IEEE-SA Fellowship Program at 802
Survey Results

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Fellowship Program Survey – Methodology and Response Rate

- IEEE-SA Fellowship Program Participant Survey
  - All participants completed the survey

- IEEE 802 Survey
  - 8 responses received
    - 1 did not participate in the program (survey ended)
    - 3 indicated that they were presenters
    - 4 indicated that they were observers

- Scale of "1 to 5"
  - 1 being "Not at all Satisfied or Beneficial"
  - 5 being "Completely Satisfied or Beneficial"
  - Responses calculated to determine Average

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Fellowship Program Participants – Program Satisfaction

- All Fellowship Program Participants were satisfied with the program (Average – 4.75)

	Not Satisfied at All 1	2	3	4	Very Satisfied 5
# of Responses	0	2	0	1	3

- Suggestions for Improvement
  - "…a website should be set up containing all the necessary information before and during the sessions for the benefit of the fellows"
  - "1. Invite the relevant Engineers from Industry or Regulatory bodies will help. 2. Provide a website for the fellowship."
  - "make available a website containing all the information to the fellows in order to enable them to be efficient."
  - "the program must allow flexibility of seeing the hosting place at the end of the program"

802 Respondents – Program Satisfaction

- IEEE 802 respondents were satisfied with the program (Average – 3.83)
  - "Staff is doing a good job and it is a good program. Socializing the fellowship participants in 802, ensuring that they get some 1:1 time with 802 leadership and contributors is an excellent addition to the formal presentations."
  - "I am not sure it will have any positive outcomes."
  - "It was very useful."
  - "The information exchange both ways was good."
  - "I think we need to find a way to guarantee larger attendance. Having a room full of 802 types and a smaller number of fellows seems out of balance and a poor investment of time."
  - "This is a great exercise to invest in countries that do not know about IEEE Standards. The IEEE SA Fellows were really satisfied."

	Not Satisfied at All 1	2	3	4	Very Satisfied 5
# of Responses	0	2	0	1	3

- Suggestions for Improvement
  - "Not sure."
  - "It is already very well prepared for and works well."
  - "This is working. Please continue this effort."

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Meetings/Tutorial Sessions

- **Fellowship Program participants**
  - Completely satisfied (Average – 5.0) with:
    - IEEE 802.15 Wireless Specialty Network Overview Tutorial
    - IEEE 802.11 – New Amendments Tutorial
  - Satisfied with all other meeting/tutorial sessions

- **802 Respondents**
  - Of those that attended the meeting/tutorial sessions, all indicated that they were satisfied with these sessions

- **No suggestions were made to improve these sessions**

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Fellowship Program Participants – Additional Information

- Technical areas where IEEE could provide additional support
  - "the frequency plan and the reorganization of spectral resources for the implementation of 5 G networks in Burkina Faso"
  - "IEEE P802.11 Wireless LANs Wireless Specialty Network Overview"
  - "I want to be involved in IEEE 802 Radio Regulations Task force work"
  - "Whitespace and city wifi"

- All respondents indicated that they are very likely to recommend that industry attend/participate in IEEE 802

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802 Respondents – Future Program Recommendation

Would you recommend IEEE-SA holding additional Fellowship Programs with policy makers/regulators at IEEE 802 in the future?

- "This is very valuable to the whole IEEE 802 based industry."

- "Once a year would be fine."

- "But must get the numbers attending up."

- "This is a very fruitful exercise."

- "These policy makers have little impact on IEEE 802 standards."

	Not Recommended at All 1	2	3	4	Recommended Completely 5
# of Responses	0	1	0	2	3

IEEE Standards Referenced in Regulation

- **Rwanda**
  - IEEE 802.16d (Fixed WiMax)

- **Burkina Faso**
  - IEEE 802.3
  - IEEE 802.11
  - IEEE 802.16
  - IEEE 1609

- **Zimbabwe**
  - None

- **Zambia**
  - None reported

Developments to Date (1)

- **2017 Program Participants**
  - India
    - Became an advocate of the IEEE process
    - Assisted IEEE-SA in the development of a MoU with Telecommunications Standards Development Society, India (TSDSI)
    - IEEE's visibility has increased within C-DoT, a key department within the Ministry of Telecommunications in India
  - Senegal
    - IEEE 802.22 Working Group Chair invited to present on TV WhiteSpace at the 2nd African Telecommunications Union Preparatory Meeting for the ITU World Radio Communication Conference 2019 (WRC-19), held in September 2017 in Dakar, Senegal
      - Presentation discussed various IEEE Standards - especially IEEE 802.22, IEEE 802.15.4m, IEEE 802.11 af
      - Met with regulators from many countries including Kenya, Rwanda, Mozambique, Burkina Faso, Tanzania, Congo, etc.
    - Participant connected IEEE 802.22 Chair with WawTelecom. The Chair is working with them to see how WhiteSpace devices can be used for a Pilot Program
    - Contacted IEEE in May 2018 to hold discussions on IoT

Developments to Date (2)

- **2017 Program Participants (cont)**
  - Burkina Faso
    - Developing potential TV WhiteSpace pilots in Togo, Burkina Faso and Kenya through African Telecommunications Union (ATU) and US Department of State.
  - Uganda
    - Collaboration with Uganda to create TV WhiteSpace regulations

- **2018 Program Participants**
  - Zimbabwe
    - IEEE 802.22 equipment has been sent to Zimbabwe and trials are being conducted by AfricaCom.
  - Rwanda
    - Joined IEEE and has indicated an interest in myProject in following IEEE 802 activities.
    - Rwandan regulator made introductions to Axiom, a wireless internet service provider. The IEEE 802.22 WG Chair has begun working with Axiom to provide standardized TV WhiteSpace devices and start a pilot program.

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Developments to Date (3)

- **2018 Program Participants (cont)**
  - Zambia
    - Fellowship Program participant submitted and presented on a proposal entitled "Enhancing Collaboration between IEEE 802 and World Regulators on unlicensed spectrum regulations" to the IEEE 802.11 Coexistence Standing Committee. This was the first time that a Fellowship Program Participant has submitted a proposal to IEEE 802.

- **Overall Development**
  - Building relationships with program participants
  - Shared IEEE 802.18 Viewpoints on WRC-19 Agenda Items document with all Fellowship Program participants

Program Goals

✓ ■ Increase awareness and understanding of IEEE-SA activities

✓ ■ Bring developing countries' perspectives into the IEEE-SA (insight, knowledge, local needs)

✓ ■ Grow IEEE-SA advocates from developing countries for the IEEE standards development paradigm

■ IEEE standards and its standards development principles are accepted by policymakers and regulators

✓ ■ IEEE-SA is recognized as a technical advisor by governments and in multi-lateral/international fora

Program Metrics

- IEEE 802 standards referenced in regulation

- Adoption of IEEE standards

✓ - Advocating the IEEE paradigm of standards development and use of IEEE 802 standards in country

Proposed Revised Metrics

- Regulations are adopted which enable and encourage deployment of IEEE standards based technologies

- Adoption and deployment of standards based products in the region

- Participation in the IEEE standards development process, contributing to shaping standards that meet spectrum management needs

Summary

- Four of five program goals have been achieved over time
  - Increase awareness and understanding of IEEE-SA activities
  - Bring developing countries' perspectives into the IEEE-SA (insight, knowledge, local needs)
  - Grow IEEE-SA advocates from developing countries for the IEEE standards development paradigm
  - IEEE-SA is recognized as a technical advisor by governments and in multi-lateral/international fora

What's Next?

- Review proposed revised metrics with steering group

- Next IEEE-SA Fellowship Program at IEEE 802 to be held in 2019 (targeting IEEE 802 Plenary in March)
  - 12 potential candidates
  - Budget can accommodate 5/6 participants

- Continued follow up with all Fellowship program participants (2017 and 2018)
  - What did you learn that you have applied, either in your own organization, in partnership with other organizations, in your region, etc?

- Evaluation of the program in mid-2019

Thank you!

Fellowship Program Participants – Additional Survey Results

Impact on Work

- All Fellows responded that the tutorial sessions will have a positive impact on their work
  - "Yes of course. This will allow me to be more efficient in my working position"
  - "It will help me to develop TVWS regulations for Zambia"
  - "This would allow me to be more efficient in my mission of distributing standards to actors of the telecommunications and ICT sector in my country"
  - "I learnt a lot from the tutorials content, handling of the meetings and interactive of different minds and accommodating them"

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Participant Goals and Results

- Prior to the event, the Fellowship program participants expectations were to:
  - "To observe the IEEE standards development process and how standards are developed and maintained"
  - "Know more about IEEE's missions and get information on the development of standards"
  - "Learn more on the IEEE 802 standards processes and learn more new upcoming technologies"
  - "Find a solution that will change normal order around spectrum arrangements"

- Post-event, the Fellowship Program Participants stated that their goals were achieved:
  - "This event gave me a lot of tools and information about standards development in general and also allowed me to learn a lot about the organization of IEEE and how standards are developed and maintained."
  - "This event gave me tools and knowledge and allowed me to interact with actors in charge of standards development."
  - "The IEEE standards process was well explained and I also learn alot of new up coming IEEE 802 technologies"
  - "knowledge about the potential of 802. the capabilities, the .15 special networks provide specific solutions with minimum overheads"

Information Acquired

- Information they acquired that they plan on applying in their organization:
  - "Regulatory and technical information from Wireless Specialty Network, and next generation networks comfort me in my working position"
  - "Regulatory and technical information on standards development procedures"
  - "TVWS technologies and regulations. I will apply the knowledge on how to do the TVWS regulations for Zambia."
  - "deploying broadband using white space, evaluate rail monitoring situations"
    - -

Technical Areas of Assistance

- Technical areas where IEEE could provide additional support
  - "Training of officials of the Ministry of the authorities on standards development (methodologies, technical content).
  - "We need more information about alternative solution for rural zone with unlicensed band
  - "Training in advance technology. better coordination with contributing organisations. POLICY and regulatory recommendation can also be provided."
  - "technical support towards the national implementation of the various standards"

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Additional Comments

- "I greatly appreciated the tools put in place for the follow-up of the fellows, the email contacts and whatsaps and the session of the new fellows who really give an overview on the missions and activities of IEEE."

- "Having thought this was technical in the first place by the end of the program I had learnt a lot of things. I also am amazed at the organized system of human beings working for a common cause"
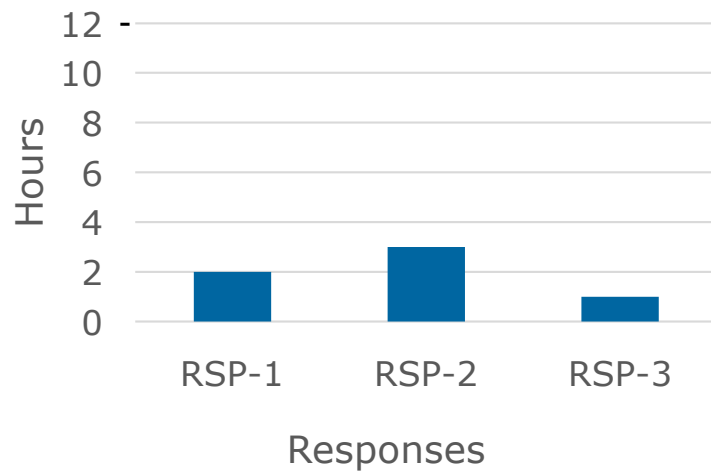
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IEEE 802 Participants – Additional Survey Results
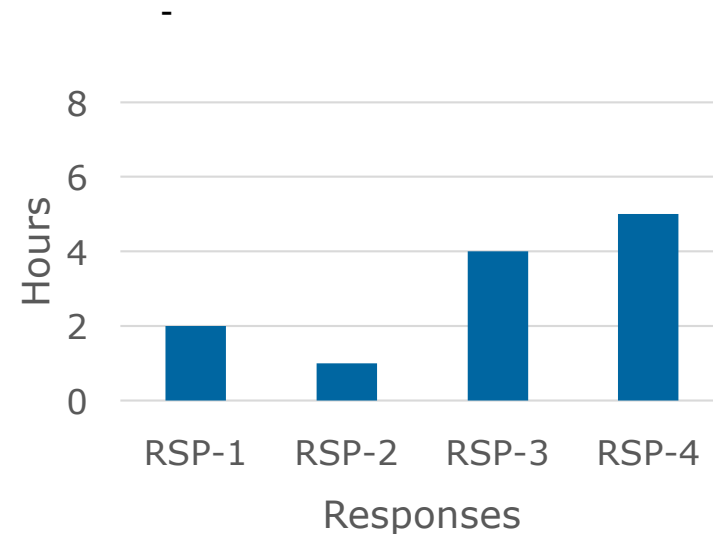
IEEE 802 Participation Hours

■ Number of hours to draft presentations, presenting and responding to questions.
– Total – 6 hours
– Average – 2 hours

■ Number of hours participating in the program (excluding drafting and presenting presentations)
– Total – 12 hours
– Average – 3 hours
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How Beneficial was this Program to IEEE 802?

- "Understand the perspective of fellowship participants is critical to the future development of standards."

- "I am not sure it will have any positive outcomes."

- "It was a worthwhile exercise."

- "Seemed there was input that IEEE 802 could take advantage of."

- "It remains to be seen what relationships are built."

- "The IEEE 802.22 Working Group has really benefited from the Fellowship Program. This has resulted in invitation to the African Telecommunications Union Meeting and Pilots in Rwanda."

	Not Beneficial at All 1	2	3	4	Very Beneficial 5
# of Responses	0	1	0	2	3

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IEEE 802 Presenters - Survey Results

- How valuable did you find presenting at the IEEE-SA Fellowship Program?
  - "It was very useful."
  - "It's always good to engage with new folks, particularly where their experience and feedback is from a different environment to yours."
  - "The attendees are really interested in Broadband for Rural Areas and Developing Countries. TV WhiteSpaces can solve this problem. IEEE 802.22 and IEEE 802.11af Standards are of great interest."

- All respondents reported receiving specific questions about the presentation from the audience, either during or after the session

	Not Valuable at All 1	2	3	4	Very Valuable 5
# of Responses	0	0	0	1	2

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