FY2012 Operations Plan

Version 1.0.0
22 June 2011

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1 Introduction – The Wireless Innovation Forum FY2011 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, 2011 through June 30, 2012 in executing on the Forum's Strategic Plan:

1. **Deliver Relevant Work Products** – The Forum's members shall ballot and release at least four new Specifications supporting the Forum's commercialization strategy. In addition, each committee within the Forum shall ballot and release at least one Report and at least one Recommendation supporting the Forum's advocacy, business development and education strategies in the 12 month period starting July 1st, 2011. The Forum shall actively promote these work products as they are developed, to solicit contributions from members and partners towards their creation and to ensure that they accurately reflect the broader consensus views of the Forum.

2. **Define a Test and Evaluation Model** – The Forum's members shall work with key stakeholders to identify business cases/models for the Forum to establish compliance test and evaluation capabilities for key technologies (e.g. SCA and TVBD/White Space) that are agreed to be mutually beneficial to both government and industry by key stakeholders

3. **Define New Initiatives** – The Forum's members shall establish at least one new special interest group, which will extend the Forum into a relevant new domain following the Forum's defined strategy on growth. In addition, the Forum's members will initiate at least four new projects starting in 2012, at least one of which will focus on open source, with deliverables that will advance the Forum's strategies in advocacy, business development, commercialization and education through 2013.

4. **Increase End User Participation** – The Forum's members shall define and initiate projects and programs to measurably increase participation in Forum activities by End Users and their representatives as defined in the Forum's strategic plan. These new efforts will include, at a minimum, a workshop to be organized and hosted by each special interest group focused on exploring requirements for next generation wireless communications systems in their target market domain.

5. **Publish a "Top 10 Most Wanted Wireless Innovations" List** – The Forum's roadmap committee shall publish two revisions of the Top 10 Most Wanted Wireless Innovations list in 2012.

6. **Strengthen the Forum's Brand** – The Forum shall enhance the relevance of its brand where possible within the advanced wireless community through structured marketing that professionally promotes Forum events and activities, coupled with a market outreach program and a continuing focus on cultivating collaborative relationships with partner organizations.

7. **Improve Regional Support** – The Forum will establish and execute a strategy for forming special interest groups and projects focused on regional needs. The Forum will leverage regional meetings and workshops in each region as necessary to gather requirements as inputs to this strategy and to support execution of individual defined initiatives.
   a. ITU Region 1: Continue regional support through European Office, host SDR'12 WInnComm Europe, form new work group or SIG.
   b. ITU Region 3: Host workshops in new membership growth areas

8. **Grow Participation** - The Forum believes that executing on these high level objectives will inherently lead to increased participation in the Forum's meetings, increased attendance at the SDR '11 WinnComm, and ultimately grow the Forum's membership. As such, the Forum's Board of Directors has established a metric of 10% growth across the board for participation in Forum activities and events, and will use this metric to measure success in executing on the overall strategy.

This document presents specific plans for achieving these high level objectives in separate sections dedicated to the FY2012 Meeting Plan, and the respective work plans of the User Requirements Committee, The Regulatory Committee, the Committee on Next generation Radio Technology, the Committee on advanced Wireless Networking and Infrastructure, the Coordinating Committee on International SCA Standards, 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

2.1 Forum Structure

The FY2012 Organizational Structure of The Wireless Innovation Forum is presented in Figure 1. The Forum is organized around five primary committees and a roadmap committee, whose responsibilities are summarized as follows:

- *The User Requirements Committee:* The User Requirements Committee acts as the primary interface for requirements with the wireless end-users and the representatives of wireless end-users in their segment, including, as appropriate, network operators, government acquisition authorities and research sponsors. Through Special Interest Groups (SIGs), the Committee works with these key stakeholders to validate concepts and requirements against technology readiness and standardization and to document domain specific requirements, use cases and business models that will drive the activities of the Regulatory and Technical committees. The User Requirements Committee also supports member organizations in identifying new opportunities for next generation products and services in each defined market domain.

- *The Regulatory Committee:* The Regulatory Committee works with the regulatory and public policy community to establish a global regulatory framework promoting the adoption of emerging technologies for advanced wireless systems. The work of the Regulatory Committee is facilitated by a Regulatory Advisory Committee made up of regulatory and public policy officials and experts from around the world working on relevant issues.

- *The Technical Committees:*
    o Committee on Next Generation Radio Technologies: provides a venue for the exchange of information on emerging radio technologies and produces reports, specifications and recommendations supporting the use of next generation technologies in radio devices.

    o Committee on Advanced Wireless Networking and Infrastructure: provides a venue for the exchange of information on emerging technologies important in wireless networking and produces reports, specifications and recommendations supporting the development and deployment of advanced wireless systems.

    o Coordinating Committee on International SCA Standards: 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

- *The Roadmap Committee:* Defines and publishes the Forum's "Top 10 Most Wanted Wireless Innovations"

These committees are managed by the Forum's elected officers, which include the Chair and Vice Chair of the Forum, the Technical Director, the chairs of the User Requirements and Regulatory Committees, the Secretary, and the Treasurer.
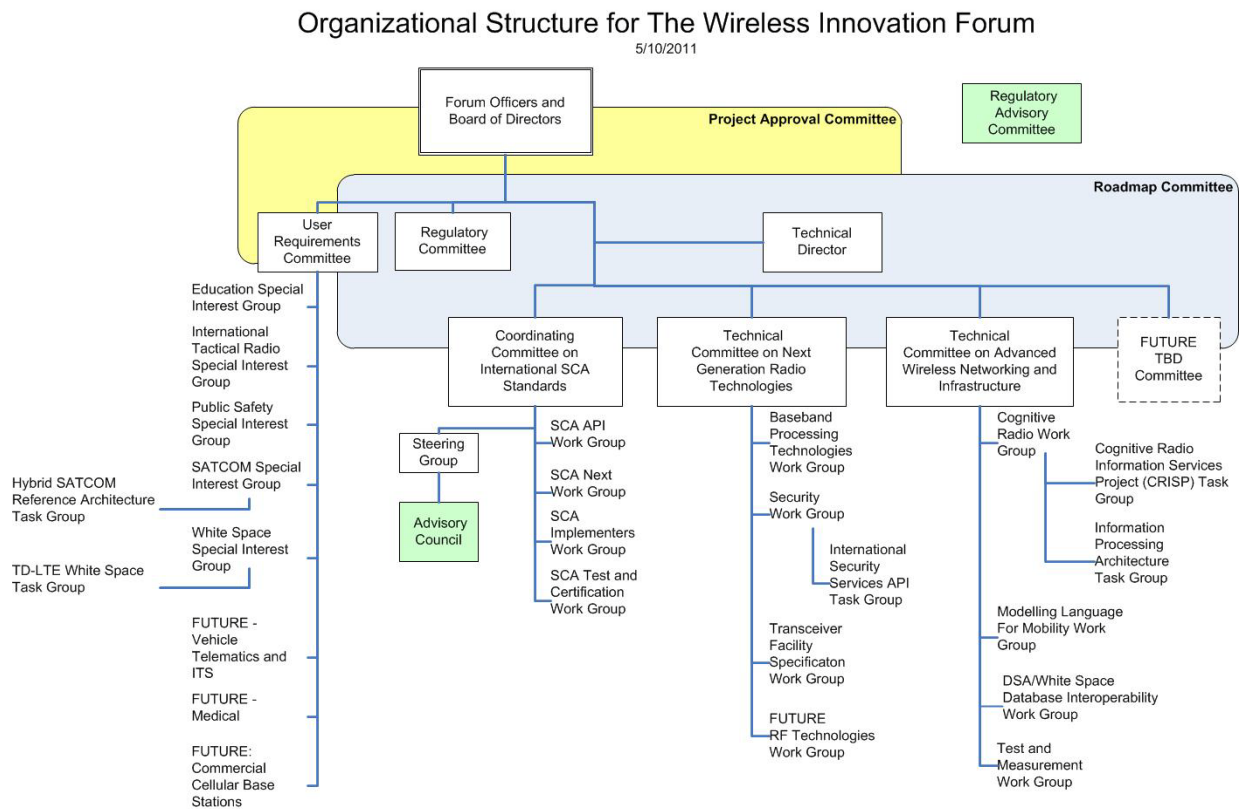

Figure 1: Wireless Innovation Forum FY2012 Organizational Structure

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 Calendar Year 2011 is provided in Table 1.

Name	Member Organization	Position	Email
Eric Christensen	General Dynamics	Chair of the Board of Directors	eric.christensen@gdc4s.com
David Renaudeau	Thales Communications	Director, ITU Region 1 Representative	david.renaudeau@fr.thalesgroup.com
Paul Kolodzy	Kolodzy Consulting	Director, ITU Region 2 Representative	pkolodzy@kolodzy.com
Seung- Hwan Lee	ETRI	Director, ITU Region 3 Representative	lsh@etri.re.kr
John Glossner	Sandbridge Technologies	Director, Small Company Representative	jglossner@sandbridgetech.com
Bob Schutz	Datron World Communications	Director, Medium Company Representative	bschutz@dtwc.com
Claudio Armani	Selex Communications	Director, Large Company Representative	claudio.armani@selex-comms.com
John Powell	NPSTC	Director, Government and Non-Profit Representative	jpowell@berkeley.edu
Paul Sutton	Centre for Telecomm Research	Director, Academic Institutions Representative	suttonpd@tcd.ie
Peter Cook	Hypres	Director, At-Large Director	pgcook@pgcook.com
Hiroshi Harada	NICT	Director, At-Large Director	harada@nict.go.jp
Pekka Heikkinen	Elektrobit	Director, At-Large Director	Pekka.Heikkinen@elektrobit.com
Vince Kovarik	PrismTech	Director, At-Large Director	vince.kovarik@prismtech.com
James Neel	Cognitive Radio Technologies	Director, At-Large Director	james.neel@crtwireless.com
Bruce Oberlies	Motorola	Officer and Director, President and Chair of the Forum	bruce.oberlies@motorolasolutions.com
Ruediger Leschhorn	Rohde and Schwarz	Officer and Director, Vice President and Vice Chair of the Forum	ruediger.leschhorn@rohde-schwarz.com
Manuel Uhm	MIPS Technologies	Officer and Director, Chair of the User Requirements Committee	manuel@mips.com
Peter Tenhula	Shared Spectrum Company	Officer and Director, Chair of the Regulatory Committee	ptenhula@ieee.org
Claude Belisle	Communications Research Center	Officer and Director, Technical Director	claude.belisle@crc.ca
Mark Turner	Harris Corporation	Officer and Director, Forum Treasurer and Chief Financial Officer	mturner@harris.com
Rafael Aguado	Indra Sistemas	Officer and Director, Forum Secretary	ramunoz@indra.es

Table 1: CY2011 Board of Directors of The Software Defined Radio Forum Inc.

2.2 Forum Corporate Administration

Corporate administration services are provided to the Forum through a combination of employees, consultants, and third party contractors. The Forum's key personnel for FY2011 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.

- Deputy Chief Executive Officer (Allan Margulies) – The Deputy CEO's primary responsibility is to support the CEO in advancing the Forum's strategic plan and maximizing the quality of services provided to its member organizations. Reporting to the Forum's CEO, the Deputy CEO proactively supports the CEO in managing day to day operations of the Forum, ensuring compliance of all relevant laws and regulations while maintaining high ethical standards at all times. The Deputy CEO has primary responsibility for organizing Forum meetings and events and acts for the CEO in his or her absence.

- 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.

- Office Manager (Karen Watkins) – Reporting to the CEO, the Office Manager manages the daily operation of the Forum's virtual office including sending and receiving mail and faxes, and collecting and maintaining documents and records. The Office Manager is responsible for all aspects of book keeping, including accounts payable, accounts receivable, general ledger, preparation of invoices and preparation of monthly reports for the CEO. The Office Manager also supervises the bi-monthly payroll run, supports tax preparation and year-end audit, manages the Forum's Group Portal and maintains the Forum's membership database, attendance lists and email lists. Finally, the Office Manager manages meeting registration and provides additional support for meetings and events as needed.

The slate of key consultants and contractors retained by the Forum to support its members in FY2012 are as follows:

1) Joel Gluck – Web Master
2) Grass Coffey & Scharlau, CPAs – Audits and Finance
3) Gesmer Updegrove LLP – Legal Counsel
4) Hogan Lovells – Communications Regulatory Counsel
5) InfoEx World Services – Representative for the Forum in China
6) Interel Association Management Company – Manager of the Forum's European Operations

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 FY2012 can be found in Section 9 of this plan.

3 User Requirements Committee's FY2012 Work Plan (Chair: Manuel Uhm (MIPS Technologies), Vice Chair: David Renaudeau (Thales))

The organization of the User Requirements Committee (URC) for FY2012 is presented in Figure 2. Included within the structure of this Committee are multiple Special Interest Groups, or SIGs, which are cross-disciplinary work groups comprising end users, operators, service providers, radio manufacturers, and regulators focused on the needs of a single market or market segment. The URC currently supports four special interest groups:

- *Education Special Interest Group* – The Educational Special Interest Group (Chair: Carl Dietrich (Virginia Tech), Vice-Chair: Tim Newman (LTS)) is the interface of the Forum to the Educational Community, and is tasked with:

  - raising awareness of resources for education in SDR, Cognitive Radio, and related advanced wireless technologies,
  - publicizing the activities of the Forum as they pertain to issues of interest and concern within this community, and
  - increasing participation of this community in the Wireless Innovation Forum.

  The Educational SIG also interacts with other committees and work groups within the Forum to provide the Educational Community inputs into the publications and initiatives undertaken by the Forum and to solicit inputs on topics related to wireless communications education.

- *International Tactical Radio Special Interest Group* – The charter of the International Tactical Radio SIG (Chair: David Renaudeau (Thales), Vice-Chair: Jimmie Marks (Raytheon)) is to forge strong relationships between the military tactical radio communities of the Americas, EMEA and Asia, to facilitate interoperable allied communications, to identify common industry requirements and drive to a common solution via the Wireless Innovation Forum Technical Committees outputs, and to endorse activities and outputs from industry, government, and unions (e.g., NATO).

- *Public Safety Special Interest Group* – The Public Safety Special Interest Group (Chair: Fred Frantz (L-3 Communications), Vice-Chair: Rick Taylor (Harris)) is the interface of the Forum to the Public Safety Community (including both users and vendors), and is tasked with raising awareness of advanced wireless technology applicable to public safety, publicizing the activities of the Forum as they pertain to issues of interest and concern within this community and increasing participation of this community in the Wireless Innovation Forum. The Public Safety SIG also interacts with other committees and work groups within the Forum to provide the Public Safety Community's inputs into the publications and initiatives undertaken by the Forum.

- *Satellite Communications Special Interest Group* – The Satellite Communications SIG (SATCOM-SIG) is the interface of the Forum to the Satellite Communications Community (including both users and vendors), and is tasked with raising awareness of Software Defined Radio (SDR) and Cognitive Radio (CR) architectures within the community. The SATCOM-SIG also interacts with other committees and work groups

within the Forum to provide user needs input from the satellite industry community for advanced, adaptive communications architectures. A key focus of the SATCOM-SIG is on development of hybrid (SATCOM and Terrestrial) communications architecture (Task Chair: Daniel Devasirvatham (SAIC)) for ubiquitous information processing across communication domains.

- *White Space Special Interest Group* – The charter of the White Space Special Interest Group is to identify and capture requirements, application scenarios and use cases for usage of SDR and cognitive radio devices in white space, as well as assess the potential impact of interference emissions. This charter will be refined in FY2012.
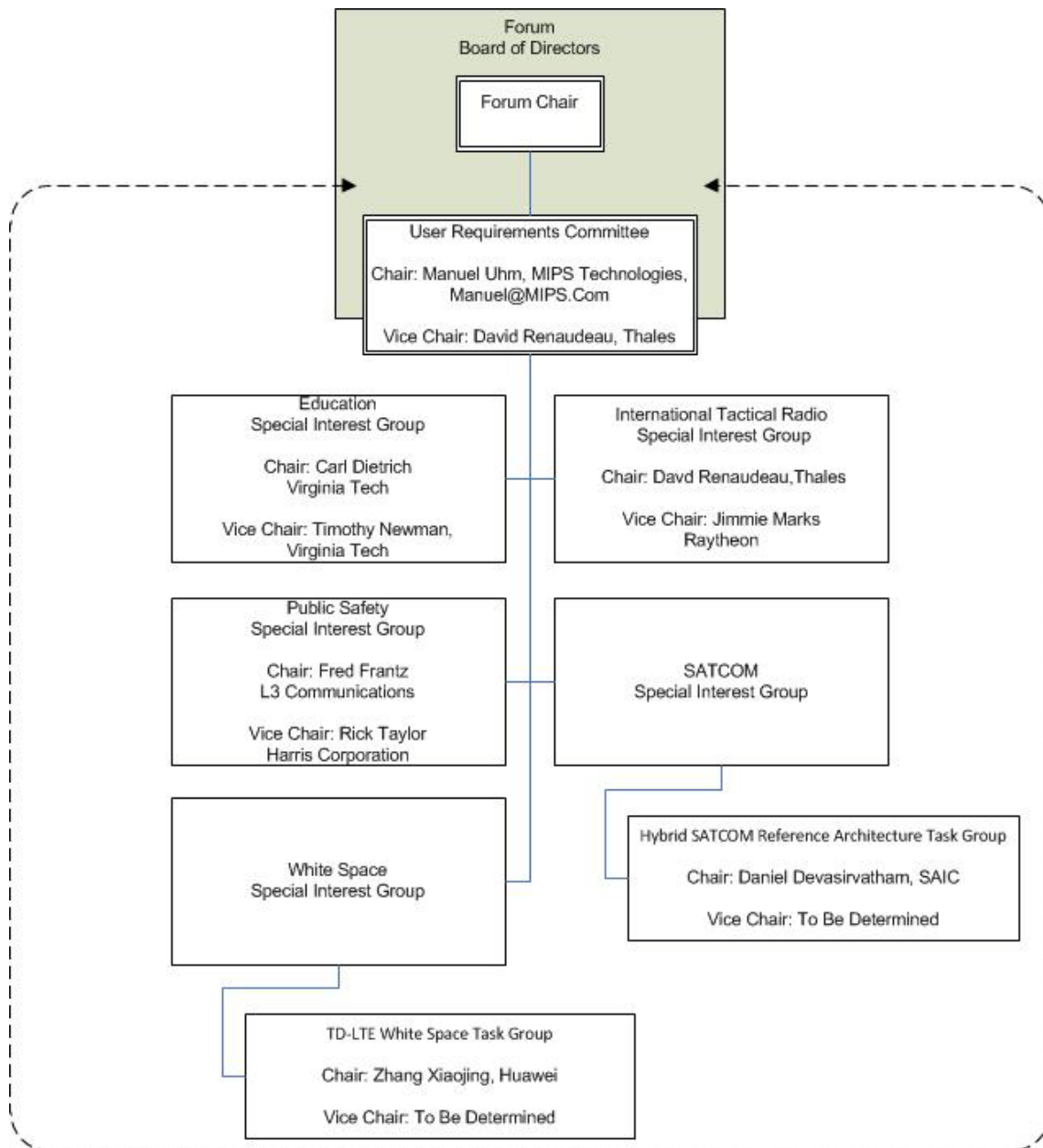

Figure 2: User Requirements Committee Organizational Structure

Through this organizational structure, the URC will undertake the following in FY2012 in support of the Forum's high level objectives:

- **Deliver Relevant Work Products** – The URC plans to deliver the following work products in FY2012 in support of this objective:

    o *"Cognitive Radio Technology Survey for Public Safety"*. This study is being done by the Public Safety SIG for public safety community leadership, researchers, product developers, regulatory, and standards developers who are planning the evolution of communication capabilities and/or can benefit from awareness of future technology developments. It is based on the technology requirements identified in the Cognitive Use Case documents published by the Public Safety SIG and the Quantification Document under development by the Cognitive Radio WG to identify both current and projected maturity and also availability of technology to fulfill those requirements. The Final Report will include a description of emerging technologies that can be applied to the public safety domain and provide a coarse estimate of the current and projected Technology Readiness Levels (TRLs). This document is expected to go to ballot in the Q3 FY2012.

    o *"Hybrid SATCOM Reference Architecture for Public Safety Applications"* – The SATCOM-SIG, together with the Public Safety SIG, will develop a concepts document and a reference architecture to enable phased and concurrent operation of satellite, airborne and terrestrial, narrowband and broadband systems for public safety emergency, and non-emergency communications. The document will study the technologies, integration of the elements, concepts of operation, and their deployment using National Incident Management/Incident Command System (NIMS/ICS) principles. The document will examine possible current solutions and also identify the gaps in standards and technology which could be addressed in the reference architecture using SDR and Cognitive Radio (CR) principles. This reference architecture will be based on the Forum's Information Processing Architecture (IPA) development and will serve as a basis for hardware, software, and applications development of hybrid communication platforms that provide convergence of Line-of-Sight (LOS) and Beyond-Line-of-Sight (BLOS) networks. The first part of this report is expected to go to ballot in Q4 FY2012.

    o *"Issues in the International Tactical Radio Market Domain"* – The ITR-SIG will complete work on this report which identifies the trends and issues associated with the introduction and usage of SDR technologies in the international tactical radio market. The report is being prepared for tactical radio customers, primes, contractors and suppliers worldwide who need to understand the industry trends and barriers to achieving success using SDR concepts and technologies. This document is expected to go to ballot in the Q1 FY2012.

    o *"TD-LTE in White Space"* – The TD-LTE White Space Task Group will complete work on this report which is being developed for Operators, Network Infrastructure Venders, Mobile Service Providers, Baseband Providers, and

Wireless Terminal Manufacturers who want to exploit the TD-LTE system in White Space. The report will address application scenarios for TD-LTE in white space, build use cases from those application scenarios, and define performance parameters, associated deployment scenarios and the impact of interference emissions. Work on this report will be completed in Q4 FY2012.

- o *Wireless Innovation Forum Recommendations* – The URC will evaluate opportunities for Recommendations throughout the year and will create ad-hoc project groups to deliver these Recommendations when appropriate.

- **Define New Initiatives –** The URC will undertake the following activities in FY2012 in support of this objective:

  - o The **Education Special Interest Group** will explore a number of new projects to initiate, including:
    - Undergraduate SDR Contest: The Undergraduate SDR contest can be piloted during 2011-2012 or 2012-2013 academic year, with competition to be hosted at Virginia Tech in spring. Sponsorship is desired but not required. At minimum we will need to recruit corporate judges. We plan to provide bookstore gift certificates and plaques to winning teams. Investigation into details of logistics are underway within Virginia Tech.
    - RFI To Industry on Education Needs
    - SDR Curriculum Recommendations
    - SDR Distinguished Speaker Series
    - GNU Radio Lab update: Sharon Katz at California State Univerisity, Northridge has provided labs that use GNU Radio and the GRC at http://www.csun.edu/~skatz/katzpage/sdr_project/sdrproject.html.

  - o The **International Tactical Radio Special Interest Group** will work to strengthen relationship with other groups, especially the Test and Certification Work Group and the Security Work Group. The group also intends to initiate a project to gather and report on requirements for next generation tactical communications radios, range extension solutions in waveforms and spectrum efficiency, as a new edition of the "Issues in the International Tactical Radio Market Domain".
  - o The **Public Safety Special Interest Group** will support the Security Working Group initiative in developing security profiles for public safety.
  - o The **Public Safety Special Interest Group** will consider initiation of a project to investigate the applicability of SDR/CR technology in addressing the challenges of public safety adoption of LTE as the standard for broadband wireless for 700 MHz systems.
  - o **Market Sizing Report –** The URC will partner with an accredited industry analyst to release a market sizing report focusing on mature SDR industries: commercial wireless infrastructure, MILCOM, public safety, and SATCOM

- **Grow Participation –** The URC will undertake the following activities in FY2012 in support of this objective:

- o **Outreach** – The URC will actively engage in outreach activities to bring new members to the Forum who are keenly interested in identifying new business opportunities and developing new opportunities for their products and services. This will be a primary activity for the URC in FY2012, with at least 3 new member organizations brought into the Forum by June of 2012 specifically to participate in URC activities.
- o **SDR'11-WInnComm Business and Opportunities Track** – The URC will develop a multi-day business and opportunities track during SDR'11-WInnComm focused on outreach and education. This will bring industry and analysts together to explore the potential markets for SDR and CR technologies, the current state of applicable technology, regulations and business models, and technical regulatory and business issues hampering adoption.
- o **Special Interest Groups Workshops** – As per the Forum's Strategy, the Special Interest Groups of the User Requirements Committee will assist in organizing workshops focused on the specific needs of their market domain:
    - ▪ **Public Safety Workshop** – In conjunction with the September meeting
    - ▪ **SATCOM Workshop** – In conjunction with the March Meeting
    - ▪ **Tactical Radio Workshop** – In conjunction with SDR'12-WInnComm-Europe

4 Regulatory Committee's FY2012 Work Plan (Chair: Peter Tenhula (Shared Spectrum Company), Vice Chair: Paul Kolodzy (Kolodzy Consulting))

The organization of the Regulatory Committee will continue to evolve in FY2012 to increase member participation and value, to facilitate collaboration with other Forum groups, to ensure excellent expert resources, and to further shape and promote the Forum's regulatory agenda. The Regulatory Committee will improve collaboration with the regulatory and public policy community through the Forum's Regulatory Advisory Committee (RAC) and Forum-sponsored events. The Regulatory Committee will also utilize the services of the Forum's outside regulatory counsel, as necessary and subject to budgetary constraints, for regulatory and legal matters in promotion of the Forum's regulatory agenda.

Regulatory Committee will pursue the following initiatives in FY2012 in support of the Forum's High Level Objectives:

- **Deliver Relevant Work Products** – The Regulatory Committee will proactively track and participate in relevant regulatory proceedings and events. The Regulatory Committee plans to ballot and release at least one Report and at least one Recommendation in support of the Forum's advocacy strategy. Recommendations in the form of comments, reply comments, position papers or other filings or submissions to regulatory bodies that would be submitted in response to specific requests, inquiries, consultations or other events. Working closely with the other Committees and the Board of Directors, the Regulatory Committee will, where and when appropriate, spawn ad-hoc projects or joint task groups to develop and provide such recommendations in connection with the following organizations:

  o the International Telecommunications Union Radiocommunications Sector (ITU-R);
  o inter-governmental and regional organizations such as the Inter-American Telecommunication Commission (CITEL), the Asia Pacific Telecommunity (APT) and the European Commission's Information Society and Media Directorate General through the Radio Spectrum Policy Group (RSPG); and
  o national regulators such as the U.S. Federal Communications Commission (FCC) and National Telecommunications Information Administration (NTIA), the U.K. Office of Communications (Ofcom), Industry Canada, Japan's Ministry of Internal Affairs and Communications (MIC), Germany's Federal Network Agency (BNetzA), the Korea Communications Commission (KCC) and other agencies seeking to promote adoption of emerging technologies for advanced wireless systems.

  These deliverables will be dependent on activities and initiatives of these organizations and will be subject to available Forum resources and the members' interest in following particular proceedings and advocating certain positions. The Committee also plans to promote relevant work products from other Forum groups with regulators.

The Committee will continue to issue member alerts (through the Regulatory Committee's portal page and e-mail) that inform members of upcoming regulatory filings and other regulatory activities around the world that may impact Members' ability to achieve their organizational objectives.

- **Define a Test and Evaluation Model** –The Regulatory Committee will provide relevant input and guidance to assist in the evaluation of compliance test and evaluation capabilities for key technologies to ensure such capability would be consistent with and helpful to applicable regulatory schemes.

- **Define New Initiatives –** The Regulatory Committee will support ongoing projects and new initiatives, as necessary, to help identify and eliminate regulatory barriers, misconceptions and constraints that may impact Forum members' ability to pursue new business opportunities or hinder the feasibility of potential technical options.

- **Increase End User Participation** – The Regulatory Committee will actively engage in outreach activities to increase participation in Forum activities by End Users and their representatives who are keenly interested in regulatory issues affecting next generation wireless communications systems.
    - Outreach: The Regulatory Committee, with the assistance of Forum staff, will continue to solicit active participation from regulatory/governmental affairs departments and other relevant groups within member organizations from each ITU region and will develop opportunities to interact with key regulatory officials in conjunction with Forum meetings and workshops, SDR'11 WInnComm, agency visits, receptions or other events.
    - Workshops: The Regulatory Committee will work with the SDR'11 WInnComm program committee and Forum staff to organize a Regulatory Workshop and complimentary plenary sessions at the conference.

- **"Top 10 Most Wanted Wireless Innovations" List** – Representatives of the Regulatory Committee will participate on the Forum's Roadmap Committee and will contribute at least one regulatory innovation for the list.

5 Technical Committees' FY2012 Work Plans

5.1 Committee on Advanced Wireless Networking and Infrastructure (TC-AWNI) FY2012 Work Plan (Chair: Vince Kovarik (PrismTech))

The organization for the Committee on Advanced Wireless Networking and Infrastructure (TC-AWNI) is presented in Figure 3. Entering FY2012, the Committee has five ongoing projects:

- *Cognitive Radio Information Services Project : Anticipating Future CR Needs with the Development of a Radio Environment Map (REM)"* – This Specification is being produced by the Cognitive Radio Work Group (Project Leads: Ihsan Akbar, Harris Corporation) for third party database providers and TV White Space (TVWS) device manufacturers to provide guidance about database structures and standardized formats and functionalities that supports the flexibility necessary to accommodate current and future cognitive radio spectrum applications, such as mobility, spectrum economic transactions, dropouts, handovers, available networks, and services, etc. In this first volume, two use cases for extending database functionality will be presented, developed from a survey existing TVWS database proposals, and further applications enabled by more extensive information sharing and in other bands will be described.

- *"Information Process Architecture"* – This Report is being produced in two parts by the Cognitive Radio Work Group (Project Lead: Pete Cook, Hypres) for stakeholders of Complex Information Systems and their associated Communications Subsystems who need to represent the current state of their systems, consider how to expand and enhance them from a process perspective, and analyze opportunities to be interoperable with other systems with similar characteristics, but developed independently. The First volume was released in December 2010 and presented a general top-down model and a series of tools or views - Operational, System, and Technical Standards – for depicting the complex system's structure. The second volume is more focused on studying and developing techniques to better facilitate inter-cognitive radio communications and collaboration. An initial survey of wireless domain machine-to-machine communications is nearing completion and reviews how Cursor on Target, IEEE 1900.6, and Standard Spectrum Resource Format distributes and maintains data and context for use in automated and human-supervised processes. This will then be refined into general design principles for facilitating inter-CR communications in information processes with use cases drawn from the Public Safety Chemical Plant Scenario and from the Smart Grid to test and refine the reference architecture.

- *"Modeling Languages for Mobility"* – This Report is being developed by the **Modeling Language for Mobility (MLM) Work Group** (Chair: Mitch Kokar (Vistology), Vice Chair: Vince Kovarik (PrismTech)) for developers of next generation communication systems who want to develop flexible and efficient communication protocols between advanced radio systems to support next generation features of vertical and horizontal mobility, spectrum awareness and dynamic spectrum adaption, waveform optimization capabilities, feature exchanges, and advanced applications. The Report will include use cases, corresponding signalling plan, requirements and technical analysis of the information exchanges that enable these next generation features. It is intended to lead to specifications/standards for languages and data exchange structures to support these

capabilities, with the ontology and the MLM language developed in this project providing opportunities for development of interoperable radios by independent vendors by providing a common language for knowledge and information exchange between multiple radios. This project is also being coordinated with the IEEE P1900.5 project with several of the MLM members participating in that P1900.5 working group and providing contributions to that effort.

- *"Test Guidelines and Requirements for Secondary Spectrum Access of Unused TV Spectrum, also referred to as TV White Space"* – This Report is being produced by the **Test and Measurement Work Group** (Chair: Bob Cutler (Agilent), Vice Chair: Neal Mellon (TDK)) for equipment designers and manufacturers, test & measurement vendors, test & evaluation departments, certification authorities, spectrum stakeholders, wireless service providers and end-users who are impacted by software defined radio and cognitive radio (SDR/CR) system technology developments such as dynamic waveform activation, opportunistic scheduling, dynamic spectrum access, secondary and unlicensed spectrum access (e.g. by TVBDs) and policy based operation which are features not implemented in traditional radio systems. The report will define the usage models and test requirements for personal portable devices in unused TV spectrum, with the overlaying spectrum availability, and will provide a basis for test and certification for radio manufacturers and regulators who need to understand the usage scenarios and test requirements for devices that can dynamically access unused spectrum in the TV bands through the use of cognitive techniques.

- *"Database Interoperability Specifications"* and *"Database Synchronization Guidelines"* – **The DSA/White Space Database Interoperability Work Group** (Chair: Jesse Caulfield (Keybridge Global), Vice Chair: Dave Gurney (Motorola Solutions) will support white space database administrators and all entities that must communicate with them by defining the application layer communications of spectrum administration databases. Two separate documents will be developed by this group: "Database Synchronization Guidelines" which will establish methods, policies and best practice implementations including system operation, data ownership and confidentiality, information assurance and ecosystem integrity, integration with service provider operations, interference avoidance, mediation and incident response. "Device Interoperability Specifications" will define a pre-standard, FCC Rules compliant reference implementation that industry may develop against and that a formal standards effort may build upon. The work of this group will build on years of previous activity in this area, and has participation from a broad base of industry stakeholders including multiple candidate database administrators, TV band device manufacturers, and incumbent representatives.

The TC-AWNI has established the following committee objectives for FY2012 to support the Forum's High Level Objectives:

- **Deliver Relevant Work Products** – The TC-AWNI commits to delivering the following work products in support of this objective:

  o *"Cognitive Radio Information Services Project (CRISP): Anticipating Future CR Needs with the Development of a Radio Environment Map (REM)"*

- Volume 1 Work Group Ballot: Q2 FY2012
- Volume 1 Plenary Ballot: Q3 FY2012
  - o *"Information Process Architecture"*
    - Part 2 Work Group Ballot: Q1 FY2012
    - Part 2 Plenary Ballot: Q2 FY2012
  - o *"Modeling Languages for Mobility – v2"*
    - Work Group Ballot: Q2 FY2012
    - Plenary Ballot: Q3 FY2012
  - o *"Test Guidelines and Requirements for Secondary Spectrum Access of Unused TV Spectrum, also referred to as TV White Space"*
    - Work Group Ballot: Q3 FY2012
    - Plenary Ballot: Q4 FY2012
  - o *"Database Interoperability Specifications"*
    - Work Group Ballot: Q1 FY2012
    - Plenary Ballot: Q1 FY2012
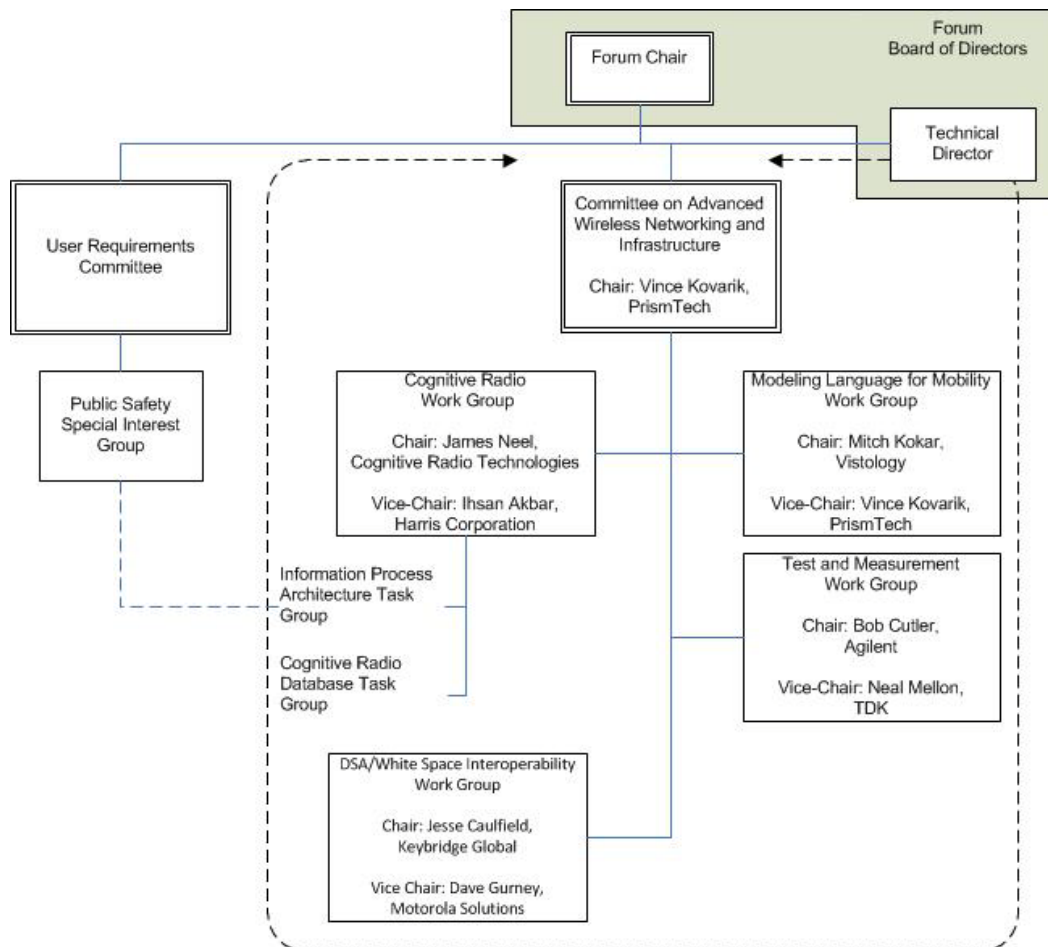
Figure 3: Committee on Advanced Wireless Networking and Infrastructure Organizational Structure

- **Define New Initiatives** – – The TC-AWNI will undertake the following new activities in FY2012 in support of this objective:

- o The **Modeling Language for Mobility Work Group** will formally initiate a new project in Q1 FY2012 to update their specification to support inclusion in the IEEE P1900.5.1 draft standard.
- o The **Cognitive Radio Work Group** plans to initiate a new project starting in Q3 of FY2012
- o Other new initiatives will be defined by other groups as needed

- **Grow Participation** – The TC-AWNI will help organize a White Spaces workshop to be held in conjunction with SDR'11-WInnComm and will solicit presentations relevant to its active members for SDR'11-WInnComm-Europe and SDR'12-WInnComm.
- **Publish a "Top 10 Most Wanted Wireless Innovations" List** – The TC-AWNI will actively support the Roadmap committee in publishing this list.

5.2 Committee on Next Generation Radio Technologies (TC-NGRT) FY2012 Work Plan (Chair: John Glossner (Optimum Semiconductor))

The organization for the Committee on Next Generation Radio Technologies (TC-NGRT) is presented in Figure 4. Entering FY2012, the Committee has four ongoing projects as follows:

- *"Business Models for Open Source Air Interfaces"* – This report is being developed by the **Commercial Baseband Processing Technologies Work Group** (Chair: John Glossner, (Optimum Semiconductor)) for baseband providers, computer manufactures (MIDS), automotive electronics suppliers, handset manufacturers, infrastructure manufacturers, software services companies, and operators who need access to air interfaces for new platforms being developed or who may want a competitive baseband environment and access. The report will provide a description of open source licenses, potential business models, languages and development environments (C, python, Matlab), potential customers and markets for open source air interfaces, potential developers, and currently available open source projects.

- *"International Radio Security Services Application Programming Interface (API)"* – This specification is being developed by the **Security Work Group** (Project Lead: Scott Leubner, Harris Corporation) for nations, international organizations and companies who need software interoperability and portability between international and independently developed software radios. The API will specify how to interface and operate with a common set of radio security services improving interoperability and portability of software through the use of a common open software architecture.

- **"Security Profiles for Public Safety Radios"** – This specification is being prepared by the **Security Work Group** (Chair: William Scott (General Dynamics C4S)) to provide a security concept of operations (CONOPS) for public safety SDR and a security profile supporting the CONOPS for public safety SDR based on the document "*Securing Software Reconfigurable Communications Devices*" which was completed in FY2010. This specification is being created for designers, developers and manufacturers of Public Safety SDR Devices who need guidance on the process that should be followed to determine which of the security services would be appropriate and give range of sample analyses.

- *"Transceiver Facility Specification"* – This specification is being prepared by the **Transceiver System Interface Work Group (TSI-WG) (**Chair: Eric Nicollet (Thales Communications)) to capture the information needed for interoperability between waveform applications and transceiver subsystems**,** expressed as generic and abstract requirements for properties and programming interfaces, including the associated real-time issues. This specification is being prepared for radio system integrators, waveform providers, SDR platform providers and radio head manufacturers, who seek increased efficiency when integrating waveform applications with target platforms (incl. radio heads), and who seek increased portability for their waveform applications. In FY2011, this work group became the custodian for the Forum's *"PIM and PSM for Smart Antenna Specification"* and intends to leverage the specification in extending multichannel support to the *"Transceiver Facility Specification"*.
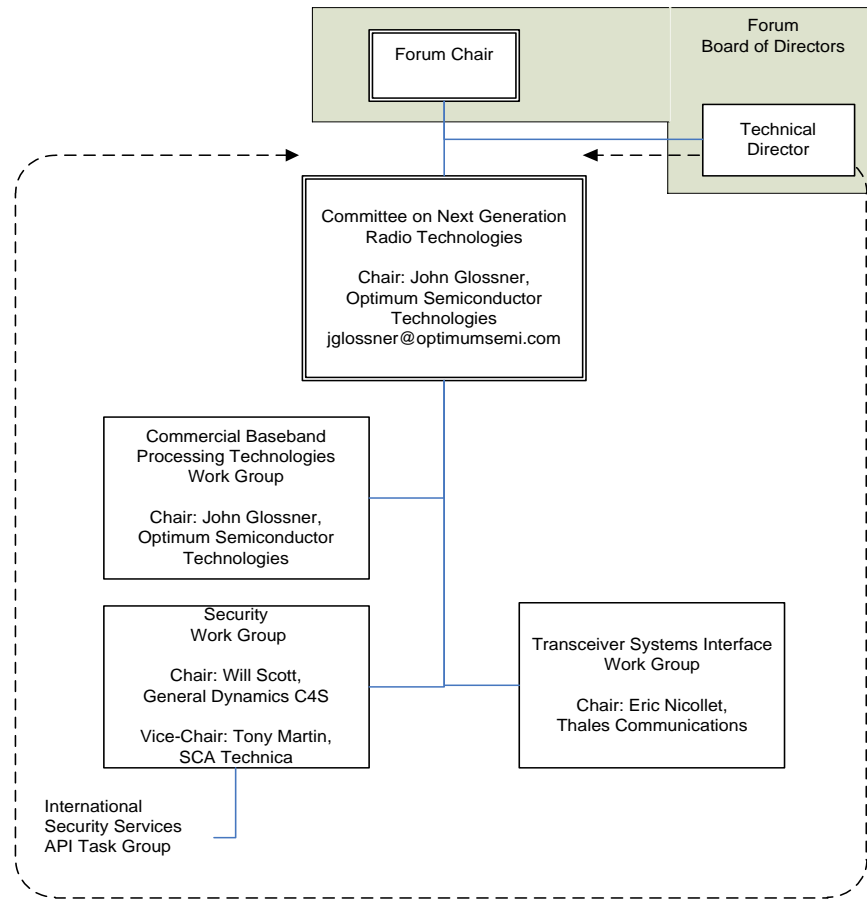
Figure 4: Committee on Next Generation Radio Technology Organizational Structure

The TC-NGRT has established the following committee objectives for FY2012 to support the Forum's High Level Objectives:

- **Deliver Relevant Work Products** – The TC-NGRT plans to deliver the following work products in FY2012 in support of this objective:
  - *"Business Models for Open Source Air Interfaces"*
    - Initial Ballot: July 2011
    - Plenary Ballot: September 2011
  - *"International Radio Security Services Application Programming Interface (API)"*
    - Plenary Ballot: September 2011
  - *"Security Profiles for Public Safety Radios"*
    - Initial Ballot: December 2011
    - Plenary Ballot: March 2012
  - *"Transceiver Facility Specification Version 2.0"*
    - Initial Ballot: December 2011
    - Plenary Ballot: March 2012

- **Define New Initiatives –** The TC-NGRT will undertake the following new activities in FY2012 in support of this objective:

    o The Security Work Group will initiate work on a revision to the International Radio Security Services API in Q1 FY2012
    o The Security Work Group will also initiate a new project to refine the defined security profiles in Q4 FY2012
    o The Commercial Baseband Processing Technologies Work Group will initiate a new project to make an LTE Advanced Receiver/Transmitter Receiver waveform and supporting API available under an open source licensing model. The API will be maintained as a Forum standard for future work.

- **Grow Participation** – The TC-NGRT will organize an open source workshop to be held in conjunction with SDR'11-WInnComm and will solicit presentations relevant to its active members for SDR'11-WInnComm-Europe and SDR'12-WInnComm.

- **Publish a "Top 10 Most Wanted Wireless Innovations" List** – The TC-NGRT will actively support the Roadmap committee in publishing this list.

5.3 Coordinating Committee on International SCA Standards (CC SCA) FY2012 Work Plan (Chair: Eric Nicollet (Thales) and Mark Turner(Harris))

The organization of the Coordinating Committee on International SCA Standards (CC SCA) is presented in Figure 5. Entering FY2012, the committee has five ongoing projects:

- *"Realization Model for the Coordination of International SCA Standards"* – This recommendation is being developing by the **CC SCA Steering Group** in collaboration with the **CC SCA Advisory Council** for stakeholders (manufacturers, vendors, governments) of the international SCA-based ecosystem who seek increased harmonization among SCA-based international standards. The recommendation, once complete, will provide a baseline for Coordination of International SCA Standards around the WInnF CC SCA and Advisory Council and that organizes the first meetings that comply with the defined model.
- *"Public Liaison for SCA Next"* – the **SCA Next Work Group** will continue their work in supporting the JTRS JPEO SCA Next project by completing their analysis of the draft SCA Next specifications to deliver formal recommendations to JTRS JPEO, including evaluation of the ESSOR Program SCA recommendations.
- *"Software Communications Architecture Interpretation Guide"* – This report is being prepared by the **SCA Implementers Work Group** (Chair**:** Steve Bernier (CRC)) for the participants in the international software defined radio community where the SCA and SCA derivatives are relevant who need clarity on the SCA to harmonize the development of embedded system software in order to lower development and maintenance cost as well as time to market. The output of this activity will be submitted to the JTRS as comments and for inclusion in their next release of the specification, and will also be shared with the ESSOR program and on the Forum site for the international community to standardize on a single interpretation.
- **"SCA API Implementers Aids"** – **The SCA API Work Group** (Chair: Terry Anderson (ITT Industries)) will continue to develop a set of implementation aids for use by SCA radio and software developers, including an "*Implementers Guide*" providing a common interpretation of published SCA APIs along with hints and examples on their implementation, and additional API specifications as necessary.
- **"Test and Certification Guide for SDRs based on SCA Part 2"** – This recommendation is being jointly developed by **The SCA Test and Certification Work Group** (Chair: Ruediger Leschhorn (Rohde and Schwarz), Vice Chair: Randy Navarro (SAIC)) and the **International Tactical Radio Special Interest Group** (Chair: David Renaudeau (Thales), Vice Chair: Jimmie Marks (Raytheon)) for procurement authorities and producers of radios, radio components and tools, who are active in markets where the standardised SCA is relevant and who need guidance how to establish test and certification facilities and how to develop and implement procedures for their efficient operation. The recommendation will define the realisation aspects (including business models) of the role based, generic certification process of SCA based SDRs, as defined in "Test and Certification Guide for SDRs based on SCA, Part 1: SCA" (SDRF-08-P-0007-

V1.0.0) and identifies and analyzes candidate approaches for the roles defined in that document such as the "Test Developer Role".
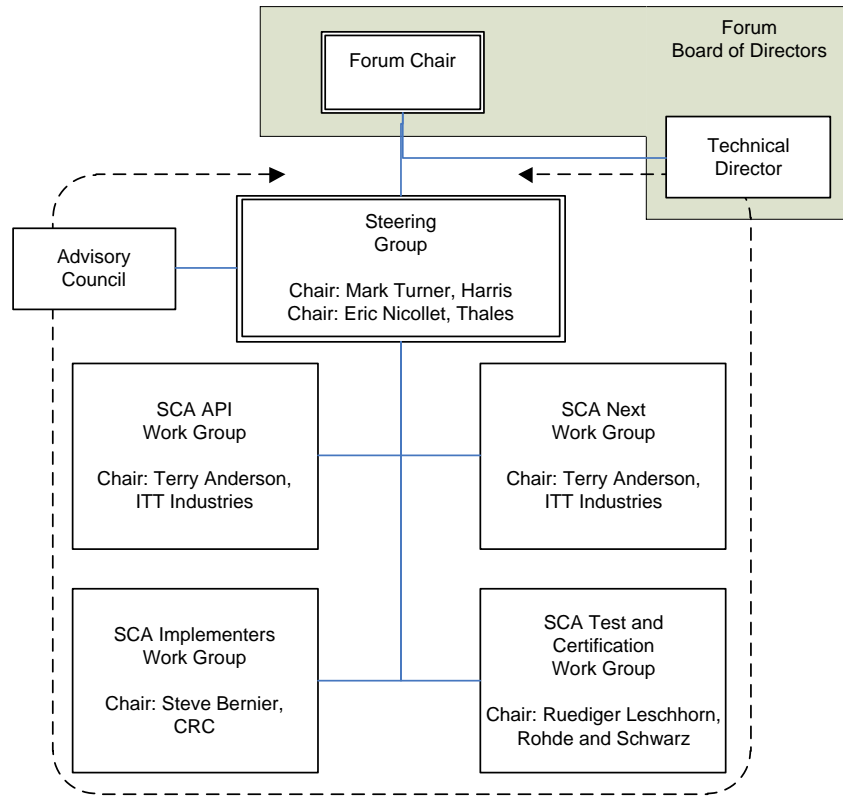
Figure 5: Coordinating Committee on International SCA Standards FY2011 Organizational Structure

The CC SCA has established the following committee objectives for FY2012 to support the Forum's High Level Objectives:

- **Deliver Relevant Work Products** – The CC SCA commits to delivering the following work products in support of this objective:
  - *"Realization Model for Coordination of International SCA Standards"*
    - Plenary Ballot: Q1 FY2012
  - *"SCA Next Recommendations"*
    - Plenary Ballot: Q1 FY2012
  - *"Software Communications Architecture Interpretation Guide"*
    - Release 1 Work Group Ballot: December 2011
    - Release 1 Plenary Ballot: March 2012
    - Release 2 Work Group Ballot: May 2012
  - *"Test and Certification Guide for SDRs based on SCA Part 2"*
    - Plenary Ballot: September 2011

- **Define New Initiatives** – The CC SCA will undertake the following new activities in FY2012 in support of this objective:

- o SCA Standards Roadmap: The Steering Group will work with the Advisory Council to develop and publish an initial SCA Standards Roadmap.
- o Help Desk: The committee will explore expanding the role of the SCA Implementers Work Group to "crowd source" providing a "help desk" function to the broader community

- **Increase End User Participation** – The CC SCA will undertake the following new activities in FY2012 in support of this objective:
  - o Finalize formal Advisory Council initial membership and grow participation as appropriate, update the charter, and facilitate at least 3 Advisory Council meetings in FY2012.

6 Roadmap Committee FY2012 Work Plan (Chair: Claude Belisle (CRC))

The roadmap committee will undertake the following work items in support of its objective to update the Forum's first "Top 10 Most Wanted Wireless Innovations" list and to publish it by the June 2012 General Meeting:

- Update the Roadmap Wiki to identify new requirements from the User Community
    - This will be done throughout the year via the Wiki with revisions performed during the workshops
- Update the Top 10 Innovation list
    - Release a first update by December 2011
    - A second update will be release in June 2012
  The updates will be done based on the results of Forum's member surveys
- Propose the creation of a Working Group based on the Top 10 Innovations

7 Board of Directors FY2012 Work Plan (Chair: Eric Christensen (GD-C4S))

A primary responsibility of the Board of Directors in FY2012 is monitoring the operations of the Forum ensuring compliance with the 2010 to 2014 Strategy and this Operations Plan. Meetings of the Board of Directors are planned for the following dates (2nd Tuesday of the Month):

- July 12, 2011
- August 9, 2011
- September 13, 2010 (in conjunction with the General Meeting)
- October 11, 2011
- November 8, 2011
- December 1, 2011 (following the election of directors at the Annual meeting)
- January 10, 2012
- February 14, 2012
- March 13, 2012 (in conjunction with the General Meeting)
- April 10, 2012
- May 8, 2012
- June 19, 2012 (in conjunction with the General Meeting)

An additional Board Meeting may be held in May 2012 to facilitate operations planning.

An additional key role of the Board of Directors is monitoring the financial performance of the Forum. The financial performance is reviewed following the schedule below:

- September 2011 General Meeting – Review the audited financial results for FY2011 to be presented to the members at the Annual Meeting in December, and the Q1 FY2012 forecast with projections for the remainder of the year.
- Annual Meeting of the Members – Present FY2011 audited financial results to the members, present updated FY2012 projections
- January Board Meeting – Review Q1 and Q2 FY2012 unaudited financial results and projections for the remainder of the year.
- March 2011 General Meeting – Review the Q3 FY2012 forecast with projections for the remainder of the year.
- June 2012 General Meeting – Review the FY2012 forecast and approve the FY2013 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

- **Planning Committee** – Provides board oversight of strategic planning process, including participating in an annual strategic review. Reviews and matures recommendations from the CEO on updates/modifications to the strategic plan, directs the CEO in specific areas to explore, and makes recommendations to the full board. Chair: Chair of the Forum.

  A key deliverable of the Planning Committee for FY2012 in support of the Forum's High Level Goals is the **Formation and incubation of at least one Special Interest Group focused on a commercial wireless market.** The Forum's Planning Committee will work with the URC to identify potential candidates from a list of strategic markets, including evaluating the formation and Intelligent Transportation Systems (ITS) SIG and a Medical Devices SIG.

- **Nominating Committee** – As defined in the Forum's Bylaws. The 2011 Nominating Committee is formed by the Chair of the Board of Directors on or before the start of the September General Meeting, and presents the proposed slate of Directors to the Board at the 12 October 2010 Board meeting.

Finally, in FY2012 the Board will work with staff to refocus on member retention and recruitment, dedicating the September face to face board meeting to evaluating strategy related to this topic.

8 FY2012 Meeting and Event Plan

A primary purpose of the Forum is to facilitate collaboration between members and the broader community to promote the advancement of software defined radio, cognitive radio, and dynamic spectrum access technologies. To support this objective, the Forum will hold multiple meetings and events throughout the year, as outlined in the sections below.

8.1 FY2012 Meetings and Workshops

The Wireless Innovation Forum will host three general meetings in FY2012. These meetings will act as the primary venue for advancing the work items defined in this Operations Plan, and will provide a venue for outreach to potential new communities, regulatory officials and members of strategic interest. The Forum will facilitate this latter objective through a significant increase in invited speakers and through the use of workshops as defined in the Strategic Plan. The current meeting and workshop schedule for FY2012 is as follows:

- September Meeting – 70th General meeting 12-15 September 2011 at the Hyatt in Montreal, (Hosted by Ultra Electronics)
    - Workshop: "Enabling Interoperability"
- March Meeting- 71st General Meeting March 2012 in San Diego
    - Workshop to be determined
- June Meeting – 72nd General Meeting June 2012 (European meeting, 18 to 20 June 2012 in Brussels (tentative))

The draft agenda for each of these meetings will be posted within one week of the completion of the previous meeting, in accordance with the Forum's meeting policies and procedures. Meeting locations will be announced at least 9 months in advance of the meeting.

Satisfaction surveys taken at Forum meetings will be used to determine attendee satisfaction, perceived problems, and potential improvements. The survey results will be used to guide plans for future meetings.

Goal: Increase average result in satisfaction surveys by one half point to 8.2

8.2 2011 Conference on Communications Technologies and Software Defined Radio (SDR '11-WInnComm)

The Forum's annual US Conference and Product Exposition will be held 29 November-2 December 2011 in Arlington, VA. Key personnel supporting the operation of the SDR'11-WInnComm Conference are as follows:

- General Conference Management: Lee Pucker
- General Program Chair: John Glossner
- Conference Logistics and Operations: Al Margulies
- Sponsorships and Exhibitions: Al Margulies
- Marketing and Media Relations: Stephanie Hamill

The technical program will include technical papers, presentations, tutorials, and demonstrations. The schedule for the conference program development for FY2012 is as follows:

- Paper and Presentation Acceptance 27 Aug 2011
- Final Notification of Acceptance of Demos: 15 Sep 2011
- Demonstration Proposals Due: 05 Sep 2011
- Final Papers due 03 Oct 2011
- Presentations and Tutorials Due: 18 Oct 2011

The Product Exhibition at SDR'11-WInnComm will be on Wednesday and Thursday, and there will be a reception in the exhibit area on Wednesday evening that will include Demonstrations. The traditional welcome reception for SDR'11-WInnComm will be on Tuesday night and a members-only reception will be held on Thursday evening in advance of the Forum's annual business meeting.

During the first quarter of FY2012, we will investigate webinar options for selected presentations at SDR'11-WInnComm. If webinars are possible, we will consider pricing options and alternative programming for the conference.

As with the general meetings, 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. Some examples of these changes that are projected based on the surveys are:

- Improve online proceedings to make them a more valuable "just in time" tool for the participants
- Providing additional focus on "markets, opportunities, business development, products, trends" while maintaining a strong technical program
- Solicit more "operational" papers to provide more practical experience information
- Increasing participation by representatives of the end-user communities through workshops focused on emerging requirements

Marketing plans for SDR'11-WInnComm are discussed in Section 9.2.3.1 of this Operations Plan.

Goal: Increase average result in satisfaction surveys by one half point to 8.2

8.3 2011 Annual Meeting of the Members

The Annual Meeting of the Members, as described in the Forum Bylaws will be held on Thursday, 1 December 2011 in Arlington, Virginia in conjunction with the SDR'11-WInnComm Conference.

8.4 2012 European Conference on Communications Technologies and Software Defined Radio (SDR '12-WInnComm-Europe)

SDR'12-WInnComm-Europe is tentatively scheduled to be held on or about 20-22 June 2012. This conference will be held in conjunction with the Forum's 72nd General Meeting which is expected to occur from 18-20 June and will be similar in scope to the Forum's annual technical conference but smaller in size. The product expo will be held on 19 June.

The final decision on the location and dates will be made based on an assessment of economic factors, including sponsorship opportunities and ease of attendance by members; currently, plans are to return the European conference to Brussels.

The tentative schedule for program development for the event is:

- Call for Papers, Presentations and Tutorials announced   09 Sep 2011
- Abstracts Due (all tracks)   20 Jan 2012
- Abstracts Accepted Notification   21 Feb 2012
- Final Papers Due   07 Apr 2012
- Papers Accepted Notification   27 Apr 2012
- Camera Ready Papers Due   18 May 2012
- Presentations Due   18 May 2012

8.5 2012 Conference on Communications Technologies and Software Defined Radio (SDR'12-WInnComm)

Planning for SDR'12-WInnComm will continue in Q1 and Q2 of FY2012 with the signing of a hotel contract, initiation of an EDAS capability, and establishment of schedule milestones.

The Forum will announce the location and schedule for SDR'12-WInnComm during SDR'11-WInnComm, and the call for papers will be released shortly after that conference. The tentative schedule for the SDR'12-WInnComm papers, presentations, tutorials and workshops is as follows:

- Call for Papers Issued   09 Jan 2012
- Paper Abstract Submissions Due   19 Apr 2012
- Abstract Review Complete and Requests for Full Papers Issued: 30 Apr 2012
- Presentation Abstract Submissions Due   12 Jun 2012
- Tutorials and Workshops Syllabus Due   12 Jun 2012
- Full Papers Due   14 Jun 2012

8.6 Other Collaboration Services

8.6.1 Electronic Meetings and Online Collaboration Tools

Much of the work of the Forum's members is done using electronic means, including teleconferences, web conferences, and online discussion forums. In 2008, the Forum added a

number of services to facilitate electronic meetings, including web conferencing services and a new group portal (http://groups.winnforum.org) to share files and facilitate the development of documents. In FY2012, the Forum will build on these tools to improve their efficacy in supporting the Wireless Innovation Forum's members` needs. In defining potential improvements, members of the Forum staff will periodically contact the Committee chairs and work group leaders to review the utilization of the group portal, the Forum teleconferencing services, and the Forum's web conferencing facilities, and then investigating new options that will make collaboration between members using these tools more efficient.

8.6.2 Ad Hoc Group Meetings and Workshops

It is likely that there will be ad-hoc meetings of Forum working groups and committees independent of the Forum's General Meetings. When necessary, Forum staff will support those meetings by arranging for facilities, registration, and providing on-location assistance as required.

8.6.3 Joint Meetings

When appropriate, the Forum will participate in joint meetings with other organizations that further Forum goals and objectives; Forum staff may also support those meetings.

8.7 Webinars

In FY2011, the Forum began a new Webinar Series as a member service, utilizing Go To Webinar in support of the Education Pillar of the Forum's Strategic Plan. A review of 2011 webinar performance (attendance, survey results, amount of staff effort required, etc) will be conducted in the first quarter of FY2012. The results of that review will determine the plans for FY2012. If appropriate, planning for FY2012 will begin in Q1 and webinars will continue in Q2.

8.8 Planning and Management

Forum staff will fully support the Forum's FY2012 Meeting and Event Plan to include working with the Forum's officers and group leaders to craft and post meeting agendas within one week of the previous meeting and to maintain that agenda as changes occur. Forum staff will also continue to conduct surveys of attendees during each meeting and workshop to help improve the overall value of each meeting to the Forum's members. The results of these surveys are fed back to the Forum's officers with recommendations as appropriate.

During the first quarter of FY2012, The Forum will establish the meeting schedule for FY2013. Based on that schedule, Forum staff will distribute requests for proposals to appropriate meeting venues, do site inspections and negotiate contracts with the goal of having firm commitments for meeting locations at least 9 months in advance of each meeting.

9 Wireless Innovation Forum Corporate Administration Work Plan

9.1 Member Support and Services

The Forum will continue to improve Member Services and Fulfillment Functions in order to provide an environment that supports our members' collaboration activities. We will strive to be a customer-centric organization, which can be defined as follows[1]:

- gives customers what they want and anticipates their needs;
- provides customer value as its primary motivation;
- sees staff as customer service agents;
- makes the [membership] experience the best it can be;
- operates with a budget driven by member needs; and
- personalizes all communication.

We will continue to research methods to enhance our internal processes and procedures to increase efficiency and responsiveness to member requests. This will include performing surveys and polls on specific issues, and establishing focus groups to explore solutions as necessary.

9.1.1 Support in the Development of Reports, Recommendations and Specifications

Forum staff will work to enhance service offerings throughout the document development cycle as follows:

9.1.1.1 Project Initiation

Forum staff will continue to work with the Forum's group leaders and potential group leaders to speed the project initiation process. This includes refining and updating the materials provided in the group leaders' resource directory (http://groups.winnforum.org/p/do/si/topic=150) and creating a Group Leader's Handbook.

Goal: Complete Group Leaders Handbook by the end of Q3 FY2012

9.1.1.2 Project Promotion

In FY2011, Forum staff performed a communications audit to determine the most effective communication vehicles and determine necessary marketing mix changes based on the resulting metrics. Based on the results of this audit, the Forum launched a new monthly Project eNewsletter for reporting project status to the broader community, as well as a "Project of the Month" that is featured throughout our marketing communication vehicles (emails, web site, social media). These tools have been designed to support projects in their development and encourage participation, and The Forum will build upon these in FY2012.

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[1] "Customers at the Core," ASSOCIATION MANAGEMENT, December 2004, *Jay Younger and Wes Trochlil*

In addition, the Forum will continue to maintain the current projects page on the website as a primary location for finding the latest information on the Forum's active projects (http://www.wirelessinnovation.org/page/Current_Projects). The Forum will also continue the use of project flyers as a tool for project leaders to promote participation, and these flyers will be distributed at meetings as appropriate. Projects will also promoted in press releases and the member eNewsletter as appropriate, and Forum Staff will work with Group Leaders to place at least one article each quarter in an industry electronic or print trade magazine.

Goal: Increase project participation by 10%

9.1.1.3 Project Support

Starting in FY2012, Forum Staff will provide project management services, upon request, to each work group, task group and special interest group to help group leaders in growing active participation and in achieving objectives. Supplied services will include, but are not limited to:

- Meeting Planning Support, including scheduling and attending teleconferences, web conferences and face to face meetings, taking roll and keeping the ballot list, and taking and distributing minutes
- Project Management Support, including schedule management, following up on action items with volunteers and reporting

Goal: Ensure execution of committee operations plans

9.1.1.4 Document Advancement and Electronic Balloting

In FY2012, the Forum will continue to improve document development and advancement to make the document process more efficient and user-friendly for its members. These efforts will include periodically contacting Committee chairs and work group leaders to discuss the adequacy of existing procedures and whether or not they need to be modified in order to make the document approval process more efficient.

9.1.2 Member Discounts

The Forum will continue to pursue member discounts on behalf of its members, and will strive to evaluate and expand the offerings in FY2012. Discounts include Market Studies, Conference Fees, Educational Materials, Training, Memberships, etc. The communications audit showed that our member discounts e-newsletter was the least effective, so we have revised our email schedule to incorporate the discounts into one of our most effective e-newsletters, the Event News, which goes to the entire dbase and encourages new membership.

Goals: 10% increase in member utilization of discounts.

9.1.3 Product and Services Directory

In 2008 the Forum launched an online Member Products and Services Directory centered around the reconfigurable radio Value Chain. The directory is searchable and results yield company names, an advertisement (supplied by member) and web site for each company in each category. Currently, 16 members (12%) have opted to include an ad for their organization. Site traffic data indicate a decline in traffic on the Product and Services Directory since our site redesign in Jan.

2010. As such, in FY2011 Forum Staff revised the directory to a more appealing look and more navigable feel and in FY2012 will continue to pursue more traffic through promotion and appeal to members to submit an ad for inclusion. Our design services will be promoted more heavily and the marketing department will seek out marketing contacts for each organization and contact each personally in an effort to increase participation. Once participation is increased, we will then pursue a marketing plan to increase use of the directory publicly.

Goal: 25% of members participate; 10% increase in web site traffic

9.1.4 Forum eNewsletters

In FY2011, the Forum conducted a communications audit to gauge the effectiveness of our e-newletter schedule and content. To respect our customer database contacts' email in-boxes, the Forum has adhered to a once-per-week email schedule, with occasional additional short emails sent to promote a specific topic/event in order to give the topic/event more attention. The members' only "SDR News and Opportunities" is distributed to members every other week and continues to be the flagship members only communication, providing member opportunities, ballot announcements, calls for participation, an events calendar, technical conference information and other meeting information. While this newsletter continues to maintain strong readership, with open rate averages 15-18% per issue, the communications audit showed the open rate declining slightly year over year. In response to the audit, staff revised the newsletter in FY2011 to better reflect the content, changing the title from SDR News & Opportunities to SDR, CR and DSA News & Opportunities. The content blocks were revised to include a monthly featured project, Forum events, Industry events (these are discounted for members), as well as the sections previously included. The format was also changed to three columns to accommodate the additional content.

The revised schedule of eNewsletter distribution on the opposite weeks includes Project News and Event News (both go to entire dbase). The Forum will continue to expand and improve the content of its eNewsletters in FY2012, including providing more relevant information for ITU Region 1 and ITU Region 3 members.

In FY2011, the Forum also incorporated segmentations into the contact database, and in FY2012 the Forum will make use of this new information to better target specific groups for more focused communications.

Goal: 5% increase in open rates

9.1.5 Wireless Innovation Forum Achievement Awards

The Forum will launch the 2011 Awards program in September, with nominations pursued in eNewsletters, on the web site, as well as through distribution of a promotional flyer at the September General Meeting. Finalists for the 2011 awards will be announced in October 2011, and the winners will be announced at SDR'11-WInnComm. Award winners will be promoted in a press release following the awards ceremony and posted on the web site.

9.1.6 Experts Program

The Forum will work toward establishing an "Experts" program, soliciting member representatives who will volunteer to act as "Subject Matter Experts" in a specific technical, business, or policy area of their choice. Experts will be "go to" people for press interviews, and will be promoted in expert source placement services such as "ProfNet," leveraging their expertise to help legitimize Forum activities and positions. As a part of this program, the Forum may establish a Distinguished Speakers program, "Ask the Expert" discussion forums, and Experts blogs for education and support of Forum members and the broader reconfigurable radio community. The Forum will pursue appropriate experts for various areas within reconfigurable radio technologies. This will be done by request in our communication vehicles as well as personal contact (1st quarter). We will produce a roster of our experts with biographical information (2nd quarter), and a promotion plan for getting our experts placed in articles, etc. (3rd quarter).

Goal: establish topics list and secure at least one expert per topic; Minimum of 6 placements or article inclusions/year.

9.2   Marketing and Business Development Plan

9.2.1 Membership Development

The Forum's primary model for membership development is through projects:

- Working with members and the community as a whole to identify new "projects" within strategy
  - o This often occurs through the use of a workshop or workshops organized by staff to explore a topic area and find common elements suitable for collaboration
- Working to find someone willing to lead that project
  - o Often this is not a current member, *so membership gives them ability to lead*
- Working with the leader to "recruit" participants
  - o Often this occurs through use of one or more formation meetings, through workshops, or other promotional vehicles
  - o Participants are often from non-member organizations, *so membership gives them ability to make formal input contributions and vote*
- Working with project team to get project proposal in place
- Organizing calls, facilitating discussion, follow up on action items

The project promotion plans presented in Section 9.1.1.2 of this operations plan are a key element in the execution of this model. In addition to these plans, staff will undertake the following activities in support of membership development.

Overall Goal: Meet high level goals established by the Board for "Defining New Initiatives", "Increasing End User Participation", and "Improving Regional Support"

9.2.1.1 Member Interviews

Forum Staff will conduct formal interviews with members, potential members and past members, to identify what new programs and activities should be undertaken by the Forum, and what additional improvements need to be made in the Forum in order to maximize the value of membership. The results of these interviews will be reported to the Planning Committee on a quarterly basis. Forum Staff shall also make use of Linked In and other Social Media as a vehicle for identifying projects.

Goal: Perform at least 15 interviews per quarter

9.2.1.2 Board Engagement

Forum staff will work to better engage the Board in outreach to potential new members, including board members with a sell sheet that they can use as opportunities for promotion arise.

9.2.1.3 Speaking Opportunities

The Forum will pursue a number of speaking opportunities in FY2012. The Forum will use these engagements to promote the 2010 to 2014 Strategic Plan, the WInnForum FY2012 Operations Plan, as well as to explore new opportunities and to solicit new members.

9.2.1.4 Industry Conferences and Tradeshow

The Forum, working in conjunction with the URC, will explore participation in other tradeshows to promote the Forum and its members. Participation may include exhibiting and/or establishing a Winn Forum "Show within a Show" promoting the activities of the Forum and supporting Forum members in identifying new opportunities. Conferences and tradeshows that will be evaluated will include:

- ISART (July 2011)
- IEICE Technical Conference (July 2011)
- MILCOM 2011 (October 2011)
- IQPC SDR Europe Conference (October 2011)
- European Microwave Week (October 2011)
- Consumer Electronics Show (January 2012)
- IDGA Software Radio Summit (February 2012)
- Mobile World Congress (February 2012)
- IWCE (February 2012)
- CTIA Wireless 2012 (March 2012)
- IEEE DySPAN (April 2012)
- SMi Software Radio Conference (June 2012)

9.2.1.5 Partner Relationships

The Forum will continue to foster and expand collaborative relationships with partner organizations and programs to promote its organizational objectives. This list of organizations will include EDA, ETSI, IEICE, IEEE, the JTRS Program, NATO, NCOIC, OMG, and VITA. In FY2012, the Forum will also explore new relationships with organizations such as the IETF,

PSCE, WiFi Alliance, the Wireless Communications Association International (WCAI), the Service Availability Forum, and the Mobile Industry Processor Interface Alliance.

9.2.1.6 Market Segmentation

During FY2012, the Forum will continue to develop its market segmentation study to identify markets where SDR and CR technologies may provide significant benefit, to size those markets, and to identify market segments where the Forum may provide benefit. Market segmentation may be based on both primary and secondary market research, and will identification potential member companies for the Forum.

9.2.2 Annual Sponsorships

The Forum will work with current and past sponsors to revise its sponsorship packages to maximize the recognition value for potential sponsors.

9.2.3 High Level Marketing Plan

A detailed marketing plan has been developed to promote the Forum's high level objectives in FY2012 as established by the Board of Directors. Highlights of this plan are provided in the following sections.

9.2.3.1 Technical Conference

SDR'10 had 10 percent lower registered attendance than SDR'09. 45% of registrants were members. To grow the conference further, the Forum will expand conference marketing to include the following:

- Expand media and technical co-sponsorships to outreach in target markets. This includes obtaining at least one media sponsor in a relevant European market
- Evaluate and improve effectiveness of SDR'11-WInnComm web site using Google Analytics data
- Utilize SDR'10 survey results to improve marketing collateral, such as the Show Guide
- Increase distribution of marketing collateral at trade shows and conferences
- Continue and expand use of Google Ad words to drive potential new registrants to conference site
- Segmented emails to better target promotions and encourage return attendance
- Pursue ad sales in our program in order to provide additional exposure for member organizations
- Research and employ additional means of exposing event to new contacts
- Research additional ways to support exposition and exhibitors

Goals: Increase attendance by 10%, place a minimum of 2 ads

1.2.1.2 WInnComm'12-Europe

FY2012 year will be the event's fourth year. In 2010, the event drew 109 attendees. To establish the event as a conference and encourage growth, the Forum will:

- Increase exposure/impressions using social media

- Evaluate and improve effectiveness of the web site using Google Analytics data
- Utilize survey results to improve marketing collateral and promotions
- Increase distribution of marketing collateral at trade shows and conferences
- Continue and expand use of Google Ad words to drive potential registrants to conference site
- Segmented emails to better target promotions and in an effort to encourage return attendance
- Research and employ additional means of exposing event to new contacts
- Research additional ways to support exposition and exhibitors
- Work with Europe office to pursue additional sponsorship and marketing opportunities

Goals: Increase attendance by 10% over FY2011, secure at least 4 gold sponsors

9.2.3.2 Project Promotion

In FY 2011 Project promotion included: flyer distribution, promotion in SDR News & Opportunities and press releases. As a result of the FY2011 communications audit we have changed the marketing mix to augment previous promotions with a monthly featured project and a monthly dedicated email for Projects. FY2012, the Forum shall look at improving outreach with project information in ITU Regions 1 and 3, including looking for European equivalents to Business Wire.

Goal: Increase project participation by 10%

9.2.3.3 Meeting Promotion

Forum General Meetings are the Working Meetings of the organizations members, providing a primary venue for advancing this Operations Plan, for networking, and for information dissemination. In FY2011, the marketing department followed an event promotion plan that included a mix of print and electronic media promotion (flyers, press releases, social media, web site, emails, Google Adwords). In FY2012, the Forum will continue to work to refine its event promotion plan by using data from Google Analytics reports for meeting pages, email open and click through rates, press release reports, and social media proliferation (retweets, mentions, etc.) as it relates to event attendance.

Goal: 10% increase in meeting attendance

9.2.3.4 Webinars

The Forum's Webinar Series will be promoted through the web site, social media, emails and a dedicated web page with linkage through the Forum's home page. Success will be gauged using GoogleAnalytics and attendance data and surveys.

9.2.3.5 Web Site Update

In 2011, the Forum polled its members through a communications audit to evaluate the quality of the Forum web site and look for avenues of improvement. As a result of the audit, the home page underwent a slight redesign to improve efficiency and usefulness. The Forum will continue to refine and improve the site based on member feedback and Analytics traffic data.

In addition, in response to the audit, more attention will be paid to the group portal and its probable use by members as the Forum's main home page. An effort will be made to have it mirror the Forum's home page, but with particular attention paid to member-centric items.
Goal: Reduction in bounce rate, 10% increase in site traffic and average time on site.

9.2.3.6 Social Media

In FY2011 the Forum more aggressively pursued a social media presence. The Facebook Fan Page (open to members and non-members), which had garnered 104 fans at the writing of this report. Our Twitter followers (also open to non-members) have grown to 98. Our members-only LinkedIn presence, which continues to be the primary social media tool used by the Forum's members, is at 160. Weekly postings appear on all three vehicles. In FY2012, we will further expand use of these vehicles, with an emphasis on our LinkedIn presence for member communications and Twitter/Facebook for new business development, and strive to keep them dynamic through weekly postings and requests for interaction (e.g. polls, throwing out questions for response, etc.).

Goals: Reach 150 followers on Fan Page and Twitter (currently 28), have at least one member representative from each member organization on LinkedIn page

9.2.3.7 Rebranding

In FY2010 the Forum underwent a rebranding. The Forum will continue to promote the knowledge and acceptance of the new brand and further refine it as needed, such as promoting the short form WInnForum as an addition to Wireless Innovation Forum where appropriate. New merchandise was prepared and distributed at all meetings and events in FY2011. We will utilize Google Analytics data to determine the electronic acceptance of the new brand, and determine when the prior SDR Forum site can go offline permanently.

Goal: 75% Reduction in referrals from SDR Forum site.

9.2.3.8 Other Collateral

In FY2011, the Forum created an updated sell-sheet to be distributed at technical co-sponsored events. In FY2012 the Forum will also produce a number of other materials throughout the period, including:

- Press kits highlighting Forum member accomplishments
- Membership kits that can be used in recruiting new members
- Welcome kits for new members
- Annual Report

9.3 Other Corporate Administration

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 FY2012 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 2011
- Arizona and California Tax Exempt Returns – 15 November 2011
- Canadian Information Return – 15 November 2011
- Canadian Extra-Provincial Annual Report – 2 January 2012
- Arizona Corporate Commission Report – 15 January 2012
  - http://starpas.azcc.gov/ar0046f.pdf
- 1099s to recipients – 31 January 2012
- 1096 and 199s to IRS – 28 February 2012
- California Statement of Information Filing – Not due in 2012
  - Odd years only in February
  - http://www.sos.ca.gov/business/corp/pdf/so/corp_so100.pdf
- Foreign Bank Account Form – 30 June 2012

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.

9.4   FY2013 Planning Cycle

The FY2012 Operation Plan will be developed on the following schedule:

- Board Approval of High Level Goals for FY2012 – 13 March 2012
- High Level Goals and Ops Plan Process Presented to Group Leaders – 14 March 2012
- Draft Budget Presented to the Finance Committee – 27 April 2012
- Draft Plan Submitted to Officers – 11 May 2012
- Final Draft Approved by Forum Chair and CEO – 22 May 2012

The final plan will be presented to the Board of Directors for their approval during the June 2012 Board Meeting, and will be submitted to the membership for final approval immediately thereafter.