



FY2016 Operations Plan

Version 1.0.0

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1 Introduction – The Wireless Innovation Forum FY2016 Objectives

The Wireless Innovation Forum (SDR Forum version 2.0) Board of Directors has established the following eight items as high level objectives for the Forum for the period from July 1, 2015 through June 30, 2016 in executing on the Forum’s Strategic Plan:

1. Brand the Forum as the preferred venue for the Spectrum Sharing Community

The Forum will work to build on its success in forming the Spectrum Sharing Committee (SSC), and strengthen that community to ensure continued success. In addition, the Forum will undertake the following:

- a. Broaden focus to other frequency bands than 3.55 GHz
- b. Brand the Forum as the place where licensed and unlicensed communities come together to figure out how to share spectrum. This will be tied to Part 96 in the FCC rules in the US, however the Forum will also look for opportunities to expand internationally in this area.
- c. Expand the role of the Forum to address enhancements to LTE management to unique aspects of operation in shared spectrum and in unlicensed/unprotected operations.

In executing on this goal, it is understood that a revision of the strategic plan may be required, and so the Board of Directors shall evaluate this early in the new fiscal year.

2. Identify New Market Area Relevant to the Forum’s Mission

The Forum’s Committee on Spectrum Innovation (CSI) will act as an incubator for exploring potential new markets relevant to the Forum’s mission. CSI was successful last year with the establishment of the Spectrum Sharing Committee. In FY2016, the CSI committee will identify potential new market areas, canvas the Forum’s members to prioritize these opportunities and begin work on one new market area.

3. Execute on the Strategic Plan of the Coordinating Committee on International SCA Standards (CCSCA)

The focus of FY16 will be to continue to strengthen the position of the CC SCA as the preferred international venue for SCA standards development and harmonization. Specific goals to accomplish this include:

- a. Strengthen the relationship with JTNC for standards development and custodianship of the SCA and associated API’s.
- b. Strengthen the relationship with the Advisors and expand the advisor base.

- c. Leverage the model with the JTNC in partnering with other organizations worldwide to drive convergence on a common set of SCA based standards

It will be a goal to increase active membership in the traditional SCA community. An outreach strategy and execution plan for expansion of the usage of the SCA beyond traditional defense markets will be developed.

4. Establish a Test and Certification Strategy for WInnForum Standards

It has been identified in both the CC SCA and SSC that there is a need for industry test and certification of specific standards. The WInnForum will therefore identify mechanisms to support industry in this regard, including investigating the feasibility and developing a strategy as appropriate for the WInnForum provides accreditation services targeted at either or both of these domains.

5. Establish Relevant Projects

The Forum's Committee on Spectrum Innovation, Coordinating Committee on International SCA Standards and Spectrum Sharing Committee will form both member driven projects addressing immediate needs and roadmap driven projects advancing supporting the Forum's Advocacy Agenda or Top 10 Most Wanted Wireless Innovations list:

- The Forum's Committee on Spectrum Innovation will maintain and advance the Advocacy Agenda.
 - The Forum shall publish revisions of the advocacy agenda as required in FY2016. A roadmap of projects will be identified supporting positions within and promotion of the advocacy agenda as required.
 - The Forum shall coordinate activities with regulatory agencies and standards bodies to advance the Advocacy Agenda.
- The Forum's Committee on Spectrum Innovation (CSI) will act as an incubator for exploring potential new markets relevant to the Forum's mission. CSI was successful last year with the establishment of the Spectrum Sharing Committee. In FY2016, the CSI committee will identify potential new market areas, canvas the Forum's members to prioritize these opportunities and begin work on one new market area.
- The Forum's Coordinating Committee on International SCA Standards shall publish and maintain its own roadmap as defined in the Committee Charter¹, and initiate projects developing extensions to the SCA standards that address any gaps between the defined SCA evolution roadmap and Forum accepted SCA specification variants.

¹

<https://sdf.memberclicks.net/assets/documents/cc%20sca%20charter%20v3%200%200%20-%20%2023%20october%202012.pdf>

- The Forum’s Spectrum Sharing Committee shall publish and maintain its own roadmap as defined in the Committee Charter², and initiate projects supporting that charter focused on the development and advancement of spectrum sharing technologies required for interoperable systems in applicable bands of interest worldwide.
- Items on these roadmaps requiring investment in significant technical, business or regulatory innovation shall be added to a Forum wide “watch list”. This “watch list” will be periodically reviewed by the CSI Steering Group to determine if items on the list should be promoted to the Forum’s Top 10 Most Wanted Innovations. Both the “watch list” and the “Top 10 Most Wanted Innovations” shall include innovations at any levels of the SS7 stack as determined by the membership.
- Each committee will identify opportunities to harmonize, publish and popularize SDR & CR related open international standards worldwide. SDR & CR standards are now region specific and the world community looks towards our Forum for harmonization.

The success of this goal will be measured by evaluating the level of member participation in each project.

6. **Formalize Partnership Relationships with End User Community**

The Forum’s members and staff shall strive to establish the Forum as a venue for collaboration supporting the needs of wireless end users, their representatives and their research initiatives. As appropriate, these end user community relationships will be formalized through the establishment of contracts, research and development agreements, memoranda of understanding, etc. Agreements can include exchange of information, facilitated workshops, funded research, or other activities. In pursuing these relationships, the Forum will work to ensure it is not competing with its own members in working with the end user community, but rather fostering collaboration between members and that community.

Success in this goal will ensure that each project undertaken by the Forum’s members has relevant end user representative(s).

7. **Improve Regional Support**

The Forum will continue to grow participation in its India Regional Committee. In addition, the Forum will leverage lessons learned in establishing the India Regional Committee to explore strategies for forming additional Committees in the Asia Pacific region (China, Japan, Korea, Singapore, etc.).

² <http://groups.winnforum.org/d/do/7958>

8. Grow Revenue

Membership growth and active participation of member companies in Forum activities is a key goal. Successful execution in this goal will result in higher membership numbers year to year from FY2015 to FY2016. In addition, the Forum will define and pursue new opportunities for non-dues revenue.

This document presents specific plans for achieving these high level objectives in separate sections dedicated to the FY2016 Meeting Plan, and the respective work plans of the Committee on Spectrum Innovation, the Coordinating Committee on International SCA Standards, the Spectrum Sharing Committee, the Board of Directors, and the Forum's Corporate Administration. The budget necessary to support these objectives is also addressed in the last section of this document.

2 Wireless Innovation Forum Organizational Overview

The FY2016 Organizational Structure of The Wireless Innovation Forum is presented in Figure 1. The Forum is organized around three standing committees, whose responsibilities are summarized as follows:

- The role of the Committee on Spectrum Innovation (CSI) is to advocate for the innovative utilization of spectrum, and advancing radio technologies that support essential or critical communications:
 - Works with wireless end users and their representatives, including network operators, government acquisition authorities and research sponsors to validate concepts and requirements against technology readiness, to document domain specific requirements, use cases and business models.
 - Supports member organizations in identifying new opportunities for next generation products and services in each defined market domain.
 - Works with the regulatory and public policy community to establish a global regulatory framework promoting the adoption of emerging technologies for advanced wireless systems.
 - Provides a venue for the exchange of information on emerging radio technologies important in wireless networking and produces reports, specifications and recommendations supporting the development and deployment of advanced wireless system and next generation radio devices

Management and oversight of this committee is provided by a Steering Group working in collaboration with a [Regulatory Advisory Committee](#). The Steering Group is comprised of the [Forum's Officers](#), and is responsible for drafting the Forum's "Top 10 Most Wanted Wireless Innovations" list and setting the Forum's "Advocacy Agenda" based on member input. These documents will be distributed to the members of the Forum for ballot following the Forum's standard process.

- The Coordinating Committee on International SCA Standards (CCSCA): supports the harmonization of SCA based standards at the international level for the mutual benefits of all stakeholders to include:
 - Defining an industry driven SCA evolution roadmap for the international community
 - Profiling the SCA specification and related APIs to define internationally accepted variants that are hosted by the Forum
 - Developing extensions to the SCA standards that address any gaps between the defined SCA evolution roadmap and Forum accepted SCA specification variants

- Providing implementation and certification guides, tools etc. easing implementation and supporting proliferation
- Establishing and managing industry led certification programs where appropriate

Management and oversight of this committee is provided by a Steering Group working in collaboration with an [Advisory Council](#).

- The role of the Spectrum Sharing Committee (SSC) is to serve as a common industry and government standards body to support the development and advancement of spectrum sharing technologies based on the three-tier architecture proposed for the 3.55 GHz rulemaking activities. While the 3.55 GHz band is the main focus on the initial activities, the Wireless Innovation Forum aims to advance this technology for all applicable spectrum bands that can benefit from it.

This Committee is intended to facilitate the interpretation and implementation of FCC rulemaking to a level that allows industry and government parties to collaborate on implementation of a common, efficient, well functioning ecosystem around this technology.

The main activities that will be conducted in the committee include:

- Detailing common industry and government functionality and architecture for Spectrum Access Systems (SAS), sensors, and devices
- Interoperability requirements and protocol definition to allow for open competitive and well-functioning systems
- Common framework for testing and integration of components of spectrum sharing technologies to allow for rapid certification and deployment and predictability, thus expanding the ecosystem and increasing utility of the spectrum
- Details of requirements, processes, and methods for protection of incumbent users as required by the spectrum rules
- Operational procedures definition for the well -functioning of the system as it pertains to spectrum assignment, managements, and interoperability

This committee is also managed by a [steering group](#), and includes observers necessary for the full operations and support of the system.

In addition to these standing committees, the Forum also has an India Regional Committee whose objective is to support the needs of the members in the India region and to create significant interest in the activities of WInnF in India.

These committees are managed by the Forum’s elected officers, which include the Chair and Vice Chair of the Forum, the Chief Technology Officer, Chief Marketing Officer, Chief Regulatory Officer, the Secretary, and the Treasurer.

Organizational Structure for The Wireless Innovation Forum

10 May 2015

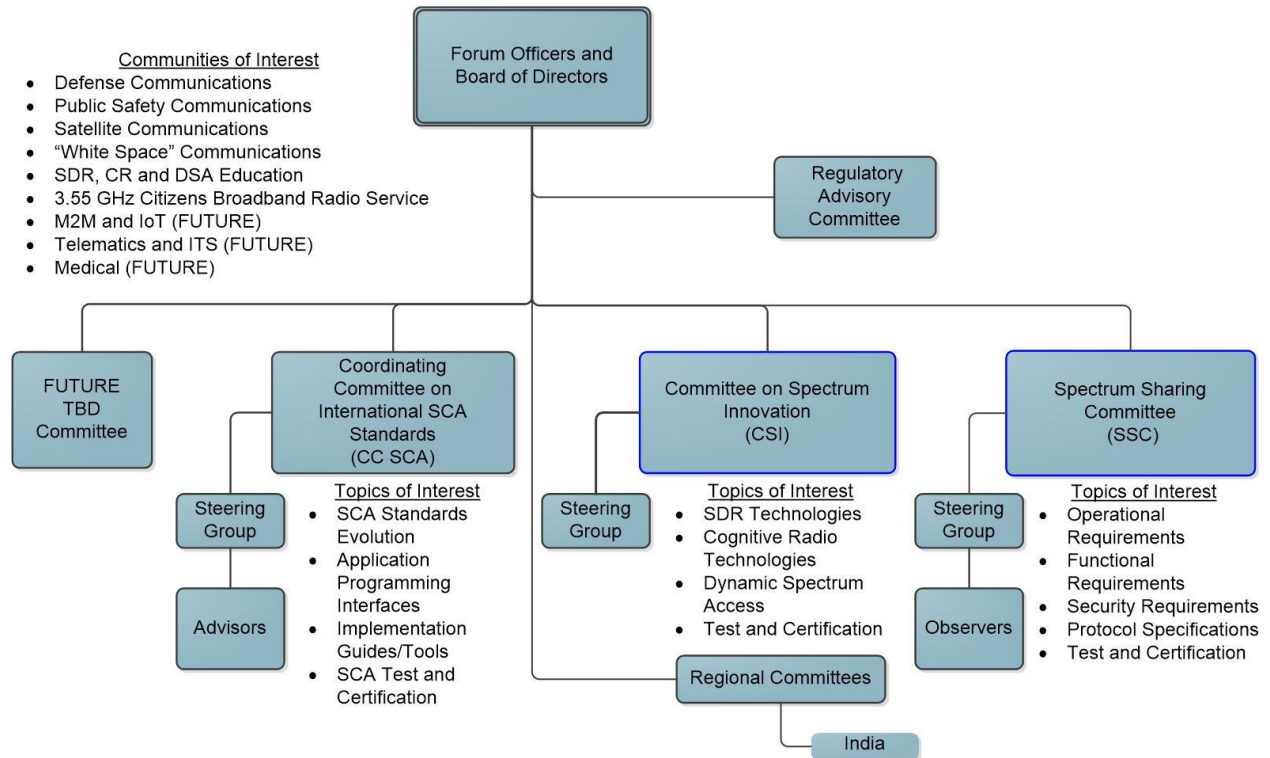


Figure 1: Wireless Innovation Forum FY2012 Organizational Structure

Management and oversight of the Forum as a whole, including the Forum’s corporate affairs, is performed by the Forum’s Board of Directors. These directors are elected on an annual basis, as defined in the [Bylaws](#). The elected slate of Directors for CY2015 is provided in Table 1.

Name	Member Organization	Position
Manuel Uhm	Ettus Research	Chair of the Board of Directors
James Neel	Cognitive Radio Technologies	Director, Small Company Representative
David Renaudeau	Thales Communications	Director, Large Company Representative
Marc Adrat	Fraunhofer Institut FKIE	Director, Government and Non-profit Representative

Jeffrey Reed	Wireless Virginia Tech	Director, Academic Institutions Representative
Claudio Armani	Selex ES Communications	Director, At Large Director
David Hagood	Cobham	Director, At Large Director
Claude Belisle	NordiaSoft	Director, At Large Director
Darcy Swain-Walsh	MITRE	Director, At Large Director
Bruce Oberlies	Motorola Solutions	Officer and Director, President and Chair of the Forum, Secretary
R. Muralidharan	Tata Power SED	Officer and Director, Vice President and Vice Chair of the Forum
Ken Dingman	Harris Corporation	Officer and Director, Treasurer and Chief Financial Officer
Alberto Quintana	Indra	Officer and Director, Secretary
Preston Marshall	Google	Officer and Director, Chief Regulatory Officer,

Table 1: CY2015 Board of Directors of The Software Defined Radio Forum Inc. The positions of Chief Technology Officer, Chief Marketing Officer and Medium Company Representative are currently vacant.

2.1 Forum Corporate Administration

Corporate administration and member services are provided to the Forum through a combination of employees, consultants, and third party contractors. The Forum's key personnel for FY2014 are as follows:

- Chief Executive Officer ([Lee Pucker](#)) – Reporting to the Board of Directors, the Chief Executive Officer's primary responsibility is to maximize the value the Forum brings to its members. Accordingly, the CEO drives the development of the Forum's Strategic Plan and supports the Forum's other officers in executing on that plan. The CEO proactively identifies opportunities, solves the Forum's critical problems, and makes an effort to anticipate future needs of the membership. The CEO assures that the organization and its mission, programs, products and services are consistently presented in a strong, positive image to relevant stakeholders, in particular to the Forum's membership. The CEO, with the Treasurer, oversees the organization's finances, ensuring the Forum's member's needs are met to the maximum extent possible while maintaining financial stability as a not-for-profit organization.
- Director of Marketing and Communications ([Stephanie Hamill](#)). The Director of Marketing and Communications (MarCom) has primary responsibility for managing communications for the Forum, including internet presence and member communications, and supporting the CEO in establishing and maintaining the Forum's leadership in advanced wireless markets, evangelizing the Forum's programs and services, and supporting the organizational objectives of the Forum's membership. Reporting to the Forum's CEO, the Director of

MarCom helps assure that the Forum and its mission, programs, products and services are consistently presented in a strong, positive image to relevant stakeholders, in particular to the Forum's membership.

The slate of key consultants and contractors retained by the Forum to support its members in FY2014 are as follows:

- 1) [Drohan Management Group](#) – Manager of the Forum's Headquarters Operations
- 2) [InfoEx World Services](#) – Representative for the Forum in China
- 3) [Bowling, Franklin & Company](#) – Audits and Finance
- 4) [Gesmer Updegrove LLP](#) – General Legal Counsel
- 5) [Hogan Lovells](#) – Communications Regulatory Counsel

In addition, the Forum retains a document editor on an as needed basis to support the creation of reports, specifications and recommendations by its members. Additional details on the Corporate Administration Work Plan for FY2016 can be found in Sections 6 through 10 of this plan.

3 Committee on Spectrum Innovation (CSI) (Chair: Bruce Oberlies)

The following high level goals have been assigned to this committee by the Board of Directors:

- 1) Primary Goals:
 - a. Identify new Market Area Relevant to the Forum's Mission
- 2) Shared Goals:
 - a. Establish Relevant Projects
 - b. Formalize Partnership Relationships with End User Communities
 - c. Improve Regional Support
 - d. Grow Revenue

The project plans to support these goals are addressed in section 3.2 and 3.3 below.

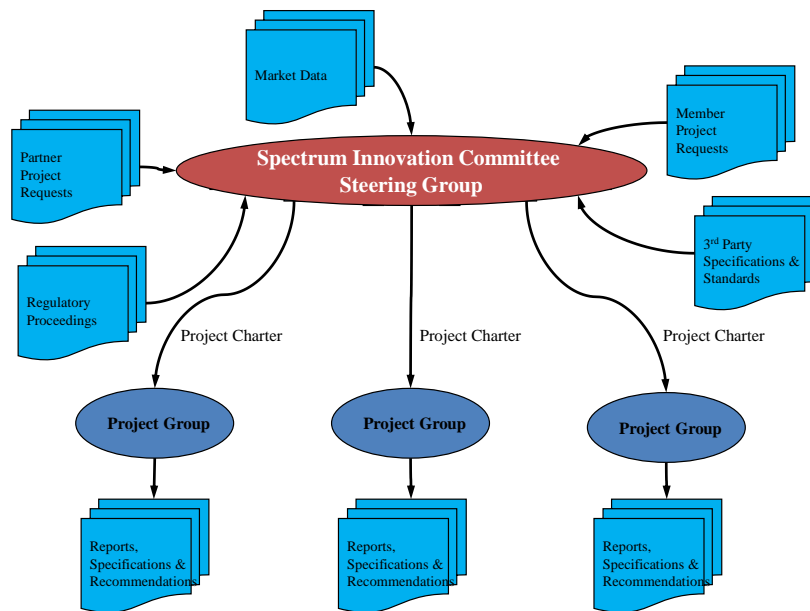
3.1 Charter and Structure

The Spectrum Innovation Committee is led by a steering group comprised of the Forum's Executive Committee along with Topic Sponsors nominated to participate as non-voting members by the Forum's volunteer CMO, CRO and CTO. Sponsors are as follows:

- Public Safety Sponsor – Daniel Devasirvatham, INL
- Tactical Radio Sponsor – Alberto Quintana, Indra
- Spectrum Sharing Communications Sponsor – Preston Marshall, Google
- SDR Sponsor – Vince Kovarik, PrismTech
- CR/DSA Sponsor – James Neel, Cognitive Radio Technologies

A representative from each commercialization committee will also be invited to participate as an ex-officio non-voting member. In addition, the Steering group may constitute a group of advisors on an ad-hoc basis to support their objectives at any given time.

The primary role of the Steering Group is to identify projects of strategic relevance to the committee membership, to prioritize and launch projects as appropriate, and to monitor those projects to ensure and support execution (see Figure 2). In addition, the Steering Group maintains the Forum's Top 10 Most Wanted Wireless Innovations list and Advocacy Agenda.



3.2 FY2016 Objectives

The Spectrum Innovation Committee has established the following committee objectives for FY2016 to support the Forum’s High Level Objectives:

3.2.1 Identify New Market Area Relevant to the Forum’s Mission

The Forum’s Committee on Spectrum Innovation (CSI) is the Forum’s incubator for exploring potential new markets relevant to the Forum’s mission. Last year the Spectrum Sharing Committee (SSC) was successfully launched. In FY2016, the CSI committee will follow a similar approach it followed in identifying and launching the SSC. Specifically, the CSI will brainstorm potential new market areas, canvas the Forum’s members to determine the interest and prioritization of these new market opportunities. Once a new market opportunity has been identified the committee will work closely with member organizations with interest in this new market to expand the idea and identify end user groups as well as government, industry organizations and researchers not active in the Forum to this expand on this opportunity.

3.2.2 Establish Relevant Projects

The members of the Spectrum Innovation Committee will deliver at least 5 reports in FY2016 through the projects defined in section 3.3 of this plan. In addition, the committee will explore initiating the following projects for the development of relevant work products in FY2015 and FY2016. The Forum’s Spectrum Innovation Committee shall publish revisions of the advocacy agenda as required in 2016.

3.2.3 Formalize Partnership Relationships with End User Communities

The Spectrum Innovation Committee will interact with end user communities following a three step approach:

- Identify the unfulfilled user needs (e.g. via advisory councils, podium discussions etc)
- Identify the technologies which have the potential to fulfill those needs (10 most wanted technologies)
- Commercialize those technologies (WInnF projects)

All three steps allow interactions with the end user community within partnership relationship.

3.2.4 Improve Regional Support

The Forum will continue to grow participation in its India Regional Committee. In addition, the Forum will leverage lessons learned in establishing the India Regional Committee to explore strategies for forming additional Committees in the Asia Pacific region (China, Japan, Korea, Singapore, etc.).

The Committee on Spectrum Innovation will strive to have inclusion of the Regional Committees in all work projects and initiatives. While some projects have specific Region focus there are relevant problems being addressed that could have interest in other regions. The Committee on Spectrum Innovation will do the following to improve Regional Support:

- 1) Review active projects with India Regional Committee (and any newly formed Committees) and identify common areas of interest and develop action items (e.g. keep members informed, expand existing project scope, create new project, etc.) to address these areas of interest.
- 2) Include India Regional Committee (and any newly formed Committees) in the Committee on Spectrum Innovation's efforts to new market areas relevant to the Forum's Mission.
- 3) Support the Forum staff with Regional Committee development that aligns with work projects and initiatives in the Committee on Spectrum Sharing.

3.2.5 Grow Revenue

Membership growth and active participation of member companies in Forum activities is a key goal. Successful execution in this goal will result in higher membership numbers year to year from FY2015 to FY2016. Identifying a new market area relevant to the Forum's Mission will attract interest in non-members and/or less active Forum members. In addition, successful execution on meaningful work projects identified in section 3.3 is a key component of keeping members' active and strengthening the Forum's Brand. Both of these will in turn will result in increased membership, increased participation on Forum events, and ultimately grow revenue.

3.3 FY2016 Project Plan

The Spectrum Innovation Committee will extract roadmap requirements from use case, business model and market study reports developed by its members for consideration in the Forum's Top 10 Most Wanted Wireless Innovations List. Additionally a roadmap of projects will be identified supporting positions within and promotion of the advocacy agenda as required. Topic Sponsors of the Spectrum Innovation Committee will assist in organizing projects focused on the specific needs identified in the Roadmap, Top 10 Most Wanted List, and Advocacy Agenda.

In support of the Forum's Top 10 Most Wanted Wireless Innovations List and to guide the Spectrum Innovation Committee's choice of projects, the Spectrum Innovation Committee shall convene a discussion at each face-to-face meeting for the purpose of defining and publishing a Spectrum Innovation Committee Roadmap and a Spectrum Innovation Committee Watch List.

3.3.1 Execution on Existing Projects

The SIC plans to continue work on the following projects in FY2015:

1. ***"Integrated Communications Systems Model"***
 - **Objective:** The long-term objective of this project is to develop an integrated model for developers of SDR communications systems. It addresses multiple market and government segments providing an integrated systems model encompassing both hardware and software architecture perspectives within a single model. The model will serve as a reference architecture that can be used as a foundation for software-based communications systems across a variety of domains, hardware types and applications. This model will be developed using a SysML/UML tool to represent and capture the architecture aspects of the communications system model. The model can then be applied as a starting baseline for communications system design.
 - **Project Leads:**
 - Project Chair: Vince Kovarik ([PrismTech](#))
 - **Milestones:**
 - The work product for this phase of the project is a comparative analysis of current SDR standards.
 - Expected Completion: December 2015

2. ***"Receiver Performance Guidelines and Evaluation Criteria"***
 - **Objective:** This report is being developed for regulators, designers, manufacturers and users of wireless communications systems who are developing wireless policy and equipment to access shared spectrum or to coexist with adjacent spectrum users while understanding impact to current spectrum users. The report will produce a set of actionable guidelines to design and evaluate the performance of receivers that will coexist in shared & adjacent spectrum bands that can be used as a foundation for future radio systems.
 - **Project Lead:** Bruce Mueller (Motorola Solutions)

- **Milestones:**
 - Expected Completion: July, 2015

3. *Spectrum Sharing Annual Report*

- **Objective:** This report is being created for Regulators, Policy Makers, Spectrum Managers, Network Planners, and Wireless Researchers who need to understand the state of technologies such as dynamic spectrum access and their ability to facilitate spectrum sharing. The report will act as a reference guide to clearly identify and synthesize a harmonized view of the results of spectrum sharing research and trials, identify what is in development, and articulate what issues are being addressed and what issues still need to be resolved.
- **Project Lead:** Lee Pucker (WInnF CEO)
 - **Milestones:** Expected Completion: December 2015

4. **Elements of Context for Cognitive Radio Based Public Safety Communications Systems**

- **Objective:** This report is being created for public safety community leadership, researchers and product developers who are planning and developing improved capabilities for real-time management of public safety communications resources. The report will build on the Forum's ongoing work in Context Aware Cognitive radio and the existing body of knowledge from the Forum's Public Safety Special Interest Group to:
 - Examine the role, if any, of Dynamic Spectrum Arbitrage in Public Safety with respect to Context Aware Cognitive Radio
 - Provide an application-specific example for researchers developing concepts and tools for Context Aware Cognitive Radio technologies;
 - Provide input to researchers and developers addressing real-time communications network management (e.g., tools for Communications Unit Leaders and incident commanders) leveraging reconfigurable and cognitive radio capabilities.

The scope of this report will include a description of Context Aware Cognitive Radio (CACR), a summary of why CACR is relevant to public safety, and a listing of elements of context needed for effective public safety communications resource management.

- **Project Lead:** Daniel Devasirvatham (Idaho National Labs)
- **Milestones:**
 - Completion Dec 2015

3.3.2 **Committee on Spectrum Innovation Roadmap**

The Committee on Spectrum Innovation Roadmap is a document that outlines strategic projects the CSI desires to undertake in support of the Forum's Advocacy Agenda, the Forum's Top 10

Most Wanted Wireless Innovations List, and the CSI Watch List. The list does not restrict the projects that Topic Sponsors may support but rather guides the Committee on Spectrum Innovation to launch new projects that are aligned with the objectives of the Committee.

The Chair of the Committee on Spectrum Innovation is responsible for the Roadmap.

3.3.3 The Forum's Top 10 Most Wanted Wireless Innovation List

The Spectrum Innovation Committee is responsible for the Wireless Innovation Forum Top 10 Most Wanted Wireless Innovation List.

The process that will be adopted by the Committee in FY2016 is as follows:

- Members of the Spectrum Innovation Committee will discuss at each Committee Meeting any prospective changes to the Watch List
- The Spectrum Innovation Committee will discuss in a Committee Plenary at all face-to-face meetings and update their Watch List
 - New candidates and their reason for inclusion shall be noted
 - Updates on progress for existing Top 10 List items shall be noted
 - Solved problems with references and reasons for removal shall be noted
- A Spectrum Innovation Committee Plenary shall be held prior to the Forum Closing Plenary at each face-to-face meeting for the purpose of voting out the Spectrum Innovation committee Top 10 List changes.
- The Chief Technical Officer of the Forum is responsible for consolidating Top 10 List inputs from all Forum Committees. The procedure shall be as follows:
 - At the opening plenary the CTO shall present the current Top 10 List and remind Committees to actively discuss the list during their working sessions.
 - Prior to the closing plenary the Chairs of each Committee are responsible for providing input to the CTO on any proposed changes to the Top 10 List or the Watch List.
 - At the closing plenary the CTO shall lead a discussion of the consolidated proposals. If changes to the watch list are presented by either Committee, a discussion of the merits of modifying the Forum's Top 10 List shall be conducted.
 - Any changes to the Forum's Top 10 List shall be balloted at the subsequent face-to-face meeting.
 - In addition the CTO shall maintain a consolidated Forum "Watch List that is the union of the Committee watch lists

This Watch List and the Top 10 List shall be available to the public on the Forum's website allowing for comments

- Any public requests for new entries to the watch list shall be reviewed by the CTO and sent to the appropriate Committee for consideration in the committee level watch list

The Chair of the Committee on Spectrum Innovation is responsible for the Committee's Top 10 Most Wanted List and the Watch List.

The CTO of the Forum is responsible for the consolidated Top 10 Most Wanted List and the consolidated Watch List.

3.3.4 Advocacy Agenda

The Committee on Spectrum Innovation of the Forum is responsible for the Advocacy Agenda and maintaining a consolidated list of proposed changes/additions to the Advocacy Agenda.

The process that will be adopted for updating the Advocacy Agenda in FY2015 is as follows:

- An Advocacy Committee shall be established. The officers of the Forum and the Chair of the Board shall be part of this committee.
- The committee shall meet quarterly or as needed to discuss changes to the Advocacy Agenda. Such meetings may be held in conjunction with the Spectrum Innovation Committee Steering Group Meetings.
- The Chief Regulatory Officer is responsible for consolidating all Advocacy Agenda inputs from all Forum Committees. The procedure shall be as follows:
 - At the opening plenary the CRO shall present the Advocacy Agenda and remind Committees to actively discuss the Agenda during their working sessions.
 - At each face-face Committee Plenary, members of the Forum shall discuss any prospective changes or additions to the Advocacy Agenda.
 - New Advocacy Agenda topics
 - Additions to existing Advocacy Agenda topics
 - Clarifications to existing Advocacy points
 - Prior to the closing plenary the Chairs of each Committee are responsible for providing input to the CRO on any proposed changes to the Advocacy Agenda.
 - At the closing plenary the CRO shall lead a discussion of the consolidated proposals. If changes to the Advocacy Agenda are presented by either

Committee, a discussion of the merits of modifying the Advocacy Agenda shall be conducted.

- Any changes to the Advocacy Agenda shall be balloted at the subsequent face-to-face meeting.
- In addition the CRO shall maintain a consolidated Forum Advocacy Agenda proposed changes list based on inputs from all Forum committees.

The Advocacy Agenda shall be available to the public on the Forum's website allowing for comments

- Any public comments shall be reviewed by the CRO and sent to the appropriate Committee for consideration in the committee level Advocacy Agenda proposed changes list.

The proposed changes list shall only be available to Forum members on the Forum's website.

4 Coordinating Committee on International SCA Standards (CC SCA) (Chairs: Ken Dingman, *Harris* and Eric Nicollet, *Thales*)

The following high level goals have been assigned to the committee from the Board of Directors:

- 1) Primary Goals:
 - a. Execute on the Strategic Plan of the Coordinating Committee on International SCA Standards
 - b. Establish a Test and certification Strategy for WInnForum Standards
- 2) Shared Goals:
 - a. Establish Relevant Projects
 - b. Formalize Partnership Relationships with End User Communities
 - c. Improve Regional Support
 - d. Grow Revenue

The project plans to support these goals are addressed in section 4.2 and 4.3 below.

4.1 Charter and Structure

The current mission of the Coordinating Committee on International SCA Standards (CC SCA) is to “support international harmonization of the SCA through open standards with unlimited public access, while influencing the specification and development and verification of portable SCA based waveforms”.

The CC SCA is comprised of 3 major organizational elements. A Steering Group (SG) that is responsible for coordinating the different activities within the CC SCA and ensuring that liaisons with the stakeholders and the Forum’s Board of Directors are maintained. An Advisory Council that acts as an advisory body to the SG, representing various Government stakeholders in the identification of requirements and development of visions to support their operations. A set of Working Groups that focus on identifying needs/issues and providing solutions, executing approved projects. For FY2016, there seven active Working Groups, with activities in the SCA API Work Group suspended:

- Advocacy Working Group
- SCA Evolution Working Group
- SCA Implementer’s Working Group
- SCA Test & Evaluation Working Group
- International Radio Security Services (IRSS) Working Group
- Transceiver Working Group

- International Tactical Radio Special Interest Group

Within the SCA Advocacy Working Group, there will be two subgroups, one focused on advocacy of the SCA 4.1 and the second focused on expanding the usage of the SCA beyond the tactical radio market.

The structure of the CC SCA organization is provided in Figure 2 below in conjunction with the relationship of the CC SCA to other WINNF organizational elements. Steering Group Members include:

- A4ESSOR
- Harris Corporation
- Hitachi Kokusai Electric
- Indra Sistemas
- Raytheon
- Rockwell Collins
- Rohde & Schwarz
- Selex ES
- Thales

Structure for Coordinating Committee on International SCA Standards

15 Jun 2015

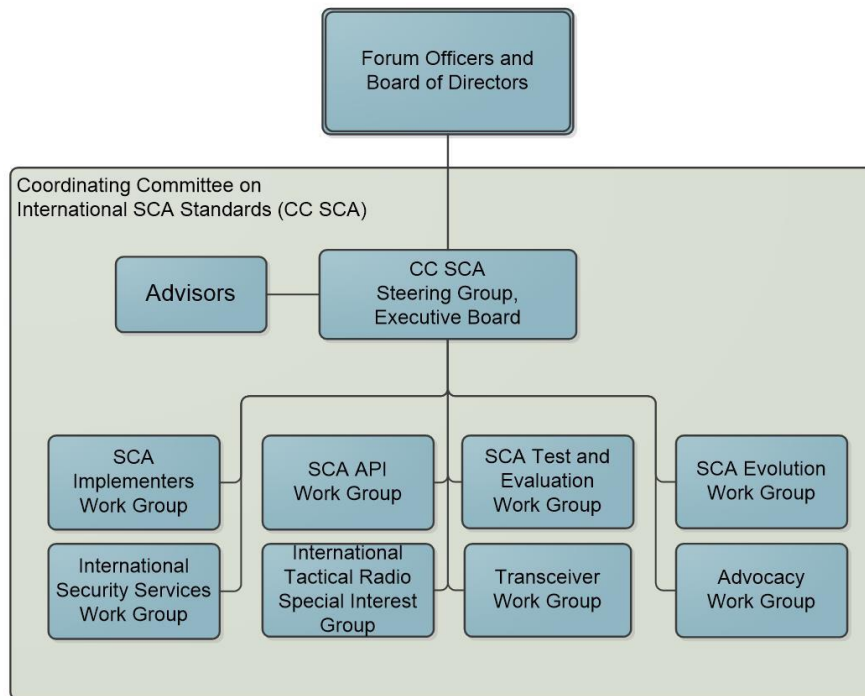


Figure 2: Coordinating Committee on International SCA Standards Organizational Structure

4.2 *FY2016 Objectives*

The CC SCA has established the following committee objectives for FY2016 to support the needs of the members and participants of the CC SCA in conjunction with the WINNF's "High Level Objectives".

4.2.1 Increase Committee Participation and Revenue Generation

The activities laid out in this operational plan are critical to the continued success and existence of the Forum so it is imperative that the CC SCA is successful in meeting its objectives. In order to be able to do that, the active participation in the Committee must increase. There are two approaches in the plan to accomplish this.

- Increase the participation from current members: A problem currently affecting the CC SCA is a minimal active participation from the member organizations. Many of the participants are members of multiple groups within the Forum and do not have the time available to ensure adequate effort it being put forth to guarantee success in all the endeavors they are participating in. Current CC SCA members will lobby and recruit within their organizations to bring in leaders and participants for projects. This will help ensure the projects have a critical mass to complete and allow the CC SCA leadership to perform their Committee and Forum leadership roles.

It is expected that the current member organizations work within their companies to increase the participation in committee activities.

- Expand the CC SCA Membership: The Board of Directors Executive Committee has set the goal to expand CC SCA membership in FY2016. Many of the objectives and activities defined in this plan are focused on meeting this goal.

In addition, from a staffing perspective, in order to provide expertise in the execution of the Operation Plan and assistance to the WINNF staff, utilizing a consultant will be considered.

4.2.2 Promote SCA Standards and Technology World-wide

This objective relates to the Outreach foundational element of the Strategic Plan and maps to the "Grow Revenue" goal assigned by the Board of Directors.

The CC SCA Steering Group will develop and execute a marketing campaign for the promotion and promulgation of SCA standards and technology solutions within world-wide defense markets and penetrating into other relevant SDR domains. The CC SCA will develop and broadly distribute SCA related marketing collateral in conjunction with sponsorship of technical workshops and webinars as methods to promote the values and benefits of SCA Standards technology and solutions. The purpose of this activity is to facilitate the growth of commercial investment in the SCA Standards eco-system providing cost and time-to-market benefits to all stakeholders in the

SCA community. This activity is also intended to enable expansion of regional support for SCA Standards across the globe, provide strength for the WINNF brand, while expanding membership and participation with the CC SCA and the WINNF in general.

A subgroup within the Advocacy Working Group will be created with a mandate to promote the SCA beyond the tactical radio domain. In the new FY, the subgroup will:

- a. Identify strategic domains / markets where the use of the SCA is most applicable and where adoption would be easiest in the short term (early successes),
- b. Develop an outreach campaign to promote the SCA in those domains (magazine papers, conferences presentations),
- c. Review WinnForum website to describe and promote the use of SCA in new markets,
- d. Organize a WinnForum sponsored workshop on open architectures for embedded systems,
- e. Create a technical Working Group focused on the use of SCA in a new market.

4.2.3 Drive worldwide convergence to a common SCA standard

This objective relates to the Standards Harmonization foundational element of the Strategic Plan and maps to the “Execute on the Strategic Plan of the CCSCA” and “Formalize Partnership Relationships with End User Community” goals assigned by the Board of Directors.

The CC SCA Steering Group will develop plans for drive convergence to a common SCA. Leveraging the Advisors, the CC SCA Steering Group will solicit existing SCA based programs to determine content they will be willing to share towards developing a singular SCA and SDR API set of standards definitions. Based on these inputs, a roadmap of standards updates that could be used to guide continued SCA based standards and associated eco-system evolution through technology development and insertion will be developed. Roadmap solutions associated with defined needs will be expressed through a representative combination of suitable elements, which can include:

- Business cases and operating models
- Policies, guidelines, best practices and lessons learned
- Identification and establishment of supporting infrastructure (i.e., process, procedures, tools)
- Specifications, Standards (i.e., APIs) and Technical Reports
- Prototypes (proof of concept implementations)
- Services (i.e., Certification support)

These roadmaps will be utilized to define, prioritize and establish relevant CC SCA projects. Candidate topics for roadmap development may include one or more of the following:

- Coalition Interoperability
- Waveform portability
- Test, Evaluation and Certification
- Security
- Applications (HMI, Android bridge, etc.)
- Mission Planning and configuration (i.e., plug & play)
- Network management (i.e., Manet network solutions and beyond)
- System performance (i.e., throughput)
- Dynamic spectrum allocation
- Advanced wireless networking
- Situation awareness
- SCA component libraries and software reuse

Elements of these roadmaps that require significant technical, business or regulatory innovation will be submitted to the Forum’s Roadmap Committee for inclusion in the Forum’s “Top 10 Most Wanted Wireless Innovations” report as defined in Section 3.3.3 of this Operations Plan.

To facilitate and enable convergence on a common SCA standard, the CC SCA Steering Group will negotiate to obtain custodianship of the SCA and API standards as appropriate from organizations that include the JTNC. In addition, custodianship of the specification would provide the motivation for radio vendors and organizations in newly targeted domains to (re)join the Forum in order to be involved in the development and advancement of the SCA.

4.2.4 Identify, plan and engage in the ‘Next Big Thing’

This objective maps to the “Identify New Market Area Relevant to the Forum’s Mission” goal assigned by the Board of Directors.

The CC SCA, working with its Advisor’s and utilizing other information available such as the Evolution Survey results, will seek to identify an area of interest aligned with the charter of the WinnForum that the WinnForum can assist in the definition or standardization of. Emerging requirements (i.e. coalition operations) and technologies (i.e. Internet of Things as it applies to the battlefield) will be taken into consideration while performing this evaluation.

4.2.5 Develop and Leverage End-User Community Partnerships

This objective maps to the “Formalize Partnership Relationships with End User Community” goal assigned by the Board of Directors.

The CC SCA Steering Group will develop and leverage End-User community partnerships as a foundational element to coordinate and harmonize SCA Standards for the benefit of all stakeholders. This will be accomplished by building on the Advisory Council (AC) model through the following:

1. Continued facilitation of information exchange with AC members.
2. Establishment of formal relationships, such as contracts, research and development agreements and memorandums of understanding where appropriate.
3. Strategic expansion of AC membership. Leveraging lessons learned in establishing the India Regional Committee, the CC SCA will explore strategies for forming additional Committees in the Asia Pacific region (China, Japan, Korea, Singapore, etc.). The update to the **Business Models for New Entrants in the SDR Tactical Radio Market** that is being performed by the ITR SIG will be used as inputs to target SCA SDR areas for AC expansion.

4.2.6 Test and Certification

This objective maps to the “Establish a Test and Certification Strategy for WInnForum Standards” goal assigned by the Board of Directors.

The CC SCA will analyze the needs from programs, program offices and other development activities occurring worldwide to determine the feasibility of providing value added evaluation and/or certification services that the WInnForum can provide. Based on the results of the feasibility study, a strategy will be developed to capitalize on opportunities identified.

4.3 FY2016 Project Plans

The CC SCA plans to deliver multiple work products through a series of projects in FY2016. Specific work products and milestones delivered from existing and planned projects are presented below. Note: the IRSS is currently dormant and will evaluate the needs for project and develop appropriate project plans throughout the year. The projects will primarily be focused along the themes of enhancing and promoting standards worldwide concentrating on SCA 4.1

1. SCA 4.1 Advocacy: There will be specific focus on the advocacy of the SCA 4.1 release. This will commence with a Rollout event held jointly with the JTNC. The SCA Advocacy Working Group will develop collateral to support the advancement of the SCA 4.1. Collateral could consist of:
 - A white paper that highlights the problems with SCA v2.2.2 that SCA 4.x resolve and how they benefit the SCA developer
 - Material (presentation/white paper) to convince the technical buyer to make the recommendation to utilize SCA 4.x; to convince the economic buyer to allocate funds for SCA 4.x development and to address the concerns of the Policy owner to support standardization on SCA 4.x
 - SCA v2.2.2 to v4.1 migration plan which results in a port by a radio manufacturer to v4.1. Develop and publish a use case of the describing the implementation of v4.1

Other activities the CC SCA will undertake in the promotion of SCA v4.1

 - Creation of papers and presentations by member organizations promoting v4.1. A Technical track focused on v4.1 will be considered for a future conference.
 - Consider hosting a ‘hack fest’ in which vendors are invited to develop a solution of a 4.1 based system.
 - Establish a ‘partnering’ relationship with select vendors to provide technical and other assistance as feasible.
2. SCA Evolution: The SCA Evolution Working Group will evaluate extensions and modifications to the SCA and existing APIs based on recommendations that could come from other *Programs* (i.e., ESSOR Program, SvFUA Program), SCA Harmonization Roadmap. The results of this work group will be new standards specifications that can be utilized in their entirety by the JTNC or another standards body or modifications to an existing standards specification.

4.3.1 Projects

The CC SCA plans to execute the following projects in FY2015 (see above for work product descriptions). The priority for executing the projects is

- Complete SCA 4.1 projects
- Start the SCA Evolution projects

1. “SCA Harmonization Roadmap”

- **Objective:** The Roadmap project will identify areas of discrepancy between implementations and develop a prioritized list of APIs and segments of the SCA

where harmonization is required. Based on this it will create a roadmap to drive convergence on a common set of SCA based standards.

To address the lack of progress on the Roadmap in previous year, the effort will be run as a Project, with a defined plan, committed participation and reporting to the BoD.

- **Work Group:** CC SCA
- **Project Lead:** Ken Dingman, Harris/Eric Nicollet, Thales
- **Milestones:**
 - i. Approved Project Plan: September 2014

2. *“SCA Evolution”*

- **Objective:** The **SCA Evolution Work Group** will drive the continued evolution of SCA Standards through the technical analysis, evaluation and recommendation of corrections, extensions and improvements, delivering formal recommendations and updated standards to the JTNC Standards Organization for consideration of incorporation into future versions of the specifications.
- **Work Group:** SCA Evolution
- **Project Lead:** TBD
- **Milestones:**
 - Approved Project Plan: November 2015

3. *“SCA 4.1 Advocacy”*

- **Objective:** The SCA Advocacy Work Group will continue in the development of material, coordination, holding and participating in workshops and conferences, etc. to promote the SCA and in particular SCA v4.1. The developed material will provide information supporting the adoption and implementation of SCA v4.1
- **Work Group:** SCA Advocacy
- **Project Lead:** David Renaudeau, Thales
- **Milestones:**
 - European Conference Workshop: October 2015
 - US Conference Workshop: March 2016

4. *“SCA Usage Expansion”*

- **Objective:** A subgroup of the SCA Advocacy Work Group will be formed to evaluate and analyze opportunities for expanding the usage of the SCA beyond the tactical radio market.
- **Work Group:** SCA Advocacy, “SCA Expansion” Subgroup
- **Project Lead:** Claude Belisle, NordiaSoft
- **Milestones:**
 - Approved Project Plan: October 2015

5. *“Transceiver API”*

- **Objective:** Complete the Transceiver API v2.0 specification that was started in FY2015
- **Work Group:** Transceiver API WG
- **Project Lead:** Eric Nicollet, Thales
- **Milestones:**
 - Project Completion: Sep 2015

6. *“Test and Certification support”*

- **Objective:** Develop a recommendation for the WinnForum to provide SCA accreditation services to the SCA development community.
- **Work Group:** Test and Evaluation WG
- **Project Lead:** James Ezick, Reservoir Labs
- **Milestones:**
 - Approved Project Plan: Dec 2015
 - Feasibility Study Completed: April 2016
 - Strategic Approach Completed: June 2016

7. *“Next Big Thing”*

- **Objective:** Determine an area of interest for the WinnForum to provide leadership in the definition or standardization. Develop a plan for leading industry to a harmonized solution in the indentified space
- **Work Group:** Task Group reporting to the Steering Group
- **Project Lead:** TBD
- **Milestones:**
 - TBD

5 Spectrum Sharing Committee (Chairs: Preston Marshall, Google and Iyad Tarazi, *Federated Wireless*)

The following high-level goals have been assigned to the committee from the Board of Directors:

- 1) Primary Goals:
 - a. Brand the Forum as the preferred venue for the spectrum sharing community
 - b. Establish a test and certification strategy for WInnForum Standards
- 2) Shared Goals:
 - a. Establish relevant projects
 - b. Formalize partnership relationships with end user communities
 - c. Improve regional support
 - d. Grow revenue

The project plans to support these goals are addressed in section 5.2 and 5.3 below.

5.1 Charter and Structure

The Spectrum Sharing Committee (SSC) supports the development and advancement of spectrum sharing technologies based on the three-tier architecture proposed for the 3.55 GHz rulemaking activities. While the initial focus is on the 3.55 GHz Citizens Broadband Radio Service (CBRS), the Committee aims to advance this technology for all applicable spectrum bands that can benefit from it.

The charter for the Committee is to facilitate the interpretation and implementation of FCC rulemaking to a level that allows industry and government parties to collaborate on implementation of a common, efficient, well-functioning ecosystem around this technology. The primary activities of the Committee include:

- Detailing common industry and government functionality and architecture for Spectrum Access Systems (SAS), Environmental Sensing Capability (ESC), and CBRS devices
- Defining interoperability requirements and protocols to allow for open, competitive, and well-functioning systems
- Developing a common framework for testing and integration of components of spectrum sharing technologies to allow for rapid certification, deployment, and predictability, thereby expanding the ecosystem and increasing utility of the spectrum

- Establishing requirements, processes, and methods for protection of incumbent users as required by the spectrum rules
- Setting operational procedures definition for the well -functioning of the system as it pertains to spectrum assignment, managements, and interoperability

The approach to work activities by the Committee emphasizes system interoperability while achieving simplicity in interfaces and requirements. This is done to advance competitive and innovative approaches and to increase deployment speed of these systems.

Members of the Forum’s Executive Committee and general Forum members comprise the Committee’s Steering Group. Steering Group member companies include:

- Alcatel-Lucent Bell Labs
- AT&T
- Comsearch
- Federated Wireless
- Google
- Keybridge Global
- Motorola Solutions
- Nokia Networks
- Pathfinder Wireless
- T-Mobile
- Verizon

The Steering Group manages overall activity and ensures consensus and agreement with results from the discussions, such that progress can be made properly and timely to serve the interest of all the stakeholders. The Steering Group identifies projects of strategic relevance to the membership; assigns, prioritizes, and launches new projects within subcommittee Working Groups; sets desired outcomes and monitors projects within the Working Groups to ensure their support and timely execution; and approves Working Group recommendations.

Further, the Steering Group ensures that activities are not directed at policy-making, government certification, or liability management. While the Committee may, from time to time, make formal technical recommendations to the FCC or other regulatory bodies, following the Forum’s standard policies and procedures, it is nonetheless a standards and technical implementation forum.

5.2 FY2016 Objectives

The Spectrum Sharing Committee has established the following objectives for FY2016 to support the high-level objectives assigned to the Committee by the Board of Directors:

- Establish standards for 3.55 GHz band spectrum sharing
- Promote adoption of WInnForum standards
- Grow revenue

5.2.1 Establish Standards for 3.55 GHz Band Spectrum Sharing

The Steering Committee has established an aggressive project plan for FY2016 which will lead to comprehensive standards for 3.55 GHz Band spectrum sharing. The project plan, as detailed in Section 5.3, is divided into four Working Group areas: Operational and Functional Requirements, Security Requirements, Protocol Specifications, and Testing and Certification. Collectively, the four Working Groups will publish 10 deliverables in or before FY2016.

5.2.2 Promote Standards Adoption

Adoption of standards approved and published by the Committee is vital to expanding the Forum's leadership and brand in the spectrum sharing community. In FY2016, the Committee will establish a Marketing Group to work with the Forum's executive Committee and Forum Staff to further Committee activities including exploring development of a spectrum sharing technology brand as well as to market Committee standards publications.

5.2.3 Grow Membership and Revenue

Membership growth and continued active participation of member companies in the Committee is a key objective. In FY2015, the Forum used trial memberships, with considerable success, to generate interest and encourage participation in the Committee. The Committee will continue to explore use of trial memberships in FY2016 as a means to expand participation and increase Forum visibility.

Committed industry participation in the Committee in FY2016 will be evidence that the Committee is executing on its goal to brand itself as the preferred venue for the spectrum sharing community. In FY2016 the Committee will focus on strengthening the Forum's brand overall, which in turn will result in increased membership, increased participation in Forum events, and ultimately grow revenue.

5.3 FY2016 Project Plans

As described above, the Steering Committee has established an aggressive project plan for FY2016, which will culminate in standards for operation in the 3.55 GHz CBRS band in accordance with FCC rules and regulations. The FY2016 project plan is allocated among four Working Groups: Operational and Functional Requirements, Security Requirements, Protocol Specifications, and Testing and Certification.

5.3.1 Operational and Functional Requirements

The objective of this working group is to work on further defining Spectrum Access Systems (SAS) functional requirements as they relate to creating an interoperable system across the various providers of systems and equipment within the industry. There is no intent in this working group to define a common architecture and design for SAS systems. This working group will further track and articulate common functional questions that require industry consensus for further clarification and definition.

FY2016 Goal

WG1's goal is to develop standards and requirements that will allow the 3.55 GHz SAS community to translate the FCC rules into implementable and interoperable functions. The main deliverable from the group is the Spectrum Sharing System Functionality document (Deliverable W1D1).

Standards Deliverables

W1D1 – Spectrum Sharing System Functionality: Common functional requirements for systems interoperability that are needed for the SAS systems to interface properly and function in a similar fashion where coordination is required on functionality. Examples include the required information exchange between systems, data input by external systems (e.g. sensor systems), behavior when interference occurs due to incumbent activity, and freedom in assignment of spectrum channels.

W1D2 – SAS Privacy Policies and Considerations: Common practices and rules to be observed by developers and users of the system to protect the privacy of the users of the system. Examples include practices for data retention and backup and how to mask data before sharing across subsystem operators.

Delivery Plan

The current plan for WG1 standards delivery is as follows:

- W1D1 - Spectrum Sharing System Functionality
Status: **In progress**
- W1D2 - SAS Privacy Policies and Considerations.
Status: **Not begun**

WG1 members may take up additional deliverables as the two primary tasks are completed.

The draft of W1D1 was originally planned for 1Q 2015, but since the FCC rules were released in 2Q 2015, the Committee anticipates that the first draft will not be available until late 3Q 2015 or 4Q 2015.

Because SAS privacy policies were codified in the just-released rules, we may consider rolling W1D2 into W1D1, as it will pertain to basic SAS functionality.

Group member activity and participation are high and the group regularly receives contributions of very high quality. In the opinion of the group chair and vice-chair the stated deliverables have a high likelihood of successful completion by 4Q2015.

5.3.2 Security Requirements

The Security Requirements working group is responsible for defining the cybersecurity and operational security (OPSEC) requirements for the SAS ecosystem. Cybersecurity requirements focus on ensuring that SAS transactions are trusted and principally on the cryptographic protocol and key management requirements to secure the overall system. OPSEC requirements will focus on protection of sensitive incumbent information from edge-network probing and ensuring that the system has features, which enable appropriate auditing and governance of commercial activities in federal bands.

FY2016 Goal

WG2's charter is to define the security requirements for the overall SAS ecosystem, to include cybersecurity protections and operational security protections to protect incumbent privacy. These two tasks will result in two deliverables that define their respective requirements.

Standards Deliverables

W2D1 – Cybersecurity Requirements Guidelines: This document will define system cybersecurity requirements guidelines to include security properties of each of the components, security properties of the interfaces, and requirements on authentication and encryption. Additionally this document will define security controls that are necessary to reduce the risk of cyber-attack against the components and the system overall.

W2D2 – Operational Security Requirements Guidelines: This document will define the overall system operational security requirements to include handling of incumbent data, obfuscation of spectrum data, and processes associated with auditing and governance of the SAS infrastructure.

Delivery Plan

The current plan for WG2 standards delivery is as follows:

- W2D1 - Cybersecurity Requirements
 Status: **Draft document adopted by WG, estimate 3Q2015**
- W2D2 - Operational Security Requirements
 Status: **Draft document adopted by WG, estimate 3Q2015**

Other than a roughly one quarter schedule delay due to a delay in the FCC report and order, the group is on track to meet its original plan.

The only potential risk to delivery is effective interaction with the incumbents to ensure their equities are being addressed as the standard has been developed. Delays associated with their processes could delay the output of the working group, but based on interaction to date this is not expected to be a significant risk.

5.3.3 Protocol Specifications

The goal of this working group is to define the detailed protocols for data and communications across the various open interfaces within the system. The interfaces are limited to what is the minimum needed for implementation of an open and interoperable system. Other interfaces may be included later. The objective is to use common interfaces and as light of a protocol as possible to allow for innovation and development of the subsystems in a healthy competitive environment while preserving the openness of the system.

FY2016 Goal

WG3's charter is to define the detailed protocols for data and communications across the various open interfaces within the system.

Standards Deliverables:

Deliverables for WG3 include both Standards deliverables and Informational deliverables. The Standards deliverables include:

W3D2 – SAS-SAS Protocol Specification: Protocol specification between different SAS systems

W3D3 – SAS-User Protocol Specification: Protocol between devices and SAS system and may be the same as the above protocol

The Informational deliverables include:

W3D1 – Inventory of Existing Standards: Documentation of relevant existing protocols

W3D4 – 3GPP/WiFi Considerations and Best Practices: Development of the minimum interface standards needed to connect existing standards and network elements to the new SAS systems.

Delivery Plan

The current plan for WG3 standards delivery is as follows:

- Spectrum Access System component model
Status: **Completed – not published**
- W3D2 - SAS-SAS Protocol Specification Protocol
Status: **In progress, estimate 4Q2015**

- W3D3 - SAS-User Protocol Specification Protocol
Status: **In progress, estimate 4Q2015**

WG3 members may take up additional deliverables as the two primary tasks are completed.

Current WG3 activity and stated deliverables diverge slightly from the originally proposed set of tasks. W3D1 (Inventory of Existing Standards) is abandoned due to lack of interest. W3D4 (3GPP/WiFi Considerations) is frozen and forwarded to the Spectrum Sharing Committee for reassignment. In the opinion of the WG3 chair and co-chair this task (W3D4) should be reconstituted as an integration study of SAS technology into a type-specific network and possibly directed to a join WG1/WG3 task group. This proposal will be take up with the Steering Group in FY2016.

Group member activity and participation are high and the group regularly receives contributions of very high quality. In the opinion of the group chair and co-chair the stated deliverables (SAS-SAS and SAS-User Specification) have a high likelihood of successful completion by 4Q2015.

5.3.4 Testing and Certification

The goal of this working group is to define the test and certification standards for the SAS and across the various interfaces within the system. The certification should be limited to what is the minimum needed for the creation of a simple and standard certification process for an open and interoperable system. The objective is to implement a test architecture that enables a competitive, innovative, and open environment for the development of the SAS and other ecosystem elements.

FY2016 Goal

WG4's charter is to develop test and certification standards for the shared spectrum ecosystem, including SAS, ESCs, CBSDs, and End User Devices. For FY2016, the Working Group will focus in particular on SAS standards and will seek to develop a test framework that satisfies Commission requirements for SAS certification.

Standards Deliverables:

Deliverables for WG4 include:

Standards Deliverables:

W4D1 – Testing and Certification Objectives: Definition of common framework for testing and certification

W4D2 – Testing and Certification Requirements: Requirements and framework for testing and certification of SAS systems and interfaces

Delivery Plan

The current plan for WG4 standards delivery is as follows:

- W4D1 – Testing and Certification Objectives
Status: **Not started, estimate 4Q2015**
- W4D2 – Testing and Certification Requirements
Status: **Not started, estimate 1Q2016**

WG4 members may take up additional deliverables as the two primary tasks are completed.

Current WG4 activity and stated deliverables diverge slightly from the originally proposed set of tasks. As further standards work on ESCs, CBSDs, and End User Devices are forthcoming from other Committee Working Groups, the W4D1 deliverable will focus primarily on a common test framework for the SAS. This will include the definition of relevant test cases and metrics, test automation techniques, and test infrastructure. Deliverable W4D2 will include relevant test and certification standards for ESCs, CBSDs, and End User Devices.

Group member activity and participation is increasing regularly. In the opinion of the Working Group Chair deliverable W4D1 has a high likelihood of successful completion by 4Q2015. Completion of Deliverable W4D2 is highly dependent upon work product of other WGs and, as such, there is some risk that this deliverable may be delayed. However, no more than one quarter of slippage is expected at this time.

6 Board of Directors FY2015 Work Plan (Chair: Manuel Uhm, Ettus Research)

A primary responsibility of the Board of Directors in FY2016 is monitoring the operations of the Forum ensuring compliance with the 2014 to 2017 Strategic Plan and this Operations Plan. Meetings of the Board of Directors are planned for the following dates:

- Web conferences the second Tuesday of each month at 10AM Eastern US Time
- October 2015 in Erlangen, Germany (in conjunction with WinnComm-Europe)
- March 2016 in Reston, Virginia (in conjunction with WinnComm)

Additional interim Board Meetings may be scheduled as required.

An additional key role of the Board of Directors is monitoring the financial performance of the Forum. The CEO will send the status of membership and the updated FY2016 financial forecast to the Board monthly. In addition, the financial performance is reviewed following the schedule below:

- October 2015 Board Meeting – Review the audited financial results for FY2015 to be presented to the members at the Annual, and the Q1 FY2016 forecast with projections for the remainder of the year.
- Annual Meeting of the Members – Present FY2015 audited financial results to the members, present updated FY2015 projections
- March Board Meeting – Review Q1 and Q2 FY2016 unaudited financial results and projections for the remainder of the year.
- June Board Meeting – Review the FY2016 forecast and approve the FY2017 Operation Plan and Budget and submit to the membership for approval.

Additional work by the Board to monitor performance and explore strategy is undertaken by the following Board committees:

- **Audits Committee** – Provides board oversight of the organization’s annual financial audit, including reviewing the adequacy and reliability of the Forum’s internal controls and financial reporting, review the independence of and performance of the Forum’s external auditor, review alleged violations of the Forum’s stated policies, and reports to the board on recommendations. Chair: Assigned by the Chair of the Board
- **Finance Committee** – Provides board oversight of the Forum finances including recommending financial policies and internal controls, reviewing the annual budget prepared by staff and recommending it to the full board for approval, and monitoring financial reports prepared by the staff, including monitoring of investments, against the approved budget. Chair: Treasurer

- **Employee Compensation and Contractor Performance Committee (ECCP)** – as defined in the Forum’s [Bylaws](#)
- **Governance and Policy Committee** – provides oversight and assessment of the Board, identifies requirements for Board orientation and education. Reviews current best practices and governance trends and makes recommendations to the full board on bylaws and policies. Chair: Secretary
- **Nominating Committee** – As defined in the Forum’s [Bylaws](#). The 2015 Nominating Committee is formed by the Chair of the Board of Directors on or before the start of the June General Meeting, and presents the proposed slate of Directors to the Board at the October 2014 Board meeting.
- **Outreach Committee** – provides input to the Board on venues and events that the Forum should have representation in attendance.

7 Infrastructure and Support Services

7.1 Strengthen the Forum's Brand

Forum staff will support High Level Goal 1 (Brand the Forum as the Preferred Venue for the Spectrum Sharing Community) and Goal 3 (Execute on the Strategic Plan of the Coordinating Committee on International SCA Standards) through 5 efforts outlined in this section:

7.1.1 Execution of Relevant Projects

The Forum's staff will work with Forum leadership to provide the facilities, infrastructure and services necessary for the members of the Forum's standing Committees to collaborate as required to achieve the objectives stated in this operations plan. Specific services defined for FY2016 as necessary in achieving the high level goals comes are:

- Remote Collaboration Services. Much of the work of the Forum's members is done using electronic utilizing the following tools provided by the Forum:
 - Webconferencing: A Go To Meeting account has been established for each committee. In addition, the Forum maintains a Go To Webinar account which can be used to host online workshops as required.
 - Online Communities: A collaboration area has been established for each work group, task group and special interest group on the Forum's "Groups Portal" (<http://groups.winnforum.org>). Each collaboration area can host multiple project specific file libraries, list servers and wikis.

Forum staff will support its members in making use of these services as required, including supporting group leaders in maintaining portal communities, scheduling and hosting web meetings, and organizing workshops.

- Face to Face Meeting and Event Services. The Forum will provide complete meeting and event services as required, including planning, registration management, site selection and facilities management, speaker management and agenda/program development for ad-hoc project meetings, committee meetings, workshops and conferences. Where possible, meetings will be hosted at the Forum's offices in Reston, Virginia or at member facilities.

Staff will create and maintain the supporting communication vehicles for the events including web presence and print publication as well as promotion through press releases, email campaigns, social media and sell sheet distribution when applicable.

- Project Facilitation and Management Services. Forum staff will provide services throughout the lifecycle of member projects as follows:
 - Project Initiation, including supporting the development of project proposals

- Project Support, including schedule and budget management, tracking risks, soliciting contributions, following up on action items with volunteers and reporting
- Editorial services, including graphics design, to ensure project reports, recommendations and specifications have a professional look and feel
- Document Advancement and Electronic Balloting
- Project promotion, including press release announcement of approved projects and final work products, social media and email campaigns to inform the community of progress and grow participation, and direct editorial pitch when appropriate to promote activities and results.

In addition, staff will undertake an ongoing review of the Forum's communication vehicles to ensure a dynamic and efficient response to member needs and opportunities for member promotion using these vehicles, such as product announcements, event announcements, etc.

Plans for the application of these services in support of each of the stated high level goals are defined in the following sections.

7.1.2 Establish and Implement a Sub-Brand Strategy

To further establish the Forum as the authority in spectrum sharing and the SCA, sub-brands and marketing strategies will be created for the 3.5GHz band and SCA 4.1, working with the Spectrum Sharing Committee markets leadership and the SCA Advocacy Work group respectively.

At the time of this writing, the SCA sub brand logo is anticipated to be crowdsourced and subsequently launched with the announcement of the SCA 4.1 standard by the JTNC in CY2015 Q4. A branding strategy will then follow to widen the awareness of the brand and its affiliation with the Forum's Coordinating Committee on International SCA Standards. This brand strategy will include press releases, a webinar, social media, email, web site, and product sell sheets promoting the standard. Staff will also support member efforts to widen the marketing viability of the SCA outside military application.

While work is ongoing for the Spectrum Sharing Committee, a sub-brand will be developed, possibly also crowdsourced depending upon budget, with a target completion date of the end of Q1 when committee deliverables are beginning to be publicized. A brand strategy will also be produced that includes include press releases, a webinar, and product sell sheets in addition to social media promotion, emails and web site.

7.1.3 US and European Conferences

The US and European Conferences act as primary vehicles for the Forum's members to network with the community and gain insight into current trends in SDR, CR and DSA technology. These conferences are a key element of the Forum's brand, and so Forum staff will work to strengthen both the conference programs and participation.

Positioning of the Forum's conferences shall remain as follows:

*For Radio Manufacturers, System Integrators, Procurement Authorities and End User Representatives, **Who** need to understand technical, regulatory and business advances supporting the innovative utilization of spectrum and advanced radio technologies supporting essential or critical communications, SDR-WInnComm is a technical conference **That** provides a venue for members to network with and learn from the leading innovators in the advanced wireless market to gain a functional knowledge of relevant emerging opportunities and technologies.*

Plans for each conference are as follows:

7.1.3.1 WInnComm-Europe 2015

WInnComm-Europe 2015 will be held 6 to 8 October 2015 in Erlangen, Germany. Important dates for this conference in FY2015 are as follows:

- Paper accepted notification: 28 August 2015
- Final, camera-ready manuscript due: 18 September 2015

Forum staff supports the technical program committee in defining conference and workshop topics, issuing the call for proposals, collecting and reviewing abstracts, reviewing papers and setting the program.

All operations of conference events from pre-conference services such as registration and exhibits management to onsite services will be conducted in to the highest degree of professionalism and membership service. Staff will look to maximize the meeting experience for all attendees while focusing on efficiency and economies.

Satisfaction surveys by attendees will be used to determine attendee satisfaction, perceived problems, and potential improvements. The survey results will be used to guide plans for future conferences.

Forum staff will continue to place a priority on promoting the conference in order to increase attendance as well as brand recognition. The event web page, which is the primary public presence for the event will be updated frequently to ensure that it is dynamic, as well as reviewed often for accuracy and brand consistency. The web page and event will be promoted through press releases, email distribution and social media mentions. All communications vehicles will

carry the same consistent branding presented on the web page. In addition, Forum staff will design and produce event proceedings for the conference, which will be distributed online by the same method used for WinnComm 2015, which was very successful.

In FY2013, the Forum reduced printing costs substantially by omitting a printed conference schedule for the US event and communicating to conference attendees that the show schedule and communication would be primarily electronic. This was received very favorably. Staff will continue to pursue this option for the European conference as well as explore avenues to cut cost without sacrificing effective communication and promotion.

7.1.3.2 WinnComm 2016

WinnComm 2016 will be held in 15 to 17 March 2015 in Reston, Virginia. Important dates for this conference in FY2016 are being defined now, but will be similar to the WinnComm 2015 dates:

- Paper, Poster and Presentation Abstracts Due: 26 September
- Paper Abstract Acceptance: 3 October
- Draft papers due: 5 December
- Workshop and Tutorial Abstracts due: 5 December
- Acceptance notifications: 6 February
- Final Papers Due: 27 February
- Presentations Due: 6 March

As with the European Conference, Forum staff will support the technical program committee in defining conference and workshop topics, issuing the call for proposals, collecting and reviewing abstracts, reviewing papers and setting the program. For FY2016, this may a poster session to be held in conjunction with the conference exhibition.

In addition, as this is the 20th anniversary of the Forum, staff will incorporate historical talks and possible keynote tied into the SCA day of the conference.

All operations of conference events from pre-conference services such as registration and exhibits management to onsite services will be conducted in to the highest degree of professionalism and membership service. Staff will look to maximize the meeting experience for all attendees while focusing on efficiency and economies.

Satisfaction surveys by attendees will be used to determine attendee satisfaction, perceived problems, and potential improvements. The survey results will be used to guide plans for future conferences.

Forum staff will continue to place a priority on promoting the conference in order to increase attendance as well as brand recognition. The event web page, which is the primary public presence for the event will be updated frequently to ensure that it is dynamic, as well as reviewed

often for accuracy and brand consistency. The web page and event will be promoted through press releases, email distribution and social media mentions. All communications vehicles will carry the same consistent branding presented on the web page. In addition, Forum staff will design and produce event proceedings for the conference, which will be distributed in an online store. The availability of the proceedings in a public marketplace will help advance the Forum's brand and help establish the Forum as a leader in producing technical publications.

Staff will employ a similar email schedule to that used in WInnComm 2015 to increase readership rates and conversions to attendance.

7.1.4 Outreach Committee

Forum staff will support the new Outreach Committee of the Board of Directors by leveraging and expanding its partner relationships around the world to help identify relevant third party events where the Forum should have representation. Forum staff will work to secure speaking roles for Board members at these events, and will support Board members in preparing for their speaking roles, including preparing presentations and co-authoring papers as required. Forum staff will also promote Board participation in designated outreach events through our calendar, email promotion, promotion in News & Opportunities Daily Digest and social media mention.

7.1.5 Annual Awards

The Forum will launch the 2015 Awards program in November, with nominations pursued in emails, and on the web site. Finalists will be announced in December 2015, and will be encouraged to attend the March conference where winners will be announced and receive their awards. Technical Achievement nominees will be given the offer of a free booth in the exhibit hall to demo the technology.

7.2 Identify New Market Area Relevant to the Forums Mission

7.2.1 Market Segmentation Study

Segmentation has long been the most effective way to communicate with audiences. With the Forum's evolving focus, it has been noted that it is time to redefine the Forum's membership segments. As such, staff will meet with Forum members who have expressed an interest in helping identify various segments the Forum should be incorporating into our data gathering. New segments could possibly include Infrastructure suppliers, consumer carriers, vertical market suppliers, and Internet service suppliers. A proposal for the segmentation and how to incorporate it with our current segmentation will be prepared in Q1.

7.2.2 Steering Group Support

Forum staff will provide primary and secondary research as required to the steering group of the Committee on Spectrum Innovation to facilitate identifying a new market area. Additional

support will be provided in drafting a capture plan to engage with and validate this community as a potential new area for the Forum.

7.3 Establish a Test and Certification Strategy for WinnForum Standards

Forum staff will support this high level goal through the same plan as defined for Establish Relevant Projects.

7.4 Establish Relevant Projects

Forum staff will support each steering group in the establishment and maintenance of project roadmaps, including identifying and presenting a “watch list” of strategic issues that must be evaluated and tracked to each steering group on a monthly basis. Staff will also collect additional data pertaining to each watch list issue, as required for follow up by the steering groups.

Staff will support the Chief Regulatory Officer and Chief Technical Officer in revising the Forum’s Advocacy Agenda and Most Wanted Wireless Innovations List as required. Once work on these revisions is complete, Forum staff will facilitate the balloting process. Approved revisions will be published and promoted via press release, email distribution, social media mention, mention and link on Forum home page and groups portal page.

For other roadmap projects, Forum Staff will facilitate project initiation as follows:

- Forum staff will work with Forum members to identify relevant stakeholders and stakeholder groups for each project, and then develop an outreach plan to secure committed participation. Plan may include personal contacts via telephone and email, <marketing campaigns>, an online or face to face “formation meetings”.
- Forum staff will work with the committed project participants to define a project proposal and operating procedures.
- Forum staff will facilitate meetings and workshops as required, both online and face to face, as required to support the defined project plan.
- Forum staff will establish and maintain an online community and externally accessible promotional web page(s) for each project group.
- Forum staff will conduct a marketing campaign for each stakeholder group to increase participation, including
 - Press release announcement
 - Social media announcement
 - Email announcement
 - Sell sheet design and distribution at relevant events as appropriate

7.5 Formalize Partner Relationships with End User Community

Forum staff will support the Committee on Spectrum Innovation and the Spectrum Sharing Committee in their initiatives to establish relationships with end user communities.

Forum staff will facilitate work by the Coordinating Committee on International SCA Standards in their efforts to formalize partnerships with the end-user community to include supporting the recruitment and management of additional AC members, and establishing memorandums of understanding, contracts or other agreements establishing partner relationships with target end user communities.

7.6 Improve Regional Support

Forum staff will follow a similar plan for the establishment of a regional committee as was outlined for the establishment of multi-stakeholder groups:

- Forum staff will work with Forum members to identify relevant charter members and potential associate members, and will then develop an outreach plan to secure committed participation from each group. Plan may include personal contacts via telephone and email, <marketing campaigns>, an online or face to face “formation meetings”.
- Forum staff will work with the identified charter members to define a charter, operating procedures and work plan for each regional committee.
- Forum staff will facilitate meetings and workshops as required, both online and face to face, as required to support the defined work plan.
- Forum staff will establish and maintain an online community and externally accessible promotional web page(s) for each regional committee.
- Forum staff will conduct a marketing campaign for each stakeholder group to increase participation, including
 - Press release announcement
 - Social media announcement
 - Email announcement
 - Sell sheet design and distribution at relevant events as appropriate

7.7 *Grow Revenue*

7.7.1 Committee Support

Forum staff will support all three committees in outreach activities to grow participation and gain new members. This includes providing support to the CCSCA Advocacy Work Group and the proposed SSC Markets Work Group.

7.7.2 Member Retention

Both new member marketing and current member retention are priority aspects in generating revenue. With the Forum's diverse and growing market segments (spectrum sharing, SCA, etc.) the audiences are quite different for each segment. As such, staff will produce separate promotion sites for each committee audience detailing outputs, benefits to members, current members specific to this group, etc.

In addition, staff will produce a plan for a "Connection Corner" designed to put our member suppliers and buyers into contact with one another, similar to networking at conferences, but without the conference. We will serve as the venue where supply meets demand for our membership, which will be of particular appeal to our smaller members who tend to leave the Forum if they are not able to have their networking needs met.

7.7.3 Daily News Feed

Feedback provided by members in satisfaction surveys and one on one interviews indicates that the daily news feed provided by the Forum is a key value provided by the Forum and so as a part of our member retention strategy, Forum staff will continue this service in FY2016 as well as explore ways to expand the value, such as, for example, including one banner ad per week (additional revenue) by sponsor.

In addition, Forum staff will continue to review and change our member communication tools as needed for optimum efficiency and use, including our web site, group collaboration services and database services.

8 Other Corporate Administration

8.1 Annual Meeting of the Members

The Annual Meeting of the Members, as described in the Forum [Bylaws](#) will be held in at the Forum's headquarters location in Washington DC the week of 2 November.

8.2 Socious GUI

Our member collaboration portal host, Socious, has created a new graphic user interface that is much more updated and attractive. There is a good amount of set up to be completed by staff in preparation to launch the new GUI to membership. It is anticipated to complete this preparation over Q1 in order to present to membership in Q2. The launch will occur in three phases: first there will be a review by all staff, then a presentation made to group leaders, then to membership. Training will be provided to group leaders as well. It is anticipated that the new GUI will not affect group behavior and efficiency.

8.3 Opening Proceedings

Staff will undertake a project of removing the conference proceedings from the store and restoring them in the document library, making them open for use. A subsequent marketing campaign will be launched to announce the opening of the proceedings to the public. It is anticipated to retain a data gathering point before files are downloaded to exclude bots from document download.

8.4 Corporate Filings

The Forum will continue to evaluate and improve internal office functions related to financial controls and reporting, archival storage of documents, and membership initiation and renewal. Finance and Accounting Procedures will be updated in Q1 FY2015 to reflect modifications of the membership renewal process as well as the process for managing Value Added Tax in our European Events.

In addition, the Forum shall ensure filings as follows:

- 990 filing with the IRS – 15 November 2015
- California Tax Exempt Return – 15 November 2015
- Canadian Information Return – 15 November 2015
- Canadian Extra-Provincial Annual Report – 2 January 2016
- 1099s to recipients – 31 January 2016
- 1099 and 990s to IRS – 28 February 2016
- Foreign Bank Account Report Form – 30 June 2016
- Fairfax County, VA Business, Professional, Occupational License-01 March 2016
- Fairfax County, VA Personal Property Tax-01 May 2016
- Virginia Corporate Commission Report-30 April 2016

8.5 Insurance

In addition, the Forum shall perform an insurance review (D&O, E&O, Liability, etc.) to be completed to be completed in advance of the renewal date.

- Directors and Officers Insurance: January 2016
- Error and Omissions Insurance: August 2015
- General Liability Insurance: August 2015

In addition, the Forum will secure cancellation insurance, as appropriate, for each major event.

8.6 FY2017 Planning Cycle

The FY2017 Operation Plan will be developed on the following schedule:

- Board Approval of High Level Goals for FY2016 – 8 March 2016
- High Level Goals and Ops Plan Process Presented to Group Leaders – 11 March 2016
- Draft Budget Presented to the Finance Committee – 25 April 2016
- Draft Plan Submitted to Officers – 9 May 2016
- Final Draft Approved by Forum Chair and CEO – 31 May 2016

The final plan will be presented to the Board of Directors for their approval during the June 2016 Board Meeting, and will be submitted to the membership for final approval immediately thereafter.