supports the Authority's strategies for GSM900 spectrum consolidation, in the interests of spectral efficiency and competition and to pave the way for migration to new technologies in the longer term.

There has been suggestion within SACF membership that ICASA should consider incentives to cover the considerable costs of migration for the minimal spectral gain.

SACF is not in a position to recommend any of the stated scenarios over any other. SACF believes that the best approach is for the Authority to consult all three operators simultaneously and seek a solution acceptable to all three players.

Detailed Submission

2.6.2 SACF views on guard bands.

SACF believes there should be immediate removal of internal guard bands, and that there should be coordination among mobile operators about specific reductions in guard bands between assignments.

These two actions should immediately improve spectrum efficiency with a gain of 3 GSM channels.

SACF notes the inconsistency with regard to the treatment of GSM-R guard bands within the ICASA IMT Roadmap document.

Detailed Submission

2.6.3 SACF views on the time line of spectrum consolidation, i.e. when it should be done.

SACF believes the time lines must be specified in advance and adhered to, and that there must be thorough planning in terms of regional harmonisation and consultation with affected operators.

SACF points out that coordination is required to ensure the timing of any migration that may be required takes advantage of equipment end-of-life.

Consolidation will lead to spectrum efficiency and in the long term will be possible to migrate into new technologies.

Detailed Submission

2.6.4 SACF views on demand for IMT migration of 5 MHz taking into consideration the spectrum for IMT available in the 700 and 800 MHz bands.

SACF is not clear on the exact meaning and intent of this question, and is therefore unable to respond.

If the aim of this proposal is to promote competition, then SACF notes that a new entrant would not be able to make practical use of only 5 MHz of spectrum whilst GSM remains the dominant technology, given the high current penetration of GSM handsets (particularly in rural areas).

Detailed Submission

2.6.5 SACF views on need-based differentiated spectrum assignments in the 880-915 MHz (paired with 935-960 MHz).

SACF members agreed that there are divergent views on this question because it goes to the heart of competition and efficiency issues.

SACF holds the opinion that this question should be an integral component of the consultations between the Authority and the concerned operators outlined in the immediately preceding questions.

Detailed Submission

2.6.6 SACF views on demand for IMT migration of 10 MHz, taking into consideration the new spectrum for IMT in 700 MHz and 800 MHz.

SACF is not clear on the intent, meaning and purpose of this question and is therefore unable to respond.

Detailed Submission

2.7. IMT2300 unpaired spectrum TDD

2.7.1 SACF views on usage of 2380-2400 MHz.

SACF believes that a discussion on the above band should be preceded by a broader discussion on the usage of IMT2300 in general.

This is valuable spectrum with a large and growing ecosystem

SACF requests greater transparency and would like to see the current channel plan publicised, together with clarification of the current allocation and the associated rationale

In particular, SACF would like clarity on the process followed, which resulted in 60 MHz out of 100 MHz being assigned to one operator. SACF believes this is against the spirit of fair and non-discriminatory regulation, equitable access to spectrum, and the promotion of effective competition.

Detailed Submission

2.7.2 SACF views on usage of 2290-2300 MHz for IMT.

SACF notes that for this spectrum, there is no standardisation within 3GPP and no significant developing ecosystem. Therefore it is too early to determine the uptake or demand.

ICASA should follow its planning, consultation and allocation process in due course.

Detailed Submission

2.8. IMT2600 paired FDD spectrum

2.8.1 SACF views on demand in the IMT2600 FDD band.

SACF believes that the correct channel plan should be ratified, in alignment with Region 1 (C1).

SACF notes that this band is best suited to capacity rather than coverage, and therefore requires reasonable block sizes

Furthermore, SACF regards this spectrum as a key resource required for SA Connect: to achieve the ambitious SA Connect broadband data rate targets, the band must not become too fragmented and ICASA must consider international best practice in terms of minimum block size assignments

SACF does not support assignment of the band to a single operator

Detailed Submission

2.8.2 SACF views on the migration of the incumbent (WBS), into 2380-2400MHz.

SACF will be in a position to respond appropriately, once its request, outlined in 2.7.1 is fulfilled

Detailed Submission

2.8.3 SACF views on in-band migration of the incumbent (WBS), into IMT2600 unpaired spectrum.

SACF has no objection to WBS being assigned ***equivalent*** spectrum in the TDD portion of IMT2600.

SACF does not support the assignment of the remaining spectrum within IMT2600 to a single operator

Detailed Submission

2.8.4 SACF views on alternative destination bands for the incumbent (WBS).

SACF does not have an opinion on this proposal

Detailed Submission

2.9. IMT2600 unpaired TDD spectrum

2.9.1 SACF views on demand in IMT2600 TDD band.

SACF notes that this is very high demand spectrum with a mature and growing ecosystem and requests that ICASA follow due process and normal assignment processes

Detailed Submission

2.10. IMT3500 unpaired TDD spectrum

2.10.1 SACF views on migration out of 3400-3600 MHz from FDD usage to TDD.

SACF notes there is a growing ecosystem, focused on TDD, and therefore believes that this represents the most likely future.

SACF therefore strongly supports the migration of FDD systems out of this band in favour of TDD.

The actual migration plan must be sorted out with the incumbents. It was not provided in the IMT Roadmap document.

SACF would support ICASA in creating an LSA/ASA (licensed, shared-access / authorised shared-access) mechanism to expedite TDD deployment before migration is complete. This mechanism is described in more detail in Section 2.10.5

Detailed Submission

2.10.2 SACF views on status and time line.

SACF finds it difficult to understand the full meaning and implication of this question, given the evolutionary nature of the subject in question, and the need for intensive consultations with the South African ICT industry, particularly where such timelines and migration strategies impact prevailing business activities.

SACF believes that the Authority should view the change process as a continuum – technological change is a continuous process, and the Authority should continuously monitor new opportunities, particularly those of a disruptive nature that enable major leaps forward in the ICT services provided to the nation.

Detailed Submission

2.10.3 SACF views on interest in TDD downlink focused spectrum.

SACF supports the proposal but notes that the exact downlink ratios cannot be anticipated in advance and more details are required before a definitive response can be provided. Typically the ratio of uplink to downlink would need to be dynamic.

Detailed Submission

2.10.4 SACF views on interest in TDD uplink focused spectrum.

The SACF response to this question is similar to that of 2.10.3: Will technological advances lead to dynamic adjustments of downlink and uplink capacities to suit user needs? Rigid decisions taken today may impede the early adoption of such expected developments.

Detailed Submission

2.10.5 SACF views on the introduction of a Managed Spectrum Park.

SACF encourages the Authority to consider the Authorized/Licensed Shared Access (LSA/ASA) approaches being investigated by the regulators in the USA and Europe as a means to make available spectrum which is already assigned to an incumbent but is not deployed extensively (geographically speaking) on a national basis.

In particular, SACF encourages this approach for high-frequency spectrum which potentially forms part of a multi-band LTE solution.

SACF believes that such assignment could expedite assignment on a geo-location basis (especially high-density areas such as stadia, airports etc) within a policy framework designed to ensure investment certainty.

Detailed Submission

2.11. Operators opinion on one TDD-operator instead of every operator having parts of TDD spectrum

2.11.1 SACF views on the TDD spectrum bundling of IMT450, IMT750 and IMT2600 and assignment to one (wholesale) operator.

As a general preference and principle, SACF members do not support the return to monopoly status in any segment of the national ICT sector, unless all alternative avenues are considered in detail with the requisite levels of consultation, and found to be impractical or ineffective.

ICASA is referred to the SACF submission to the (then) Department of Communication).

SACF will support the one-operator proposal within IMT450 (and the IMT750 band 44) for reasons outlined in 2.1.1, and given that only 15 MHz is available, provided that non-monopolistic alternatives are considered fully and found to be wanting.

SACF is opposed to the principle within IMT2600 where there is more spectrum which should be allocated to multiple operators.

Detailed Submission

2.11.2 SACF views on the operator interest in individual IMT3500 assignments per operator or in one assignment to one (wholesale) operator.

SACF supports the wholesale operator being assigned some, but not all of this spectrum and subject to full due process. This decision must be integrated and coordinated with the current high level studies and consultations on the whole concept of wholesale open access networks (WOANs)

Detailed Submission

2.12. Universal service obligations for lower frequency bands (sub-1GHz)

2.12.1 SACF views on universal service obligations for lower frequency bands (sub-1GHz).

In general, SACF welcomes the principle of linking obligations to coverage, but believes that obligations should not be changed for existing licensees, retrospectively.

Having said that, SACF holds the opinion that universal service obligations, and delivery against such services, are not wholly dependent on technologies or even spectrum issues: any failures in the delivery of universal services is more a function of administrative deficiencies in the agencies set up to deliver or manage such universal service obligations in partnership with both public and private sector service providers.

SACF proposes that some focus must be levelled on USAASA and its effectiveness.

Detailed Submission

2.13. Capacity licence obligations for new and existing IMT bands

2.13.1 SACF views on licence obligations for new and existing IMT bands, including infrastructure sharing.

SACF believes that ICASA should fast-track setting the details related to this question, and specifying the criteria.

SACF believes that sharing of coverage obligations between operators can be negotiated for marginal areas

SACF notes that ICASA has recently reviewed USOs and issued revised obligations and does not see a reason why these would need to be further reviewed

Detailed Submission

2.14. Additional input

2.14.1 SACF views on other inputs that are deemed necessary and appropriate which should be taken into consideration.

This open-ended question is deferred to individual SACF member responses to this ICASA process.