

MMITS
Modular Multifunction Information Transfer System
Forum
on
Software Defined Radio

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MMITS

(Modular Multifunction Information Transfer System)

Forum

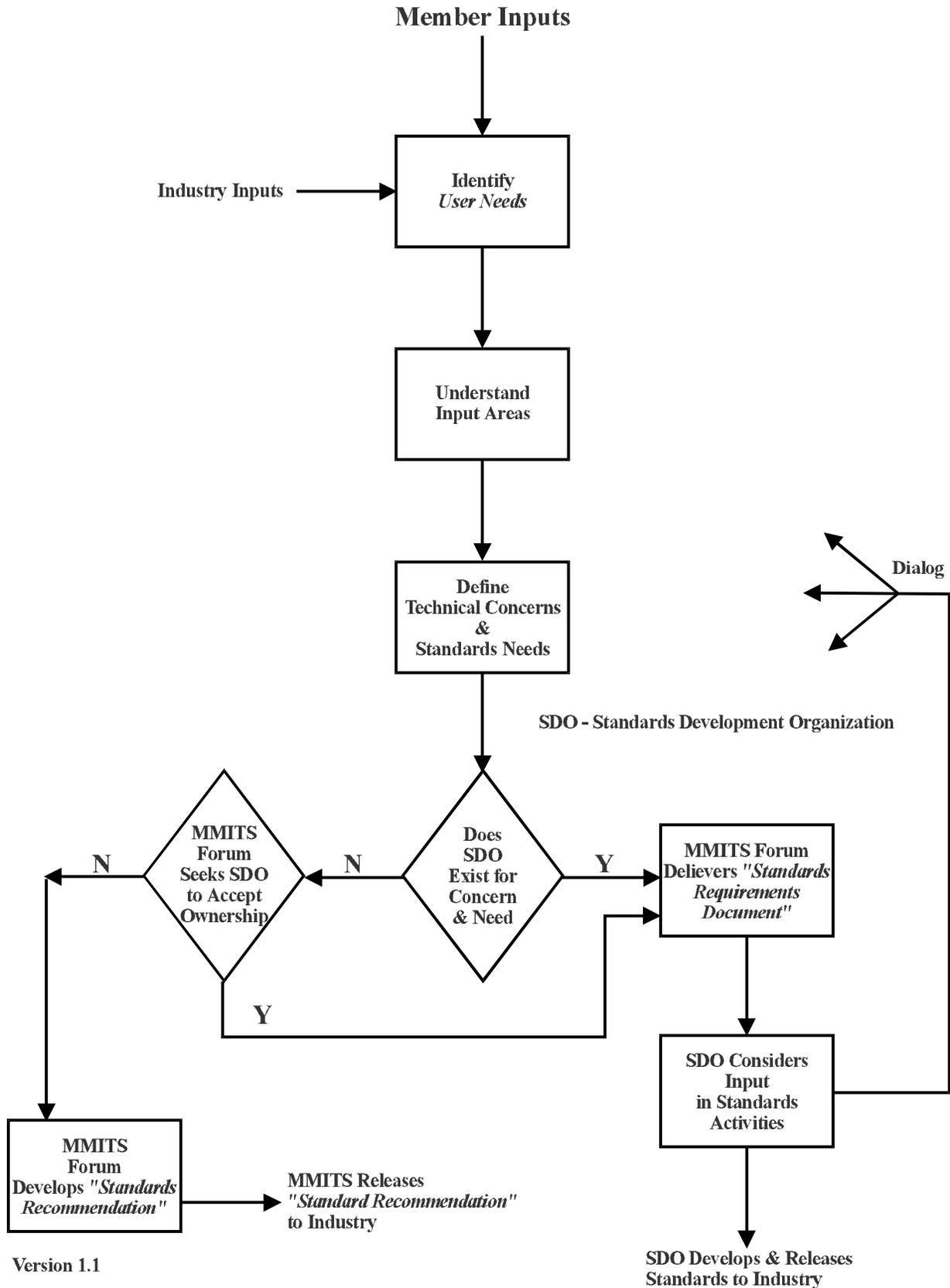
- Non-profit international open membership corporation whose objectives are:
 - to enable seamless integration of capabilities across diverse networks, in an environment of multiple standards and solutions.
 - to accelerate proliferation of software-definable radio systems.
 - to advance adoption of wireless open architectures.
 - to promote “multiple capability and multiple mission” system flexibility.
 - to ensure accommodation of current and future user needs in the areas of voice, data, messaging, image, multimedia...
- Membership includes:
 - Service providers
 - Equipment manufacturers
 - Component Manufacturers/Providers
 - Hardware and Software Developers
 - Government and Military
 - Academic and Research Organizations

MMITS Supports Development of Universal Solution Products

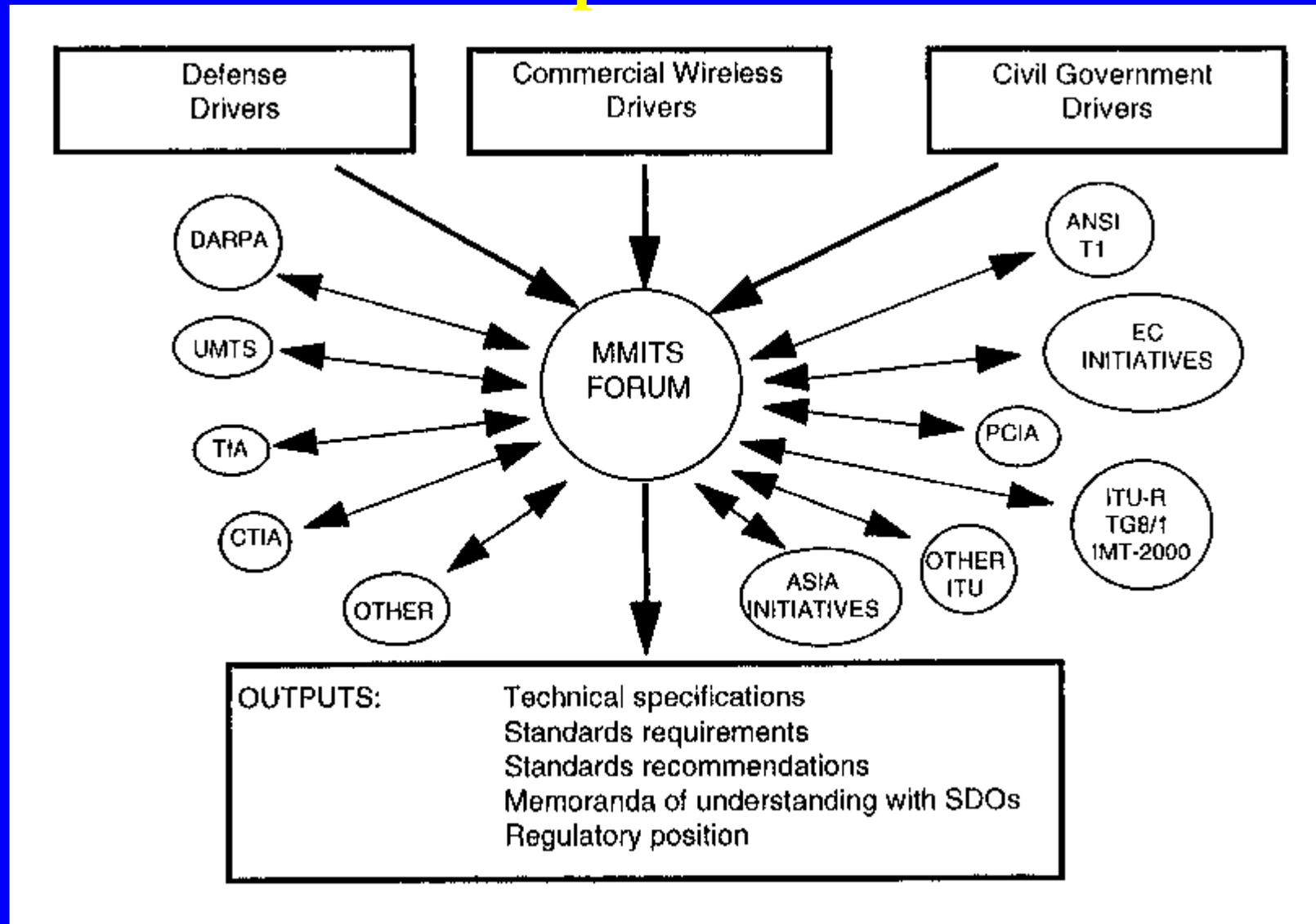
- Forum efforts are focused on:
 - Enabling widescale availability and applicability of open architectures, internationally-agreed-upon standards and APIs which support the proliferation of software-definable radio concepts.
 - Accelerating the availability of industry-developed MMITS-concept-based products that are the foundation of systems, services, and market needs.
 - Facilitating convergence of disparate systems.
 - Making possible flexible services independent of technology at appropriate price points.
 - Solutions to improve radio frequency spectrum utilization
- Core Working Groups in MMITS:
 - Market Committee
 - Technical Committee
 - Regulatory Advisory Committee

MMITS Forum Process for Developing Standards Requirement/Recommendations

MMITS FORUM PROCESS



Potential Partnerships and Liaisons of MMITS



MMITS Forum Deliverables

- Forum Outputs
 - User Requirements
 - Technical Specifications
 - MMITS Technical Report
 - Standards Requirements Documents and Recommendations
 - Memoranda of Understanding with Standards Development Organizations (SDOs) for Development of Complementary Standards
 - Reports Providing Data on the Market for SDR System Technology
 - MMITS Market Report
 - Regulatory Positions
- Further Information:
 - <http://www.mmitsforum.org>
The MMITS Forum
P.O. Box 1236
Rome, NY 13442-1236 USA

MMITS Market Forecast Study

The SDR Opportunity

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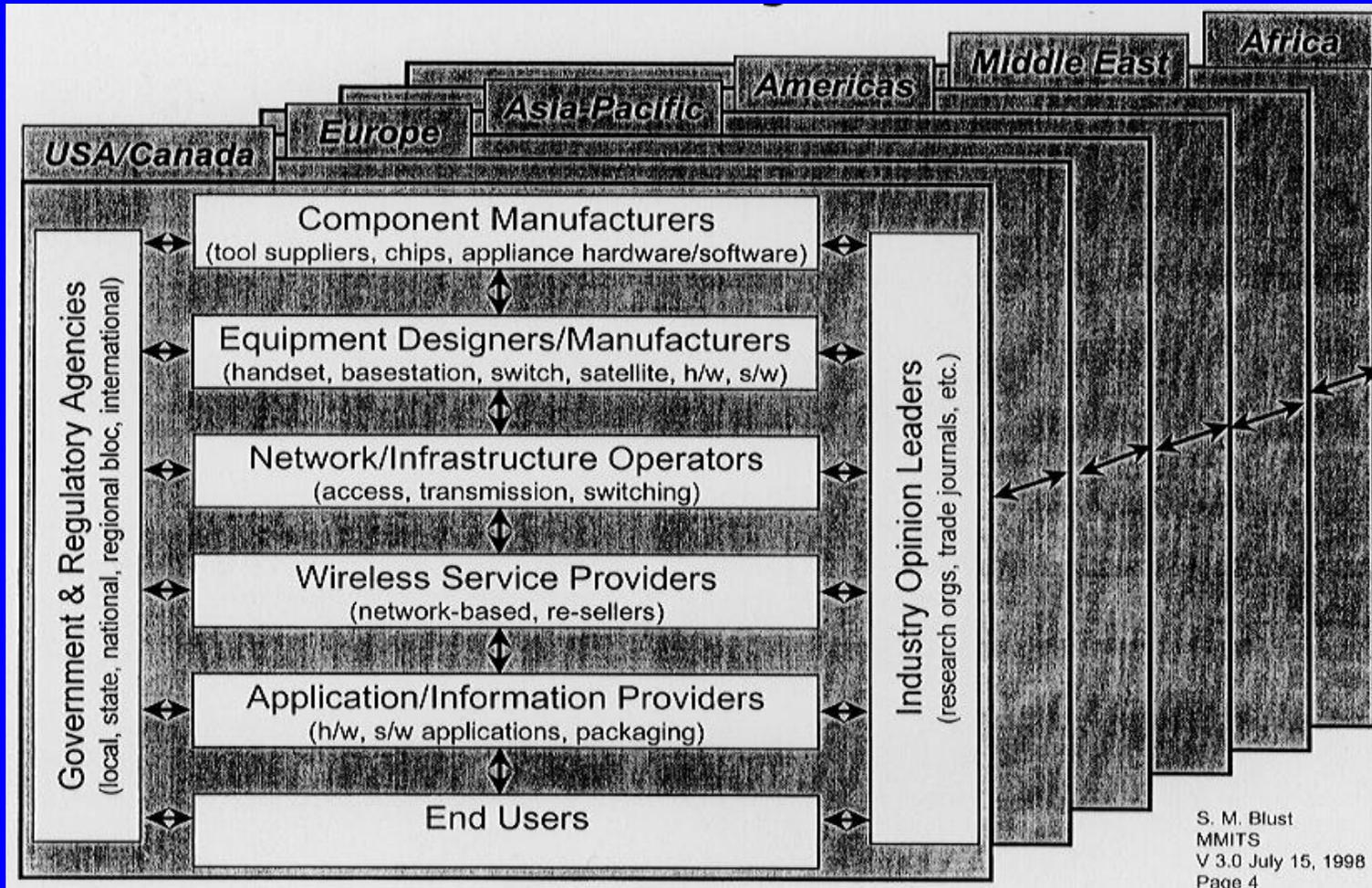
Market Report Series

- Subscription series includes:
 - Results of MIT report on SDR's prospects
 - Estimate of SDR market opportunity
 - Details on three primary market segments
 - Commercial
 - Military
 - Civil Government

Forecast Approach

- Identification of three primary segments
 - Commercial, military, civil government
- Understanding each market segment
 - Key characteristics, primary drivers
- Estimating size of each segment opportunity
 - Interviews with key value chain members
 - Analyzing existing estimates of multi-mode opportunity
 - “Triangulation” methodology to arrive at rough order of magnitude estimates

Framework for Study: Wireless Industry Value Chain



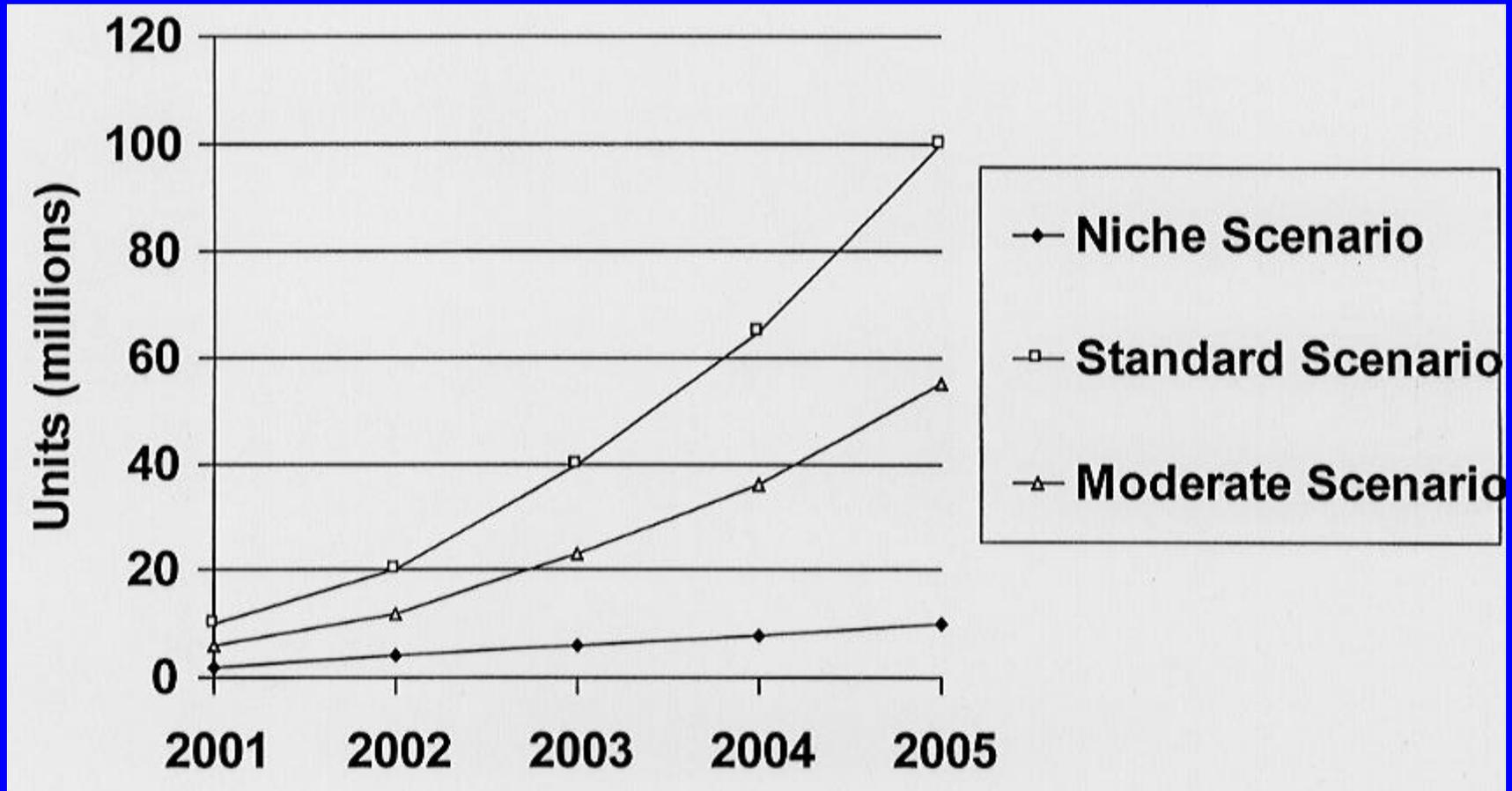
Commercial Segment

- Primary drivers
 - Heterogeneous networks issue, interoperability
 - Growing interest in wireless data applications
 - Preparation for 3G
- Alternative manifestations
 - Mobile terminals (handsets)
 - Network-based solutions (base-stations)
 - Handsets more attractive in near-term (2000-2005)
 - Base-stations important with 3G (2003-2008)

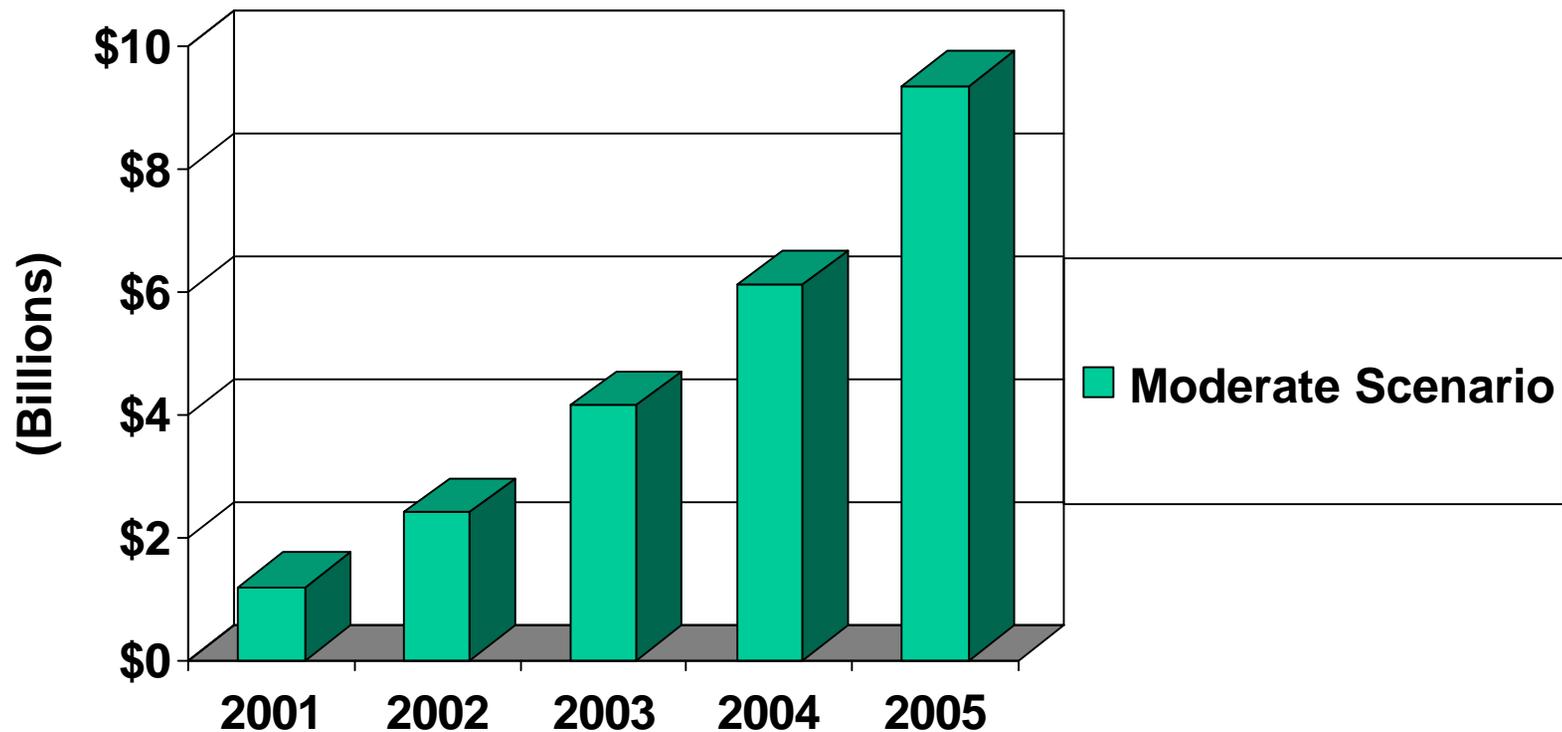
Commercial Segment

- Segment characteristics
 - Highly competitive
 - Cost-sensitive
 - Marked by limited collaboration
- Estimate of software radio handsets sold in 2001
 - Niche scenario: Assumes handsets sold only to high-roaming customers needing interoperability
 - Standard scenario: Assumes SDR solution becomes standard platform for multi-mode handsets

Annual SDR Handsets



Potential Market Value: SDR Handset Forecast 2001-2005

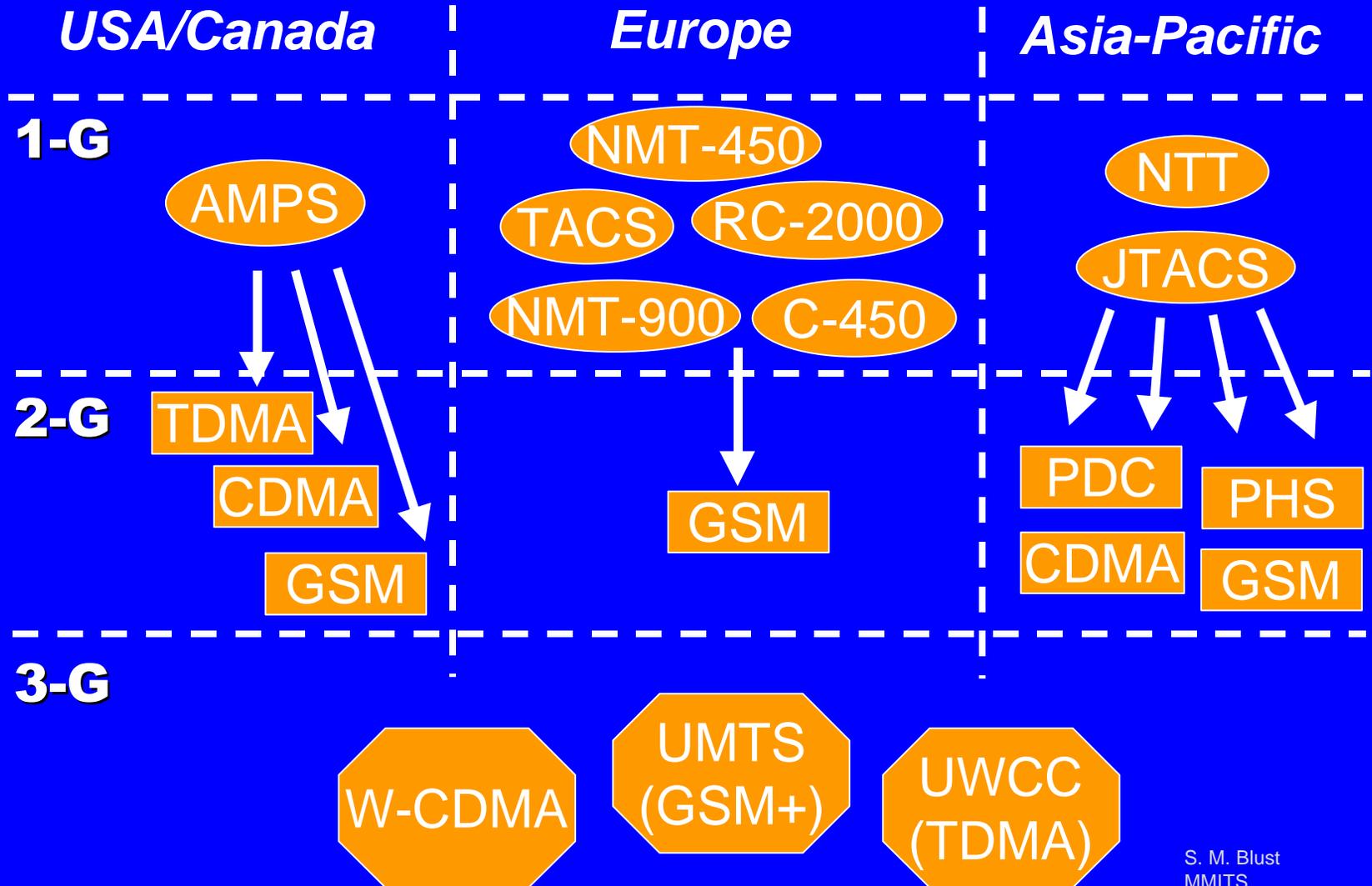


Additional Study Background

(From MMITS Commissioned MIT Sloan School Study)

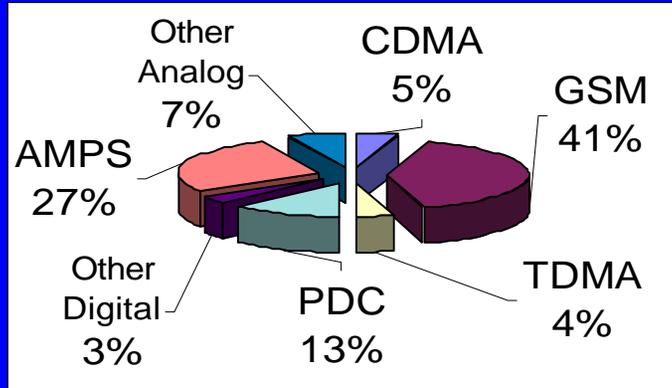
- Aspects of the Commercial Wireless Assessment
 - Multiple Standards Environment
 - The SDR Solution
 - Where is SDR today?
 - What else is needed?

Wireless Standards Proliferation

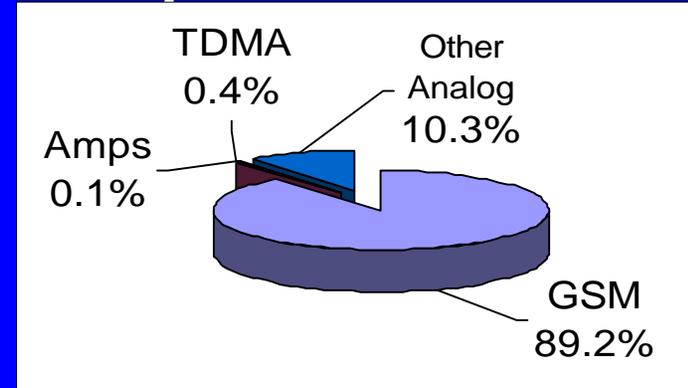


Wireless Standards Proliferation

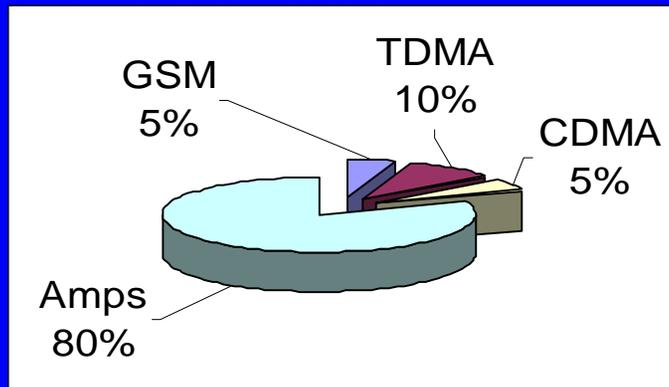
World



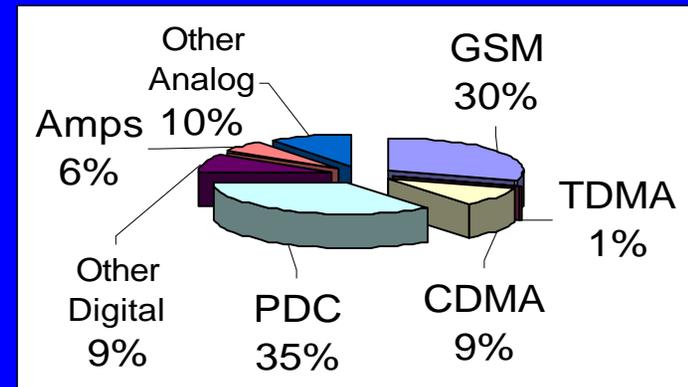
Europe



USA/Canada



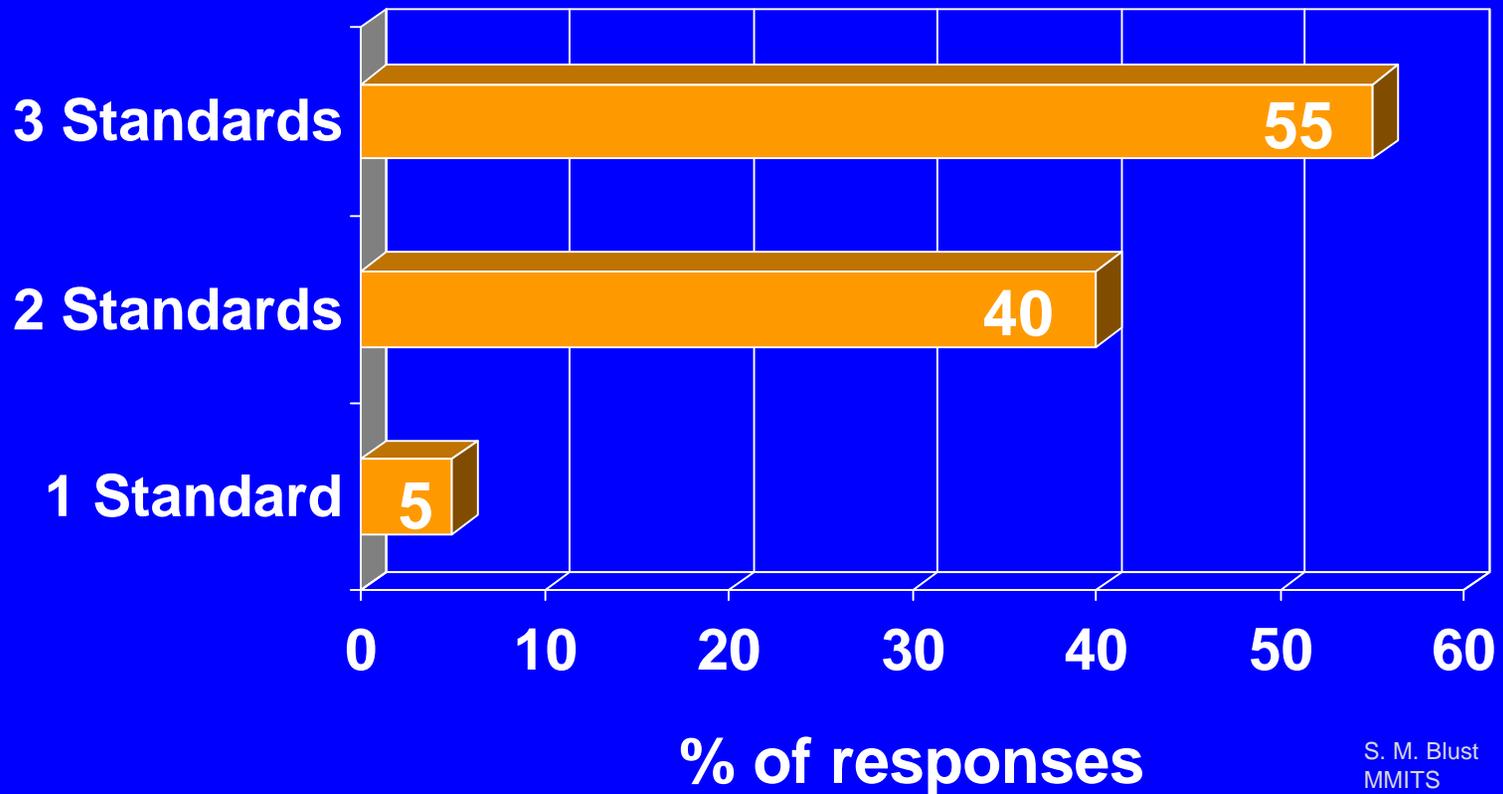
Asia-Pacific



Projected market shares, end 1998 (source: EMC database)

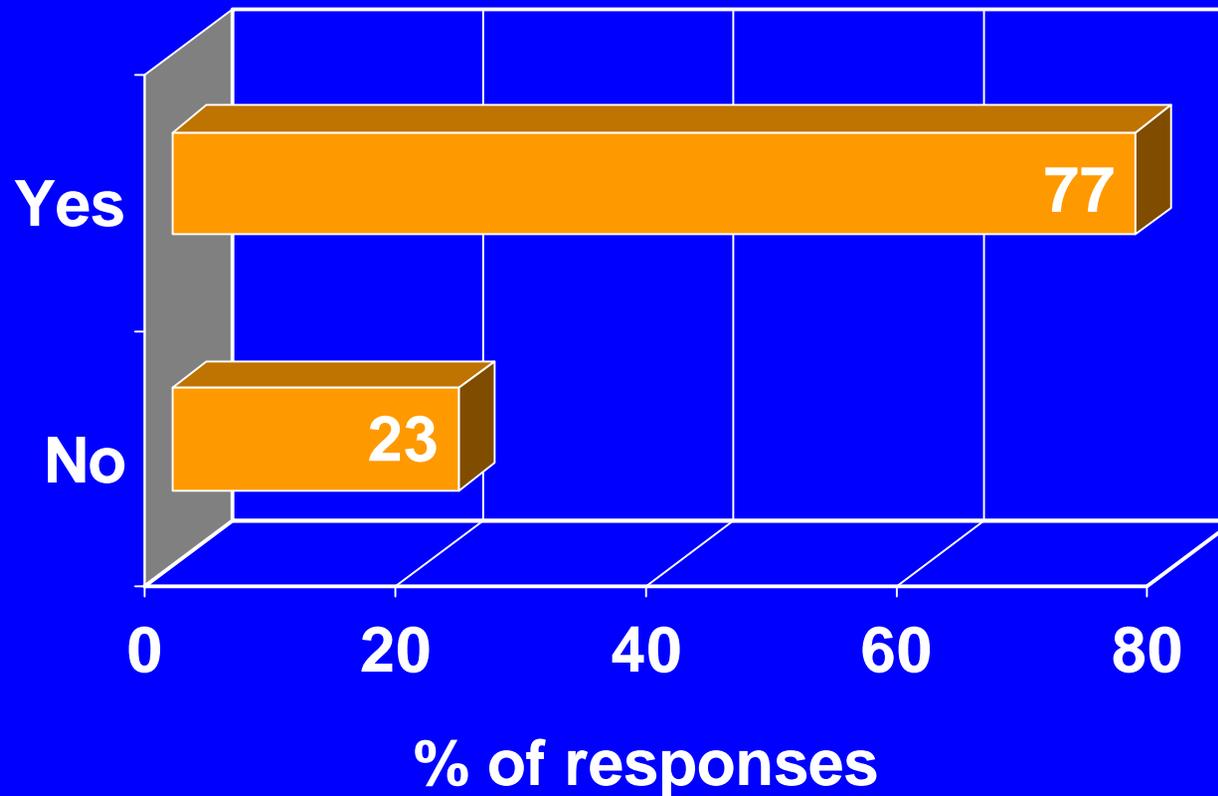
SDR is a viable solution

“What will happen in the wireless industry with regards to competing air interfaces?”



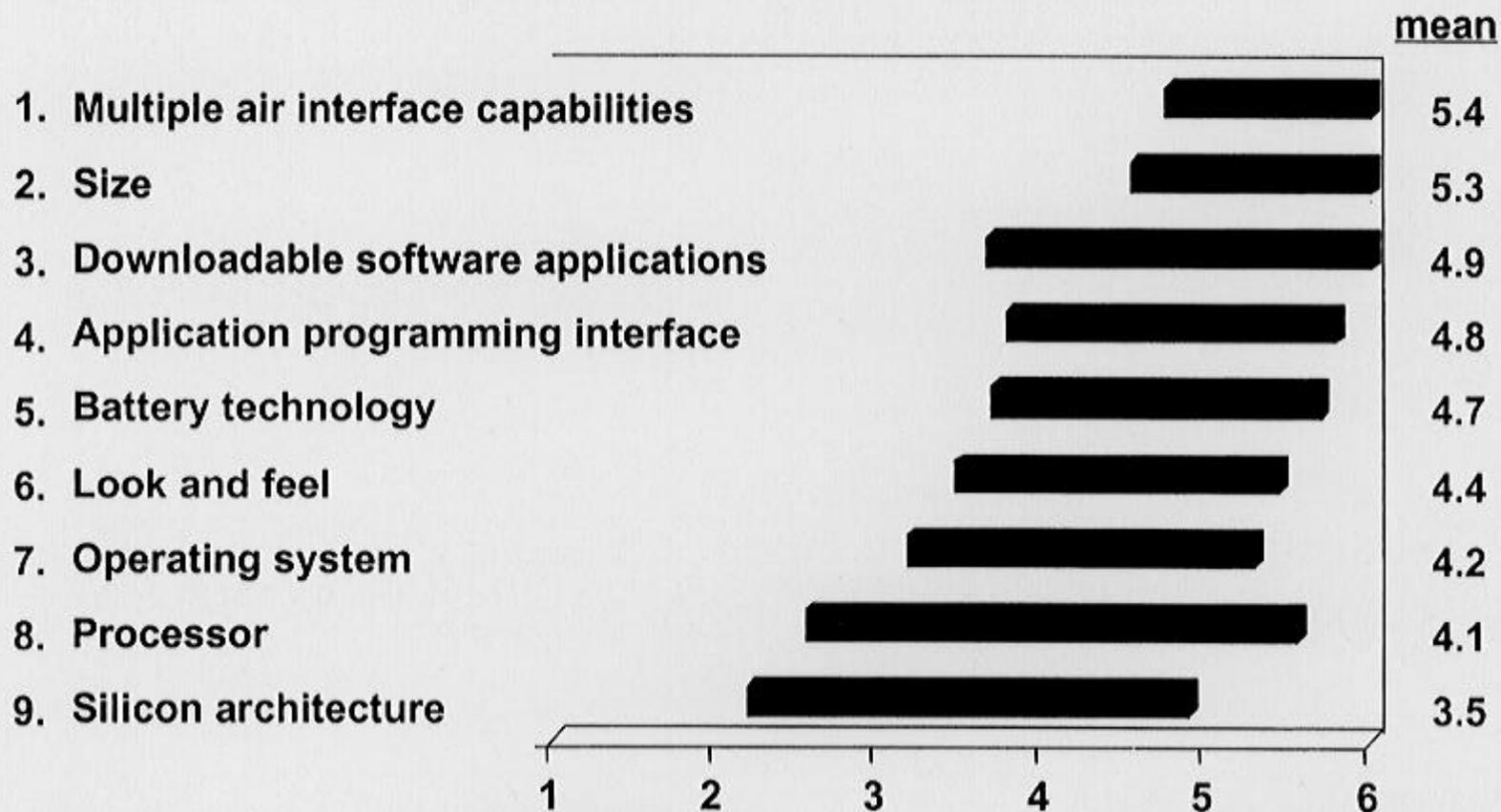
SDR is a viable solution

“Do you think that SDR is a viable solution to the multi-standards environment?”



SDR is a viable solution

Ranking in Importance of Software Phone Design Elements



not important

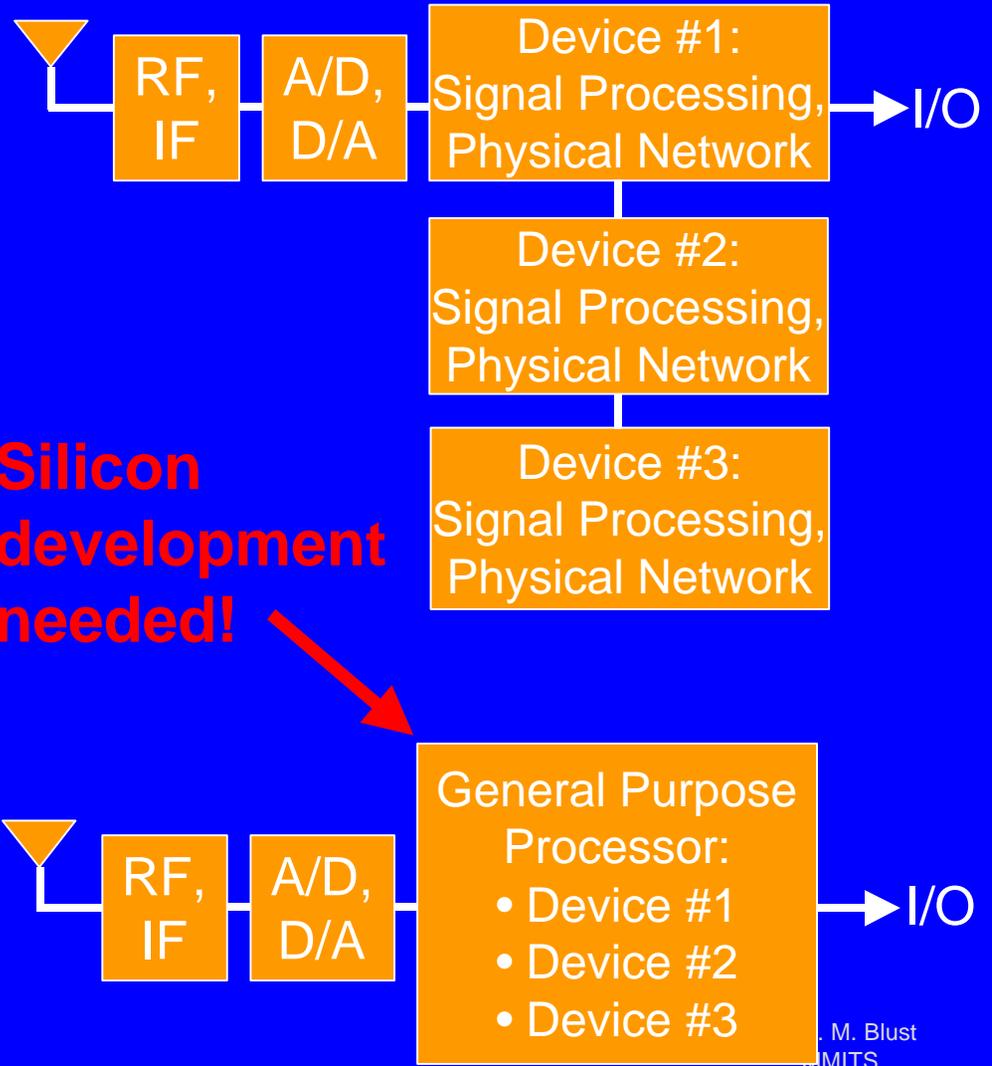
very important

Multiband/Multimode: 2 Solutions

1. Hardware



2. Software



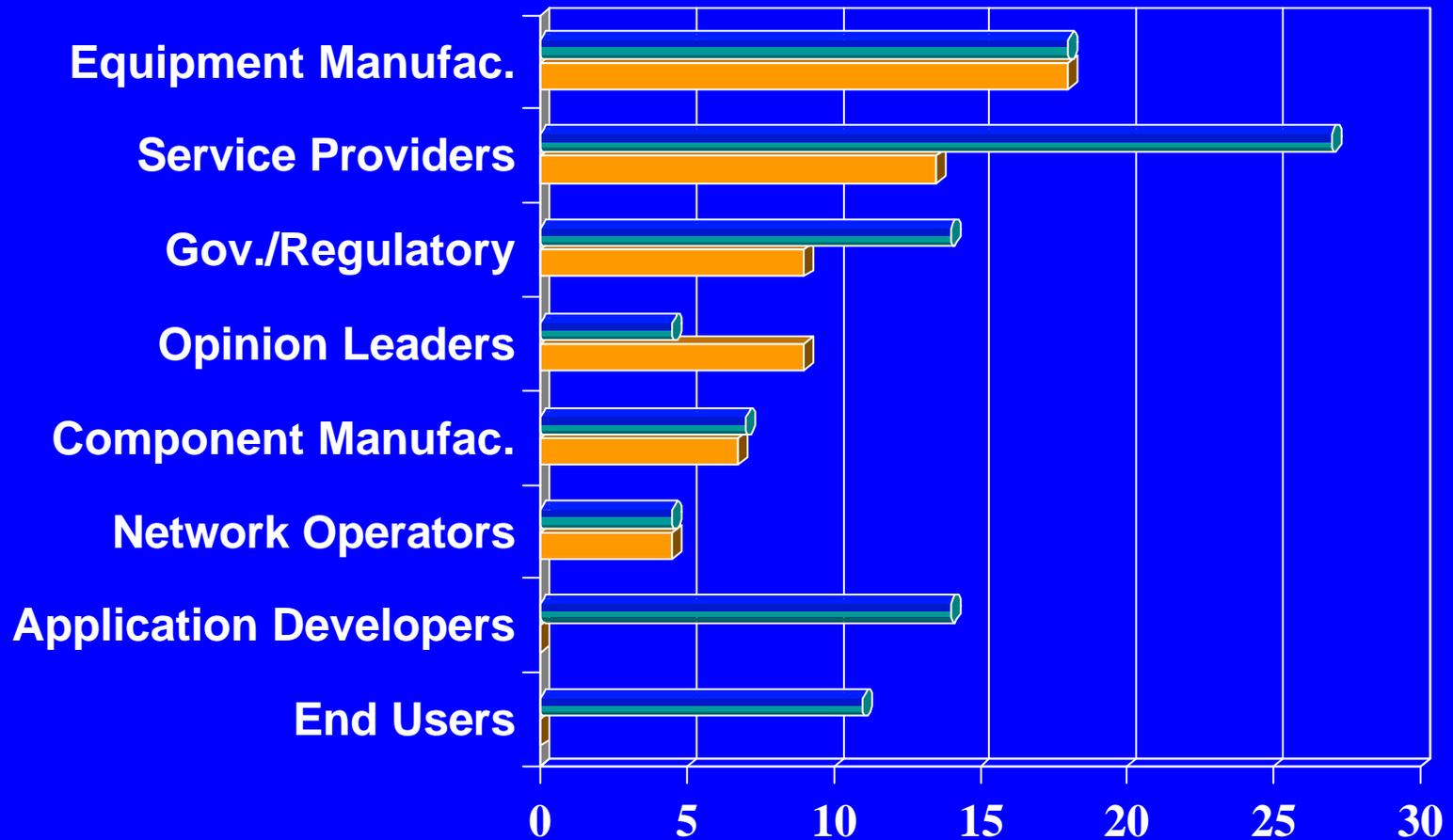
SDR Concepts are being Rapidly Accepted

- Technical benefits proven in base stations
- Huge reduction in handset inventories
- Flexibility/reusability offered by software signal processing widely recognized
- More and more applications developers skilled in wireless, audio, video software
- Wireless bandwidth on demand
- 3G will provide sufficient bandwidth (2Mbps)

To Further Broaden Acceptance of SDR

- Service providers must agree on level of deployment and define data-rich services
- Extensive roaming agreements required
- Many companies must make difficult structural alterations
- SDR must be incorporated into third generation standards proposals
- Advances in high-speed, low-power hardware still required

Key Links to be Forged in the Value Chain



Legend:

Upper Bar: Necessary Support

Lower Bar: Current Support

% of responses