2010 to 2014 Strategic Plan

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3 December 2009

2010 to 2014 Strategic Plan for
The Software Defined Radio Forum Inc.

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1 Introduction – The Need for a Revised Strategy

Software Defined Radio, also known as Software Radio or SDR, has been defined by the SDR Forum working in collaboration the IEEE P1900.1 project as:

"Radio in which some or all of the physical layer functions are software defined" [1]

What this definition means is that software defined radios deliver their physical layer or air interface functionality, in whole or in part, through software or firmware operating on programmable processing devices; devices such as field programmable gate arrays (FPGA), digital signal processors (DSP), or general purpose processors (GPP). The use of these technologies allows software defined radios to be reconfigured to support different waveforms and air interface standards and to allow new wireless features and capabilities to be added to existing radio systems without requiring new hardware. The vision for SDR technology has always been to reduce the various "costs" associated with providing end-users in the various commercial, defense and public domain markets with access to ubiquitous wireless communications, allowing these users to communicate with whomever they need whenever they need to and in whatever manner is appropriate.

In 2006, the SDR Forum commissioned a number of research reports evaluating the adoption of SDR technologies in various markets. The results of these market studies clearly show that in certain markets, SDR has moved beyond the innovators and early adopters as defined by Geoffrey Moore in "Crossing the Chasm" into the early majority phase defining the mainstream market (See Figure 1)[2]. In this phase, adopters select a technology not because it is innovative or visionary but because it has been shown to successfully solve a problem within their specific market. Examples of SDR adoption illustrating the transition to the mainstream are abundant:

- Thousands of software defined radios have been successfully deployed in defense applications

- Cellular infrastructure systems are increasingly using programmable processing devices to create "common platform" or "multiband-multiprotocol" base stations supporting multiple cellular infrastructure standards

- Cellular handsets are increasingly utilizing System on Chip (SoC) devices that incorporate programmable "DSP Cores" to support the baseband signal/modem processing

- Satellite "modems" in the commercial and defense markets make pervasive use of programmable processing devices for intermediate frequency and baseband signal processing

While these types of systems are often not marketed as "SDR's", they utilize SDR technologies to solve market specific problems; cost of development, cost of production, cost of upgrades and maintenance, time to market in supporting new and evolving air interface standards, or problems associated with network interoperability. In addition, the SDR Forum's market studies have shown that cost effective radio frequency technologies supporting the operation of software defined radios over a broad spectral range have begun to mature, allowing for the first time the use of software defined radio as an

enabling technology for dynamic spectrum access systems with cognitive or smart radio functionality. This trend is expected to continue over the next several years, allowing SDR to finally achieve the defined vision.
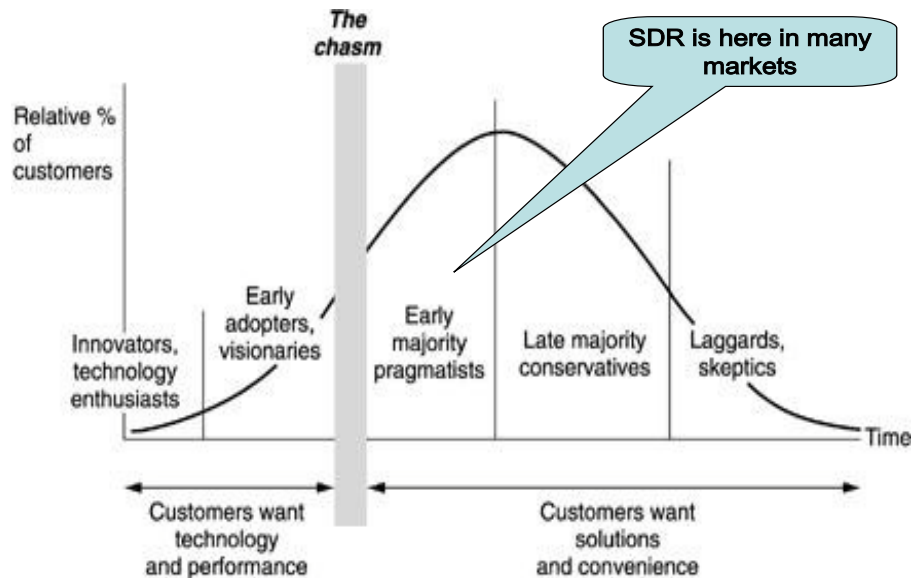

Figure 1: SDR appears to have entered the mainstream in many wireless markets (Source for Chasm Diagram: http://www.codeodor.com/images/crossing_the_chasm.png)

The question for the SDR Forum, then, is as this technology matures, how can the Forum maximize the value it brings to its members, its partners, and the wireless community as a whole? To answer this question, the SDR Forum Board of Directors commissioned a project in 2007 to define the evolution of The SDR Forum over the next 3 years. The result of that study was a new strategic plan that was approved by the members in January 2008[3]. Integral to this new strategy were a number of follow on studies important to the ongoing progression of the organization, and based on the results of these studies, the Board of Directors established an Organization Transformation Committee in April 2009 to define the next phase of the Forum's evolution. This Committee, consisting of members of the Board of Directors plus representatives of the International Tactical Radio, Public Safety and Satellite Communications Special Interest Groups (SIGs), met weekly throughout summer and early fall of 2009 to evaluate the execution by the members on the 2008 strategic plan to date, to identify strengths and weaknesses in that plan, and to explore new initiatives the Forum and its members should undertake.

This revised strategic plan is the result of the efforts of this Committee. The plan begins by presenting the process that was followed in defining the Forum's strategy, and then presents four "pillars of strategy" upon which the rest of the plan is based. The plan concludes by presenting metrics by which the success of the strategy can be measured, and proposes next steps that should be completed to evolve the strategy over the next several years.

2   Major Changes from Previous Plan

This strategic plan builds from the 2008 strategy with significant revisions that include:

- Rebranding of the SDR Forum as the Wireless Innovation Forum (see Section 5)
- Re-chartering the Markets Committee as the User Requirements Committee (See Section 7.1)
- Splitting the Technical Committee into two standing committees (See Section 7.3)
- Promotion of the SCA Work Group to Committee Status (See Section 7.3)
- Creation of a Roadmap Committee (See Section 7.4)

Minor modifications are made in other sections of the document as appropriate to support the recommendations of the Organization Transformation Committee.

3   Intended Audience

This document is intended for use by The Software Defined Radio Forum Inc., its member organizations and its partners to communicate the Forum's Strategic Plan as approved by the SDR Forum Board of Directors in September 2009. It is also intended for use by potential members and partners as tool for evaluating participation in the Forum, and by the advanced wireless community as a whole to help to understand the Forum's mission and objectives.

4   Strategic Planning Input and Process

The process followed by the Forum in preparing this strategic plan was comprehensive and based on inputs derived from the following activities:

- Review of Organizational Metrics – This activity established a baseline from which the Forum can evolve in executing on a new strategic plan. Specific items evaluated in this review included:

  o Membership Data – An analysis of the Forum's membership from 2003 to 2008, including a first and second order evaluation of membership by size, region, primary market, and position in the value chain.

  o Meeting Data – An analysis of member and non-member attendance at Forum General Meetings and Technical Conferences, including an analysis of attendee representation by region and an analysis of meeting attendance correlated against meeting location, workshop topic, and external events.

  o Finance – An analysis of the Forum's financial results from 2005 to 2008, including an evaluation of any significant financial events that occurred.

  o Performance – An evaluation of how the Forum has performed against stated objectives, including an analysis of what contributed to the Forum's successes, and what lessons could be learned in areas of non-performance

- Market Analysis – This activity evaluated the Forum in the context of the broader advanced wireless market. As a part of this evaluation, a SWOT (Strength, Weaknesses, Opportunities, Threats) analysis was performed to position the SDR Forum with respect to other organizations, based on input from Forum members, including:

"Hard Core" Standards Bodies	"Trade Associations" and other Industry Consortia
International Telecommunications Union (ITU)	The WiMAX Forum
European Telecommunications Standards Institute (ETSI)	CTIA
IEEE SCC41/P1900	AFCEA
Object Management Group (OMG)	Scope Alliance and the Service Availability Forum
3GPP	The Multi-Core Association
Telecommunication Industry Association (TIA)	The Wireless Communications Association
VITA Standards Organization	Open Mobile Alliance

- Rebranding Study – In January of 2008, the Board of Directors engaged Howe Brand Communications to evaluate the "SDR Forum" brand and determine if rebranding was required. The conclusion of that study was that existing Forum members have strong brand affiliation with the name "SDR Forum" and more specifically with the name "The Forum", but that the scope perception associated with being tied to a specific technology (Software Defined Radio) limits the ability of the organization to effectively execute on the 2008 strategic plan in engaging in new markets and in defining technology solutions based on emerging cognitive radio and dynamic spectrum access technologies that are important to the Forum's existing members. Other conclusions of this study were that:

  o The organization is, and will remain, a technology organization, but the focus needs to move more quickly to applying technology to markets and solutions

  o Should the organization choose to rebrand, it needs to define a way to maintain brand equity for those invested in the current "SDR Forum" name

- Member Interviews – The Forum conducted one-on-one interviews with representatives of over 50 member organizations to ascertain the value of the Forum to their organization and to understand the areas that the Forum needs to address to remain relevant. While interviews could not be held with every member organization given the time frame involved, the organizations interviewed were selected as a representative sample to ensure proper coverage of markets, regions and value chain. These interviews highlighted specific critical needs that the Forum needs to address in two areas:

  o Marketing and Business Development – The Forum needs to provide mechanisms to support member organizations in:

    ▪ Influencing customers and regulators

    ▪ Understanding and expanding the market

    ▪ Finding new business opportunities

    ▪ Finding new partners

  o Technical Development – the Forum needs to provide opportunities for our member organizations to:

    ▪ Influence industry specifications and standards that are broadly adopted in order to reduce costs (development, production, operations) and time to market/time to deployment for reconfigurable radio technologies and products

    ▪ Develop a working knowledge of relevant technologies and standards

- Entrance and Exit Interviews – The Forum also conducted one on one interviews with each organization that joined the Forum or withdrew from the Forum from 2007 to 2009 to ascertain the reasons for this decision. Entrance interviews reinforced information gathered in interviews with existing members, while exit interviews identified that the primary reasons that organizations left the Forum were:

  o SDR is considered a solved problem and the organizations are moving onto new areas of technology innovation

> o The Forum was not providing sufficient access to new markets
>
> o The Forum was not providing sufficient influence up and down the wireless value chain

The Organization Transformation Committee mapped these inputs against the 2008 strategic plan to answer three defining questions that acted as a framework for the revised strategy:

- Who are the Forum's active members, and what are they passionate about?

- At what can the Forum be the best in the world?

- What drives the Forum's economic engine, and how can the Forum measure success?

Through this mapping, the Committee concluded that the basic strategy undertaken in 2008 was sound, but that the new initiatives should be undertaken to increase the participation of end users and their representatives (operators, network service providers, radio acquisition authorities, regulators, etc.) and to increase the participation of technology suppliers (component providers, software providers, tool providers, subsystem vendors, etc.) (see Figure 2). The committee also concluded that the Forum needs to rebrand in the 2010 time frame to meet with the long term needs of its members. A survey was issued by the committee to the broader community to validate these conclusions and to gain insight in other key areas.

This revised strategic plan was crafted based on an evaluation of all of these inputs and the results of the organization transformation survey.
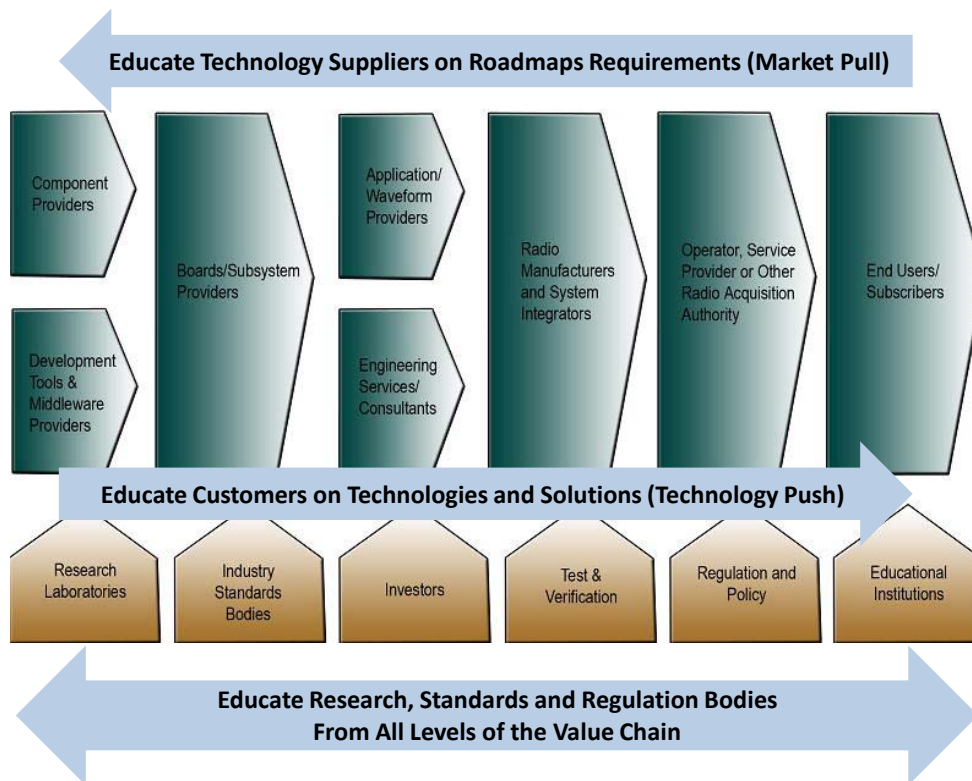

Figure 2: Driving Requirements Up and Down the Value Chain

5 Rebranding Strategy

In December 2009, the Software Defined Radio Forum Inc. will begin doing business under the trade name the Wireless Innovation Forum™. This name acknowledges the fact that member organizations are driving technology innovation in commercial, civil, and defense communications around the world and strive to address the emerging wireless communications requirements of end-users through improved performance of deliverables, reduced total life cost of ownership and the responsive and rapid deployment of standardized families of products, technologies, and services. In selecting this name, the term "Forum" was selected in lieu of the more tradition terms "Alliance" or "Industry Association" as it denotes a "place" to come to collaborate and allows some brand equity to be maintained with existing members who identify with the name "The Forum".

In launching this new brand, the organization shall maintain the name SDR Forum™ for at least twelve months, and will be dual branded during that period. Existing activities will continue under the SDR Forum brand as required, while new activities will go forward under the Wireless Innovation Forum brand where possible. The strength of the new brand shall be evaluated at the end of the twelve month period, and a decision will be made on continuing or dropping the SDR Forum brand at that time.

There is no intention under this plan to change the corporate name "The Software Defined Radio Forum Inc." or to change the basic mission of the organization, as defined in the Bylaws, as this is the basis for the organization's tax-exempt status.

6 High Level Strategy for the Wireless Innovation Forum

A graphic presenting the high level strategy for the Forum operating under this new brand is presented in Figure 3. The objective of the strategy is to establish the Forum as the premier organization for *"Driving the future of radio communications and systems worldwide"*. In achieving this objective, the strategy leverages the broad base of experience and expertise of the Forum's member organizations in Software Defined and Cognitive Radio technologies across diverse markets and at all levels of the value chain through four "pillars of strategy" that have been defined to optimally support these members' organizational objectives:

- **Advocacy** – Through this pillar, the members of the Forum will collaborate with governments, regulators, standards bodies, and research sponsors acting as the voice of the advanced wireless community. In expanding its advocacy role, the Forum will take steps to ensure that it stays within the legal boundaries of what is allowed for a non-profit organization, and may evaluate spinning-off an affiliated organization should this be found too constraining.

- **Opportunity Development** – Through this pillar, the members of the Forum will establish programs to facilitate partnerships, identify new opportunities and develop new markets for next generation products and services. This includes defining use cases and business models illustrating the compelling value proposition of SDR, CR and DSA technologies in specific market segments. By facilitating opportunity development in

this manner, the Forum will promote a proliferation of reconfigurable wireless platforms and devices, ultimately benefiting the end user with lower cost and expansion of service.

- **Commercialization** – Through this pillar, the members of the Forum will facilitate the transition of advanced wireless technologies from the research labs into deployed systems. The Forum and its members will do this by promoting industry convergence on open specifications and standards supporting relevant technologies and by enabling certifications that promote the interoperability. The goal of this pillar is to help establish an ecosystem of vendors providing interoperable hardware and software radio components to drive economies of scale that will ultimately reduce the costs of development, production and maintenance of wireless systems, while at the same time speeding time to market and time to deployment.

- **Education** – Through this pillar, the members of the SDR Forum will educate the wireless research and development community and decision makers across the wireless value chain on technologies relevant in the creation of software defined and cognitive radio based systems. Such education serves two purposes; it promotes the use of these technologies across a wider base of radio development programs and it lowers the costs inherent in these programs by reducing the technology learning curve.
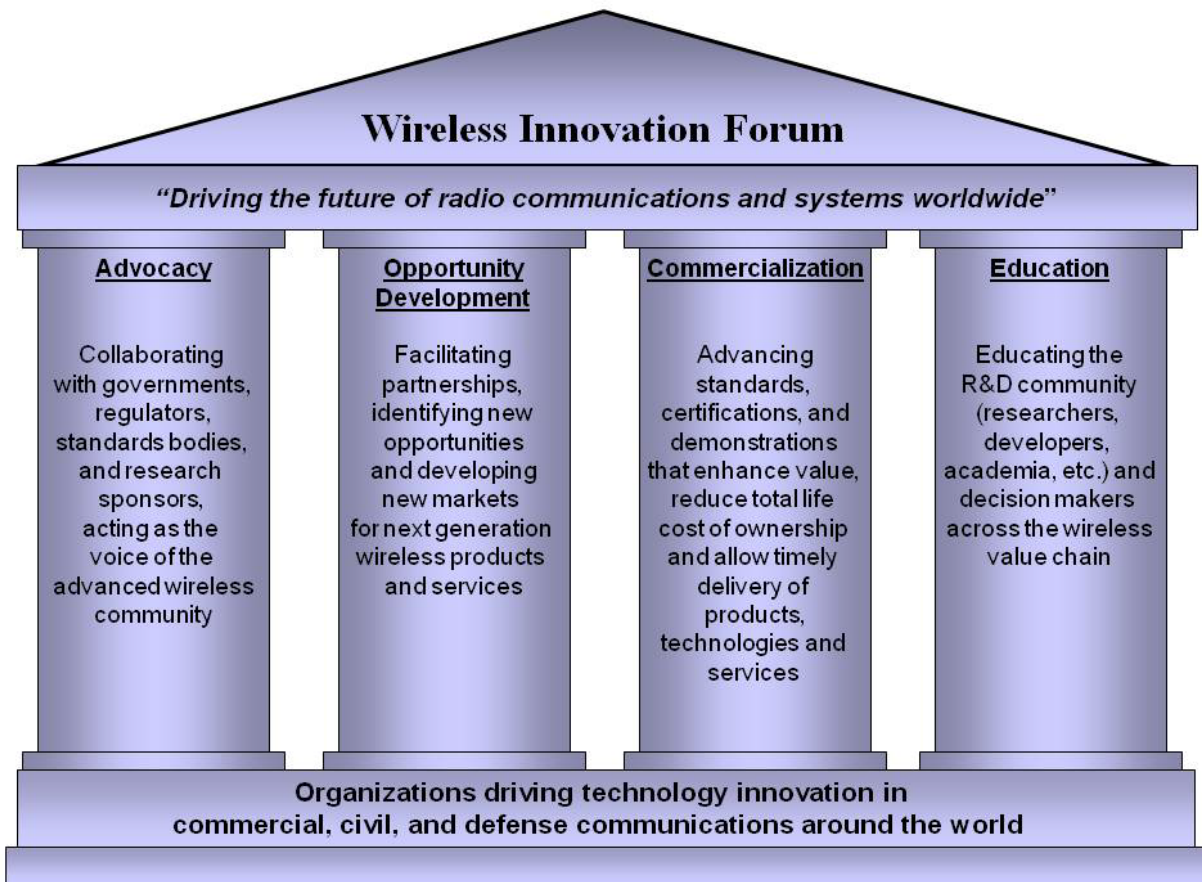

Figure 3: The SDR Forum 2010 to 2014 Pillars of Strategy

7 Dimensions of Implementation

Inherent in this strategy is the continuing transition of the Forum from a technology driven focus to a market/solutions driven focus with a scope expanding to include platforms, systems and networks. The impact of this transition drives various dimensions of implementation for each of the four pillars of strategy within each of the SDR Forum committees (see Figure 4).
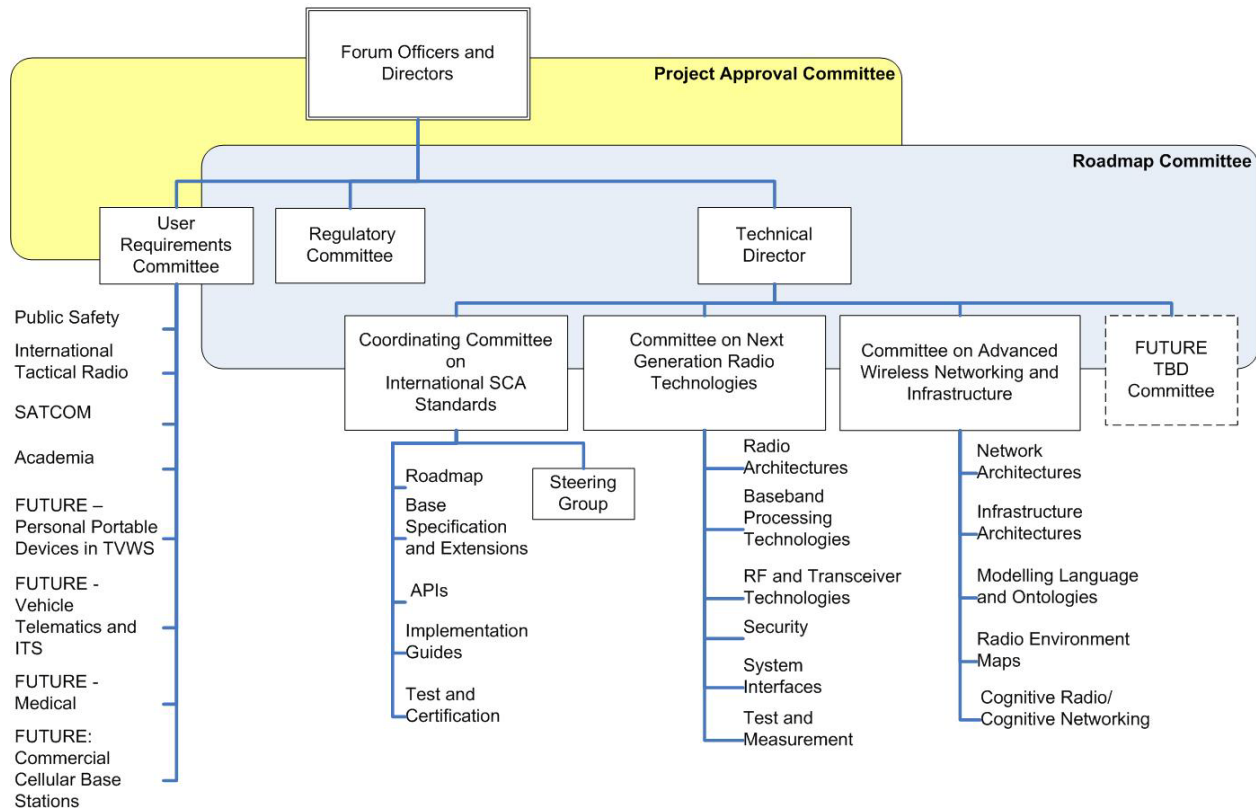

Figure 4: Revised Organizational Structure Supporting the Proposed Strategy

7.1 User Requirements Committee

Under this strategy, the Forum's Markets Committee will be recast as the User Requirements Committee (URC). This Committee will consist of multiple Special Interest Groups (SIGs) which are cross-disciplinary teams focused on the needs of a single market or market segment. Each SIG will be chartered to act 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. SIGs will work 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. SIGs will also have primary responsibility for supporting member organizations in identifying new opportunities for next generation products and services in each defined market domain.

The URC's charter shall support the Forum's four pillars of strategy in the following ways:

- Advocacy
  - Each SIG will proactively identify international regulatory objectives important to their market domain and pass these objectives as formal inputs to the Regulatory Committee for further action
  - Each SIG will support the development and submission of formal recommendations on behalf of the members of the SDR Forum to end-users and their representatives in response to requests for information
  - Each SIG will define and maintain a list of "end user representative" organizations relevant to their market with whom the Forum should partner and then, with support of the Forum's CEO and staff, establish a collaborative relationship with each target partner that is of mutual benefit, allowing SIG representatives to provide input to these organizations on requirements and solutions as appropriate

- Opportunity Development
  - Each SIG will establish programs to support participating member organizations in identifying new opportunities for reconfigurable radio products and services

- Commercialization
  - Each SIG will identify requirements, use cases and business models that must be addressed through the Forum's commercialization efforts, and provide these as formal inputs to the Forum's Technical Committees

- Education
  - Each SIG will facilitate the creation of tutorial material relevant to the Forum's membership
  - The URC as a whole will provide support in planning the Forum Technical Conference and Product Exposition to include defining and soliciting participation in keynotes, presentation tracks, tutorials, and workshops that will explore requirements and educate attendees on the business models and case studies for advanced wireless technologies

A key tool to be used by the SIGs in executing on their charter will be the establishment of an annual "end-user workshop" providing a face-to-face venue for the advanced wireless community to explore emerging requirements and solutions. The outcome of these workshops will be a well defined action plan that will drive the operations plan for the SIG for the coming year. SIGs may use the discretionary budget of the URC in support of each workshop, and may seek government grants, etc., as appropriate, to further support participation and follow up.

7.2 Regulatory Committee

The Regulatory Committee works with the regulatory and public policy community to establish a global regulatory framework promoting the adoption of reconfigurable radio technologies in

advanced wireless systems. The work of the Regulatory Committee is facilitated by a Regulatory Advisory Committee made up of regulators from around the world working on relevant issues.

The Regulatory Committee's charter supports the Forum's four pillars of strategy in the following ways:

- Advocacy

  o The Regulatory Committee will develop and maintain a public regulatory agenda that addresses the needs of the SDR Forum's members and will proactively promote that agenda in relevant bodies worldwide

  o The Regulatory Committee will inform members of upcoming regulatory filings all over the world that may impact their ability to achieve their organizational objectives, and provide an opportunity to form an ad-hoc project group to respond as required

- Opportunity Development

  o The Regulatory Committee will proactively identify regulatory barriers and misconceptions that may impact our members' ability to pursue new business opportunities or other objectives and provide them as formal input to the User Requirements Committee

- Commercialization

  o The Regulatory Committee will describe current regulatory constraints that may impact the feasibility of potential technical options pursued under the Forum's commercialization efforts as formal input to the Technical Committees

- Education

  o The Regulatory Committee will develop programs to educate members and the community on the regulatory landscape as it relates to reconfigurable radio technologies

  o The Regulatory Committee will provide support in planning the Forum Technical Conference and Product Exposition to include defining and soliciting participation in keynotes, presentation tracks, tutorials, and workshops that will educate attendees on regulatory issues associated with SDR and CR technologies

7.3 Technical Committees

Historically, the Forum's Technical Committee has produced reference architecture specifications and reports exploring technologies used in implementing those specifications: defining technology readiness or explaining how to use a specific technology in implementing an advanced wireless solution. More recently the Technical Committee has facilitated standards and demonstration projects intended to reduce the costs (development, production, operations) and time to market/time to deployment for advanced wireless systems.

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As the scope of the organization moves beyond SDR, the role of the Technical Committee needs to expand in a commensurate manner. Accordingly, beginning in January 2010, the existing Technical Committee will be replaced by two standing Committees with specific mandates:

- Committee on Next Generation Radio Technologies – This committee 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.

- Committee on Advanced Wireless Networking and Infrastructure – This committee 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.

Each of these Committees shall have its own chair and vice chair, shall be responsible for managing balloting at the committee level following the Forum approved process[4] and shall manage its own discretionary budget. The specific charter of each Committee shall be defined by the participating Member organizations, to be reviewed on an annual basis and approved by the Board of Directors. At a minimum, the charter for each Committee shall support the Forum's four pillars of strategy in the following ways:

- Advocacy

  o Through reports and recommendations, the Technical Committees shall actively influence national R&D agendas to provide funding opportunities supporting our members technology objectives

  o Through reports and recommendations, the Technical Committees shall advise service providers and acquisition officials on technology readiness in relevant areas

  o The Technical Committees will identify, define and maintain a list of critical "standards organizations" with whom the SDR Forum should partner; then, with support of the Forum's CEO and staff, establish a collaborative relationship with each target partner that is of mutual benefit, allowing Technical Committee representatives to provide input to these organizations on requirements and solutions as appropriate

- Opportunity Development

  o The Technical Committees shall identify key technical challenges that are relevant to the Forum's members, and provide a venue for them to present innovative solutions for addressing those challenges

- Commercialization

  o The Technical Committees shall facilitate convergence on specifications and standards supporting approved "reference architectures" that build industry wide value chains conducive to efficiency and market growth

- Education
  - The Technical Committees shall provide tutorial materials on relevant topics, standards and specifications to promote their use
  - The Technical Committees shall provide support in planning the Forum Technical Conference and Product Exposition, to include defining and soliciting participation in keynotes, presentation tracks, tutorials, and workshops that will educate attendees on SDR and CR technologies

During the first half of calendar year 2010, existing work groups and task groups within the Technical Committee will be reorganized into one of the two new Technical Committees as appropriate. It is recognized that the scope of many projects may cross Committee boundaries, and as such joint projects will be permitted where necessary. In supporting these Committees, the historical role of Technical Committee chair will be recast as the Forum's Technical Director. The duties of the Technical Director shall be to represent the Technical Committees on the Board of Directors, nominate the Chairs of the Technical Committees, to be approved by Committee vote and confirmed by the Forum Chair, support the Technical Committee Chairs in developing annual operations plans, approve Technical Committee operations plans, and coordinate activities across Technical Committees.

In addition to these standing Technical Committees, it is recognized that as certain technologies enter an advanced stage of commercialization, it is appropriate that member organizations interested in advancing those technologies further have additional autonomy in the commercialization process. The Forum recognizes the SCA as one such technology and therefore, beginning in January of 2010, the Forum will promote the existing SCA Work Group to Committee status, creating the "Coordinating Committee on International SCA Standards".

The charter for this committee will include:

- Defining an industry driven SCA roadmap for the international community
- Profiling the SCA and related APIs to define internationally accepted variants that are hosted by the Forum
- Developing extensions to the SCA that address any gaps between the defined roadmap and a Forum defined SCA profile
- Coordinating and influencing "standards development" ongoing in various bodies world wide
- Providing implementation guides, tools etc. easing implementation and supporting proliferation
- Establishing and managing industry led certification programs

The "Coordinating Committee on International SCA Standards" will be member driven with significant staff support and when appropriate dedicated support staff may be provided. General participation will be open to any member organization as per existing policy. The direction of the Committee will be driven by a "Steering Group", with participation in the "Steering Group"

limited to those who pay a premium rate to be members. This group will be formed in the first half of calendar year 2010 and will operate under a charter approved by the Board of Directors. The Steering Group will manage the discretionary budget for the committee, own the roadmap for the SCA, and have project approval authority on all SCA related projects. The Forum's Technical Director will be an ex officio member of the Steering Group and will represent the group on the Board of Directors.

As other technologies enter a similar advanced phase of development, the Forum may form additional committees focused on these technologies and supporting member organizations in their commercialization efforts.

7.4 Roadmap Committee

Eighty-five percent of the respondents to the Organization Transformation Survey indicated that the creation of a "roadmap of key technologies that are needed through the wireless value chain" was important to their organization, and this represented the single largest need identified in the survey. In response to this need, in the first half of calendar year 2010 the Forum will create a Roadmap Committee consisting of the group leaders (Committee, SIG, Work Group and Task Group) and chaired by the Technical Director. The objective of this Committee will be to ballot and approve on a continuing basis a "10 Most Wanted Technologies" list. This list will be created utilizing a process that is preliminarily defined as follows:

- The Committee's purpose shall be to define the format/structure for Forum approved reference architectures and identify a prioritized list of reference architectures to be created. Architectures will likely be domain specific, but that there may be overlaps.
- The prioritized list of architectures shall be handed over to the SIGs, where creation of the reference architectures shall be managed with the support of the Technical Committees as appropriate (See Figure 5 and Table 1). SIGs will prioritize reference architectures against other work items, and some planned activities may be dropped in favour of their development. Reference architectures will initially be provided at a fairly high level with additional details provided over time.
- The Technical Committees will map existing technologies against these architectures and identify "technology gaps" associated with supporting them. A list of these gaps will be provided back to the Roadmap Committee as appropriate.
- The Roadmap Committee will down select the defined "technology gaps" to create the "Top 10 Most Wanted Technologies" list. These will be presented in plenary session for balloting at each face to face meeting.

It is anticipated that the first meeting of the Roadmap Committee will occur at the March 2010 Forum General Meeting, and at that meeting the specific objectives in establishing the top 10 list will be defined. It is anticipated that the Roadmap Committee will meet in plenary session at each General Meeting thereafter and will meet via tele/web conference between meetings.

	Technical Committee 1	Technical Committee 2	Technical Committee 3	Technical Committee 4
SIG 1 Requirements		Project		
SIG 2 Requirements	Project			Project
SIG 3 Requirements		Project		
SIG 4 Requirements			Project	
SIG 5 Requirements	Project			
SIG 6 Requirements			Project	Project

Table 1: The Roadmap Matrix. The Roadmap Committee will facilitate convergence of requirements and technologies in projects
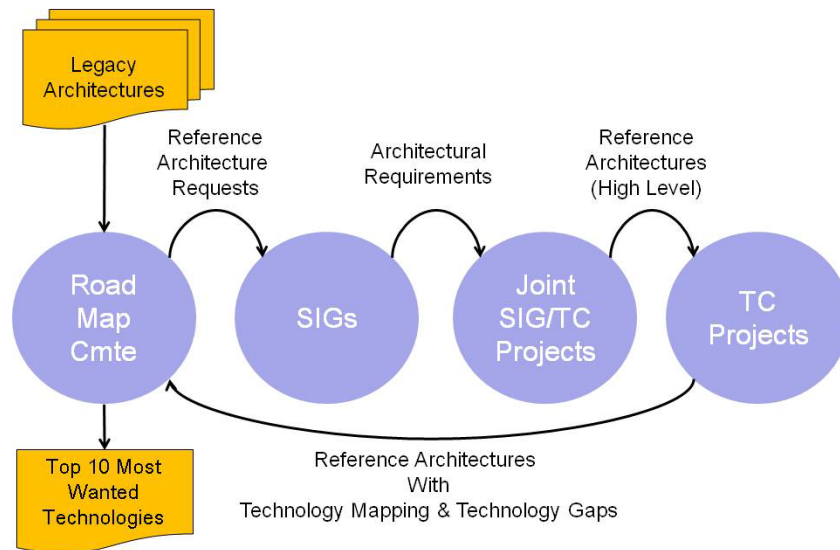

Figure 5: Process for Defining Roadmap Technologies

7.5 Project Approval Committee

Execution on this strategy will require continuing coordination between the User Requirements, Regulatory and Technical Committees in initiating and advancing "projects" within the Forum, with a project defined as an activity within a committee that develops a Forum Report, a Forum Recommendation or a Forum Specification. To support this requirement, the Forum will continue to follow the project approval process defined by the Project Approval Committee, appended to require that all projects moving forward must be sponsored by at least one Special Interest Group or the Roadmap Committee[5]. The Project Approval Committee shall continue to be comprised of the Forum officers and shall remain independent of the Roadmap Committee, allowing tradeoffs in resource allocation to be made by a smaller, more senior body.

8 Standards Development Strategy

The commercialization pillar of this strategic plan defines an explicit role for the Forum in facilitating the creation of standards and specifications that will reduce costs and time to market for SDR and CR based systems and products. However, in advancing this pillar of strategy, the Forum realizes that it is often not in the best interest of our members to develop such standards "in-house". Relevant specifications and standards may already exist in other organizations that may address the defined needs of the Forum's member organizations either "as is" or through minor modification. In addition, the broad base of technologies and disciplines required in developing and fielding reconfigurable radio technologies may mean that other standards organizations and consortia with expertise in a unique technology area may be better suited to develop a required specification or standard in that area. As such, the Forum and its members will adopt the following strategy for promoting standards that support the interests of the Forum's member organizations:

- **First, the Members will ENDORSE 3rd party "standards" when possible.** Endorsements will occur under relevant licensing terms to allow the Forum's members to leverage the work of other organizations to the greatest extent possible in supporting their specific needs.

- **The Members will PROFILE existing 3rd party "standards" when necessary.** As standards often incorporate a host of features and requirements that may not be relevant to the Forum's members in their entirety, the Forum will extract a subset of specifications under the appropriate licensing that are relevant to our Members' needs.

- **The Members will INFLUENCE other standards bodies as appropriate to support our member's needs.** This strategy establishes the Forum and its members as a customer for these organizations, allowing the Forum's members to focus on requirements, use cases, and business models and coordinate as necessary across multiple standards bodies.

- **The Members will DEVELOP their own specifications and standards when necessary.** The first choice of the Forum's members in this instance will be to modify or extend an existing standard if possible, but the Forum realizes it may need to develop its own specifications and standards to address the needs of its member organizations. As such, the Forum will retain its registration as a standards development organization (SDO) and will work to mature its standards development processes to fully meet with the needs of its members.

9 Partnerships and Collaborations Strategy

Execution on this strategy obviously requires the Forum to maintain strong relationships with "partner" organizations, including end-user representatives, regulatory bodies, standards bodies and other industry consortia, to support the needs of our members. Such relationships may be formal through membership, memorandum of understanding or liaison agreement, or informal through joint participation and mutual interest. In advancing this strategy, the goal of the Forum is to collaborate, not compete, with partner organizations having overlapping interests, establishing the Forum as a single location where members can go to interact with a wide range of relevant third-party organizations. Where formal partnerships are required, Forum staff will work to establish the relationship, and then, where practical, member representatives will act as

the liaison to the partner organization. Committee's may use discretionary budget to facilitate interaction with partner organizations as necessary, to include travel.
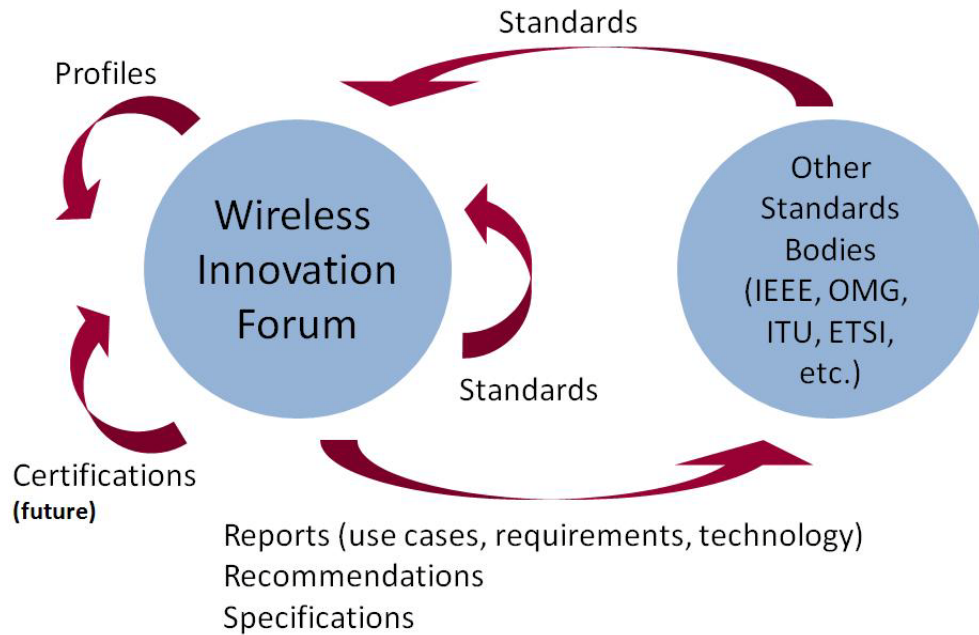

Figure 6: The Forum's Standards Collaboration Models

10 Meeting and Workshop Strategy

The SDR Forum's Workshops and General Meetings provide a primary venue for executing on the SDR Forum's pillars of strategy. Specific strategies for meetings and workshops are required, therefore, to ensure support of these pillars, which are summarized as follows:

- Forum meetings and conferences will be located in recognized wireless clusters or places with a high concentration of members. This strategy encourages local members and non-members to participate with low effort, maximizing the ability of our members to network and maximizing the ability of the SDR Forum to reach out to potential new members and new markets.

- Forum General Meetings will be a primary location where work gets done in advancing Reports, Recommendations, and Specifications. This strategy recognizes that the Forum's members have other responsibilities within their respective organizations and allows them to optimize the use of their time in supporting their organizations' objectives in participating in the Forum. In promoting this strategy, it is understood that significant "homework" must often occur between meetings in preparation for the next general meeting, and as such, support for this strategy requires the Forum to provide enhanced IT services supporting teleconferencing, web conferencing, and online collaboration.

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- The Forum will ensure that the agenda for the next meeting is set during the current meeting. This will allow members to better plan, and will help to drive completion of "homework".

- The Forum will use in-person "workshops" that occur in conjunction with the General Meetings as a primary vehicle for outreach within the advanced wireless community; exploring emerging requirements, defining solutions that address those requirements, identifying new markets and new business opportunities for existing members and recruiting new members in relevant areas.

- The Forum will use "virtual workshops" or webinars to explore specific technologies. These workshops may be tutorial in nature, providing instruction on the use of a state of the art technology, they may be used to create a new Report or Recommendation, or they may act as a vehicle for receiving primary input for an existing project.

11 Strategy for Expansion and Growth

Advancing the defined pillars of strategy through these implementation activities will allow the SDR Forum to grow in both membership and participation in the public safety and defence markets in which it has traditionally played a strong role. Long term growth, however, requires the SDR Forum to expand into adjacent markets, building economies of scale that span multiple market spaces and provide the SDR Forum's members with access to new opportunities for their technologies, products and services. The SDR Forum's strategy for expansion into these new domains is defined through three primary principles:

1. The SDR Forum Markets Committee will reach out to non-traditional, emerging and other secondary markets for which SDR and CR have a strong value proposition to form new Special Interest Groups. This strategy follows the principles of "The Innovators Solution" and will position the SDR Forum as a place for organizations to advance their objectives within these market spaces[6]. Potential markets that may be targeted following this strategy include:

   a. The telematics and intelligent transportation systems (ITS) markets

   b. The "White Space" and Secondary Spectrum Access Market

   c. The rural and developing countries commercial communications markets, including India, Africa and Latin America

   d. The multimode base station market

   e. The medical communications market

   Identifying new markets to investigate will be a primary responsibility of the Planning Committee of the Forum's Board of Directors and the CEO. A well defined procedure for forming a new SIG, to include requiring a positioning statement defining the value proposition for the SIG in the specified market and a charter for the SIG approved by the URC Chair, the Chair of the Forum and the Forum's CEO.

2. The Forum will avoid competing directly with existing trade associations supporting Tier 1 commercial markets, but instead will promote projects within the User Requirements and Technical Committees that complement their activities. As an example of this strategy, the SDR Forum could collaborate with organizations such as the Scope Alliance. This Alliance was formed in January of 2006 by a group of network equipment providers (NEP) that include Alcatel, Ericsson, Motorola, NEC, Nokia and Siemens, with the intent of developing profiles for and identifying gaps in existing open specifications supporting Carrier Grade Base Platforms (CGBP)[7]. The idea behind the Scope Alliance is to develop a "vibrant supply chain and ecosystem of commercial-off-the-shelf (COTS) and free/open source software (FOSS) from which NEPs can source a majority of their CGBP hardware and software"[8]. The initial focus of the Scope Alliance does not include the specialized processing engines and transceiver subsystems inherent in a reconfigurable radio set (see Figure 7), and as the Forum offers specific expertise in these technologies, this is a logical area for collaboration. Other organizations the SDR Forum may approach to discuss areas of collaboration in the context of this strategy include the WiMAX Forum, the Service Availability Forum, the Multi-core Association and the Mobile Industry Processor Interface Alliance, and the Open Mobile Alliance.
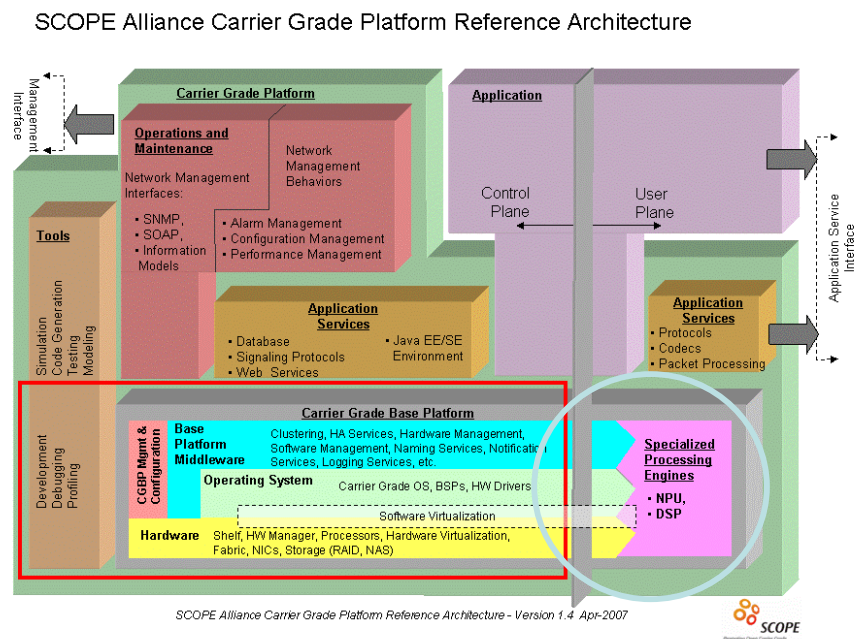

Figure 7: Scope Alliance Reference Architecture highlighting areas of possible collaboration with the SDR Forum (Source: The Scope Alliance, "Scoping the Scope – Closing the Gap on Open Carrier Grade Base Platforms", http://www.scope-alliance.org/scope-technical-position.pdf)

3. The success of this strategy requires international participation and therefore, the SDR Forum's strategy for expansion and growth must include regional plans to reach out to and support members and potential members in Asia, Europe, and the Americas. Accordingly, the Forum will develop new mechanisms to support the regional needs of its member organizations around the world. Among the mechanisms that will be evaluated will

> be stronger partnering with existing regional groups, opening regional offices of the Forum staffed with personnel dedicated to growing participation in that region and supporting the specific needs of the local member organizations, chartering regional chapters of the Forum and supporting those chapters by holding local meetings focused on regional issues, and establishing regional workshops and conferences including specific areas of local interest.

12 Pricing Strategy

Through these strategies, the Forum's differentiation from other organizations comes not from a focus on standards or technologies, but rather from a focus on supporting our members in achieving their organizational objectives. The pricing of SDR Forum membership and events must be reflective of this value. Generally speaking, price positions these "products" in the market, and therefore the Forum will develop a competitive pricing strategy following a value pricing model[9]. Under this model, the price of the Forum's membership and events will be adjusted on an annual basis to be at or below the price the market bears for similar value in other organizations.

In addition, the Forum will support expanded participation by end-users and their representatives in Forum meetings and events by establishing policies that reduce or eliminate fees for these organizations where possible. It is anticipated that following this strategy, fees will be waived for named speakers at events, and reduced for others. End-user representatives eligible for reduction in fess will be limited to:

- Network operators,
- Government acquisition authorities,
- Regulators,
- Non-profit organizations supporting an end-user community,
- Contractors who are *officially* designated as representing the above

13 Measuring Success

The Forum believes that execution of this plan will result in increased participation in the Forum's meetings and teleconferences, increased participation in the annual technical conference, and ultimately increased membership. In advancing this strategy, therefore, success will be measured by average member attendance at the General Meetings and at the Technical Conference.

14 Next Steps

The Forum realizes that for this strategic plan to succeed, it must evolve over time to best serve the needs of the Forum's member organizations. As such, the Forum Board of Directors shall commission an annual review of this Strategic Plan to address any deficiencies that might be found and to make necessary corrections in response to changes in the advanced wireless market.

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