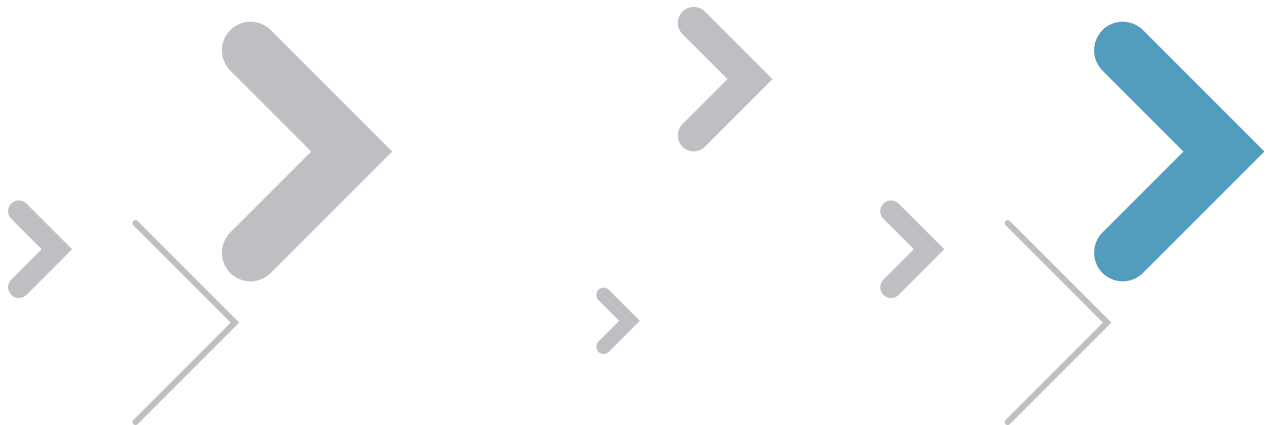




# Strategic Mobility Planning

## Positioning Your Organization for the Future



**AUTHORS:**

**PAUL LANCI - DIRECTOR - GLOBAL SERVICES BUSINESS**

**CHUCK ROARK, PH.D., DIRECTOR OF BUSINESS DEVELOPMENT/SOLUTIONS ARCHITECTURE**

*By 2009, 70 percent of knowledge work will occur in locations where workers will depend on a wireless and remote-access infrastructure that is outside the enterprise's direct control.*

—William Clark, “Definition of Mobile Workforce”, Gartner

*In 2010, 80 percent of key business processes will involve mobile workers' exchange of real-time information (0.7 probability)*

—Bill Kirwin and Phillip Redman, “Assess the Business Value of Mobile and Wireless Applications”, Gartner

**Customer:** Enterprise

**Challenge:** End of life of private voice and data systems

**Goals:** Indication of architecture and associated roadmap to meet mobility goals.

**Solution:** Motorola Mobility Architecture and Roadmap Advisory Service

Assessment of current IP & communications networks; gap analysis via Seamless Mobility Maturity Tool; architecture development to close gaps; associated roadmap and recommendations

**Result:** Identified technical issues such as obsolete infrastructure and internal organizational enterprise obstacles to meeting Mobility goals including organizational silos, out dated strategic plan, lack of internal skills, and incomplete characterization of mobile workforce.

Effective planning opened the channel of communication and allowed the organization to communicate across silos to mutually define the importance of the goals and cooperate on defining strategies and technologies to achieve the vision.

Revised preconceived notion of mobility priorities allowing more optimized leveling of mobility spend.

It's a different world today. Business can be conducted in airports while waiting for a flight, on conference calls that seamlessly move the conversation from office phone to cell phone, or at home on a laptop securely connected to the enterprise server. Consumers and workers want to stay connected and want the ability to download podcasts, music, business files or other data onto their mobile devices. The ability to retrieve information and to communicate anytime, from anywhere, and with a variety of access networks and devices has become more than a “nice to have.” At Motorola we call this Seamless Mobility – End-user application experiences that follow the user anywhere and anytime independent of the networks and devices while adapting to the users' context, preferences and environments.

Mobility is becoming essential to many customer segments such as enterprises, public safety and other government agencies, as well as wide area network service providers and content providers. For example, enterprises are seeing opportunities to achieve major reductions in operational expenses using mobility. A large medical equipment manufacturer envisions a billion dollar saving opportunity by enabling their 25,000 mobile service personnel to perform remote real-time trouble shooting of complex electronics on medical equipment by enabling and extending video streaming functionality on the mobile devices. In addition an Economist Intelligence Unit report noted that 75% of executive computer users believed that mobility is either critical or very important to job success.

A well planned mobility strategy is a journey towards providing the right type of access to information to the various stakeholders within an organization whether it be portable access, mobile access using one device on one type of network, or seamless access, regardless of device or network. The various levels of mobility provide varying degrees of flexibility and extendibility of the information. A solid IT strategy is important for a company to achieve its vision and be successful. Business strategies and IT strategies must be dynamic and adapt to competitive pressures and opportunities. Today's IT strategies are limiting and do not address the need for organizations to effectively mobilize their resources and address the critical business requirements.

With these new opportunities comes a host of challenges, including device selection, applications, manageability, security, and connectivity that IT professionals must address to meet user requirements and align them to the evolution of seamless mobility capabilities. Additionally there can be organizational related challenges such as organizational silos, lack of or outdated strategic plans, mismatch or lack of internal skills required to support the emerging mobility capabilities, and incomplete characterization of the mobile workforce. All of these elements are critical to ensuring the successful adoption and efficient delivery of mobile services. With multiple dynamics at play, combined with rapidly advancing technology that enables even greater efficiency and productivity, a seamless mobility strategy will be an essential part of a strategic IT plan to ensure competitive success.

This whitepaper presents the rationale and critical need for organizations, to develop a strategic mobility plan and provides an overview of Motorola's recommended process for development.

## Why mobility and why now? A Revolutionary Convergence

Today, we are in the midst of a revolution that will shift the center of gravity in the business of communications. Technologies and disparate information systems are morphing to allow for one total and inclusive seamless experience. Already, the growth of digitization is creating a more natural communications experience. Today, boundaries separating spatial domains and communication nodes are dissolving so that tomorrow, our vehicles, personal devices, homes, offices, and all the systems that surround us will communicate with each other autonomously. We will be able to fill our environment with our personal preferences, enabling us to feel connected anywhere, anytime.

In the enterprise and government space, remote workers, customers and constituents need access to information anytime and anywhere they operate to address their critical needs. Remote access and more efficient control of devices and services will enable improved interaction between the organization and its customers or constituents within and outside its four walls.

**Customer:** Government

**Challenge:** Increasing pressure on current communications system and need for closest unit response capability across multiple jurisdictional area

**Goals:** Development of more robust network to address additional traffic and applications needed for new class of users

**Solution:** Needs Assessment; Wireless Infrastructure Evaluation for availability, security, coverage, operational effectiveness

Benchmarking of current systems; assessment of current communications networks; Gap analysis from benchmarking tool; architecture developed to close gaps; associated roadmap and recommendations

**Result:** Created rationale and metrics to support the eventual implementation of a mission critical information networks (RAN, WAN, and devices) separate from the standard enterprise infrastructure.

Work and lifestyles are also merging in new ways. Wireless broadband access anywhere is becoming a reality as it evolves from WiFi at the home, hotspot, or enterprise to WiMAX and other emerging wireless technologies. User experiences will evolve from simple voice or data to multimedia experiences that are contextual and personalized and leverage the broadband access capabilities across fixed and mobile environments and will become seamless across networks and devices.

### Creating the Seamless Mobility Infrastructure: A Tremendous Opportunity

Achieving the vision of seamless mobility requires technical innovation on many fronts, along with a strong orientation to the specific user experience required in enterprise, government or consumer segments. Consideration must be given to understanding the organization's mobility goals and the associated issues that could stand in the way of achieving those goals. In addition, the architectures of various wireline, wireless, cable, and multi-service service providers must be considered, along with the device capabilities and the interaction of multiple applications.

Motorola has focused its global resources on creating the devices, protocols, networks, applications, services, and the development of standards required to bring this vision to full reality. The opportunity is now. With mobile workers and mobile consumers increasing in number every day, network demands and user expectations will continue to grow exponentially and each organization must assess the impact of this new reality.

However with all of these technologies and services, there are also potential disruptive forces at play that add yet another level of complexity and makes planning more critical than ever. Three examples of disruptive forces are digitization, the proliferation of wireless broadband and the overwhelming move to IP based offerings.

The digitization of content and communications are intersecting to create the possibility of seamless mobility. From bills and bank balances to news and movies, content and communications are becoming digits, capable of being translated, transferred to our personal devices, and taken with us wherever we go.

The broadband explosion, which now includes wireless as an additional access technology, is moving us to ever higher bandwidths over wires, cables fibers, microwave and radio frequency transmission. Internet Protocol (IP) networks are covering wider areas as hotspots multiply, then mesh together and expand from local areas to metropolitan areas and beyond. This explosion and the increase in choices for connectivity in mobility requires a clear understanding of the mobility goals, and careful planning to ensure that adoption of the new services are taken up by the intended user community.

IP-based communications and technologies like Voice over IP (VoIP) are transforming the communications industry, blurring the line between fixed and mobile communications. IP is creating new possibilities such as communications from man to machine, machine to machine, and machine to man. IP creates the common platform for interaction and along with that the need to mobilize new forms of communications.

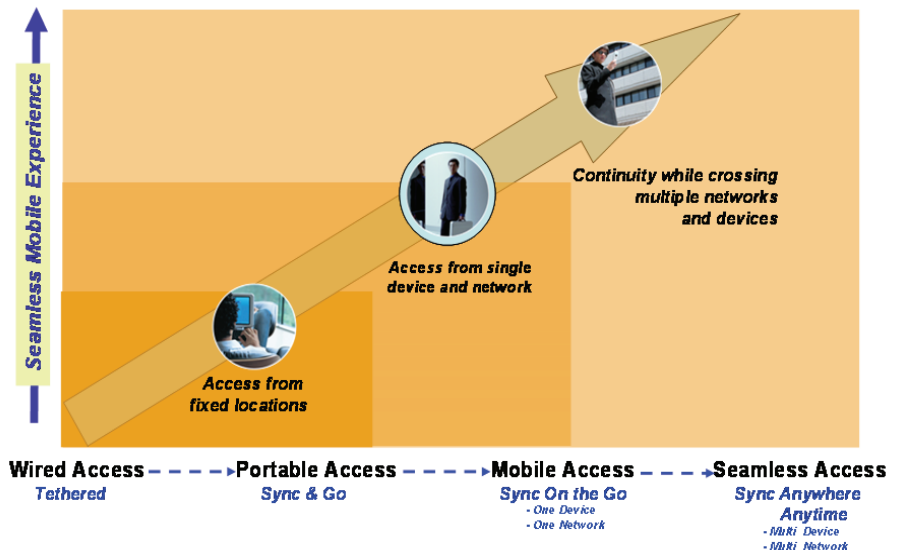
These are just three disruptive technologies and as technology continues to advance, more will surface making mobility planning even more critical to address the complexity introduced in transforming the existing IT infrastructure, processes and resources.

### Strategic Mobility Planning Required for Success

Effective planning, architecture definition, and road-mapping have become critical to the successful deployment of a mobility solution. Thoroughly understanding the various user requirements and the variability of connectivity architectures, applications, and devices requires thoughtful research and planning before embarking on a mobility implementation.

IT professionals must think through the various user requirements and match requirements to the hierarchies of seamless mobility, such as portability, mobile access and seamless access that deliver different values to address various user experiences. (See Figure 1)

Figure 1: Variety of Seamless Mobility Levels



In order to manage and enhance the mobility, five key technical areas must be assessed and addressed:

- Experience Architecture: Maintaining the personalized look and feel of the communication (content) while addressing the changes in the underlying operating environment associated with the devices, networks and geographical boundaries,
- Context: Sensing and adapting the experience to deliver optimized performance and reliability based on the user's context, application capabilities, and preferences.
- Security: Ensuring end-to-end security control and continuity as information moves across networks and devices.
- Manageability: Managing and measuring the end user seamless experience across networks and devices.
- Connectivity: Providing the technical environment capable of delivering the required level of mobility and ensuring seamless experience per the underlying networks' (for example across fixed and mobile networks) access.

These five major mobility technical areas expand to 17 mobility domains (highlighted in blue in Figure 2) that address more precise capabilities to be considered when developing mobility-based solutions. The 17 domains are critical to a comprehensive mobility strategy, ensuring that all vital elements are addressed to deliver solutions that result in a positive end user experience. These could include solutions such as mobile commerce, mobile workforce automation, mission critical closest unit response, and data sharing.

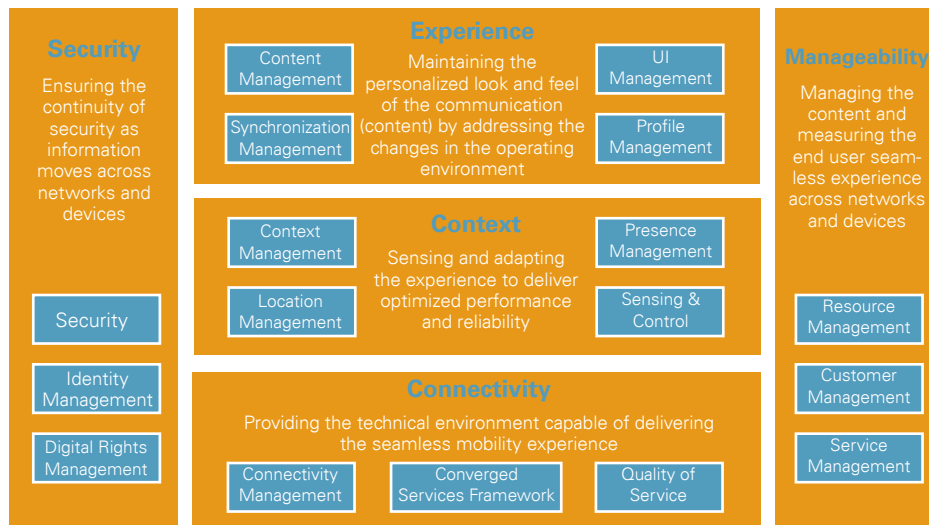


Figure 2: Mobility Domains

## Methodology for Creating a Successful Mobility Strategy

Creating a successful mobility strategy does not happen by accident. It requires execution of a well-defined process (as shown in Figure 3) backed by strong corporate support and sponsorship as well as participation from representatives across all functional areas and divisions within the organization, whether enterprise, government, or service provider.

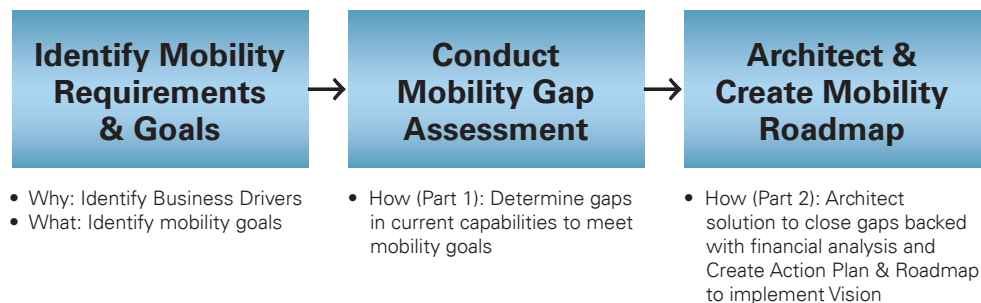


Figure 3: Mobility Strategy Development Process

## Step 1: Identify Mobility Requirements and Goals

A mobility strategy is developed with the end in mind of supporting key business drivers for an organization. Business drivers typically start at a high level and fall into categories, depending on whether the organization is an enterprise or government agency. These business drivers can include increasing revenues, reducing costs, improving productivity, saving lives through instant access to information, improving customer satisfaction through faster response times, etc. High level drivers are useful as general statements but are often too general for IT professionals to clearly identify opportunities where mobility can help.

To break down these high level drivers into more detail, it is useful to understand the organization's key performance indicators (KPI) or metrics and pain points related to reaching the higher level goals. For example, a typical KPI for a utility is customer satisfaction as rated by JD Power & Associates. Outages and rapid response to fixing outages have a major impact on the utility customer's satisfaction. A pain point for the utility might be measured in 'time to repair' and improved field staff productivity'. For example, lower level business drivers to improving customer satisfaction in this case could be "improve time to repair".

The major steps in understanding the business drivers at the level necessary to support development of a mobility strategy include understanding the organization's vision and goals as well as key KPIs. Researching the organization's documentation and interviewing key personnel will help reconfirm the vision and break it down into more actionable activities in order to understand key pain points, constraints, and time frame/priority for meeting the lower level goals.

Identifying an organization's business drivers is just the first step in creating a successful mobility strategy. Next you need to align the drivers with mobility goals that will meet the organization's needs. Defining the mobility goals involves:

- Understanding the customers or stakeholders involved in the organization's overall business processes that are associated with the business drivers and how they will be impacted by the mobility strategy.
- Understanding the operational characteristics and processes of both the current mobile workforce and the envisioned future mobile workforce.
- Understanding current and anticipated applications that may be necessary to mobilize, such as field service automation, seamless video application, sales force automation, as well as records management.
- Conduct idea-generating brainstorming sessions with key organizational personnel who are directly impacted in the delivery, acquisition, and use of the mobile service to help identify potential areas mobility can positively impact business drivers.

- Create a list of candidate mobility goals/programs. The final definition of the goals for the strategy is determined by further analysis, refinement, and prioritization of this list. High level business cases can be used to help finalize the list and determine prioritization.
- Inventory mobility assets that can be leveraged to accelerate the vision and value realization. e.g., digitized content, network capacity/capability, devices deployed, IT skills and contracts.

## Step 2: Conduct Mobility Gap Assessment

The gaps in an organization's current ability to meet its mobility goals should be identified after the goals have been determined but before a high level architecture is developed to enable the goals. To perform a gap analysis, first determine the minimum capabilities required to meet the mobility goals. Next, determine the organization's current capabilities. And finally, identify and document the gaps by comparing the minimum capabilities required to meet mobility goals based on current organization's capabilities.

Motorola has developed a Seamless Mobility Maturity Assessment tool and process to perform such a gap analysis. The tool provides a comprehensive end to end view of the ecosystem of a proposed mobility solution taking under consideration application, devices, networks, and operations necessary for delivery. This is performed through a set of questions with well-defined possible answers used to characterize mobility capabilities associated with each of the 17 mobility domains (shown in Figure 2). The current mobility capabilities of an organization, as well as the minimum capabilities required, are entered in the tool based on analysis and interviews of appropriate personnel within the organization. The tool then automatically identifies gaps in capabilities and generates meaningful graphics. Through use of this tool and associated analyses, Motorola can guide enterprises and government agencies through the complexities of mobility to a defined set of gaps that must be addressed. The gaps can be related to business, operations, systems, or technology.

When Motorola performs this type of gap assessment, a detailed report is generated. For each gap, the report includes a definition of the current capability, required capability, and analysis of the gap. The report provides summaries of major findings and recommendations as well as executive-level graphics that identify level of capabilities met and gaps in capabilities, complexity of identified gaps, and the association between gaps and mobility goals. The output of the gap analysis provides critical input to architecting the right solution and helps to define the timeline when developing the roadmap.

### Step 3: Architect and Create a Mobility Roadmap

The third step in developing the mobility strategy is the creation of an architecture that provides the initial blueprint of the technical design to meet the mobility vision. A complete set of recommendations and timeline for the strategy's roadmap cannot be completed until the architecture is defined.

The architecture definition stage is the most customizable portion of the Motorola methodology. The objective of this stage is to enable the development and successful deployment of the mobility solutions to address the organization's business goals. As such, this stage is tightly integrated into the organization's own development and deployment process, which can vary greatly from organization to organization as well as project to project within a given organization.

For some organizations the required architecture stays at a very high level, focused on the logical relationships between the primary functions required for mobility. At this level the architecture defines for the organization the logical partitioning of these functions, the standards of importance, and the important interfaces. The organization then uses this architecture to feed into their own development process where physical implementation and process definition are applied.

For other organizations a more in-depth architecture phase is requested. In these cases, the high level logical architecture is further defined leading to a physical architecture, behavioral architecture, and an organizational architecture. The physical architecture defines the system components, the interfaces between these components, the industry or corporate standards applied to these interfaces, and a mapping of the logical processes onto the system components. The behavioral architecture defines the use case of the system, the decomposition of logical functions into software processes, the mapping of use cases to software processes, and the interactions between the software processes. The organizational architecture maps the set of suggested policies and use cases onto the organizational structure. The financial analysis of each mobility goal/program is also updated at this time. The financial analysis should be updated throughout the program's lifetime as more levels of financial detail become available.

Regardless of the depth required, the architecture is typically represented at two levels of detail. The first is a very high functional level, aimed at CXOs, that provides an overview of key aspects of the architecture. At this level, there are typically two temporal architectures. While the first shows the current mobility architecture in use today, the second shows the proposed future architecture that meets the mobility vision. High level points regarding the capabilities and shortcomings of the current architecture can then be realistically compared to the improvements and capabilities provided by the new architecture as

part of an executive briefing of the strategy.

The second representation of the architecture includes all the required details of the logical, physical, behavioral, and organizational architectures. The architecture is defined in sufficient detail to allow identification of key actions/programs to be executed and their inclusion into the roadmap and must address the gaps identified during the capabilities gap analysis phase as well as implementation of the mobility goals.

The culmination of a mobility strategy effort is the creation of an actionable plan and roadmap to implement and rollout the mobility vision. The action plan should consist of a set of activities organized and defined as business, operations, system, or technical actions. For example, a business action might address an organization's governance or definition of new KPIs. An operations action might deal with a change in a business process or address the need to upgrade personnel technical capabilities (such as in IP). A system action might deal with centralized policy management and a technology action might deal with technology related implementation details of the mobility vision's architecture.

Each action should be documented as a high level statement of work, describing the findings upon which the action is based; the recommended action to resolve the finding, concerns and risk associated with the action; and the benefits associated with the action. A roadmap is developed with defined timelines based on items such as effort associated with the actions, criticality, budget, technology availability, and adoptions time frames.

### The Motorola Difference

Motorola understands that effective planning and strategic development for a successful mobility strategy that meets today's needs and is scalable for the future requires clear understanding of the vision, gaps, architecture, and the well-defined roadmap that will get you there. We have a well-defined and proven development process, in-depth experience with mobility, a suite of mobility-related technologies and services, and proven experience in the deployment and operation of mobility solutions. Motorola has designed and delivered leading edge mobility solutions nationwide, community wide, and local area wireless solutions that incorporate our industry leading services and technologies. From our leadership in Government and Enterprise Solutions, to our present leadership in new WiMAX technologies, Motorola understands the various complexities of planning and launching new mobility services.

Not all components in a mobility solution will be manufactured by the same vendor. The fundamental foundation of connectivity takes place across IT equipment, service provider equipment, and the abundance of mobile devices. No single vendor manufactures all of those components but the partner you choose to help you plan and execute your mobility strategy must understand each of those elements and have the proven ability to develop an end-to-end architecture. Motorola's proven leadership in complex mobility integration and systems show our understanding of how mobility impacts each of those technologies and can help you select the right applications, right devices, and right network.

### Motorola's Global Advisory Services for Mobility

Motorola leverages over 75 years of experience in wireless systems deployment and best of class products that enable our customers to increase revenue, offer new services and ensure the highest level of quality to their end users.

As an innovator of wireless communications technology, we provide mobility advisory services that can help you develop a strategy that will directly support your organization's key business goals. Working with Motorola to define your mobility strategy means you are partnering with a company that can bring together comprehensive capability and experience in mobility solutions. Figure 4 represents Motorola's standard portfolio of mobility advisory services.

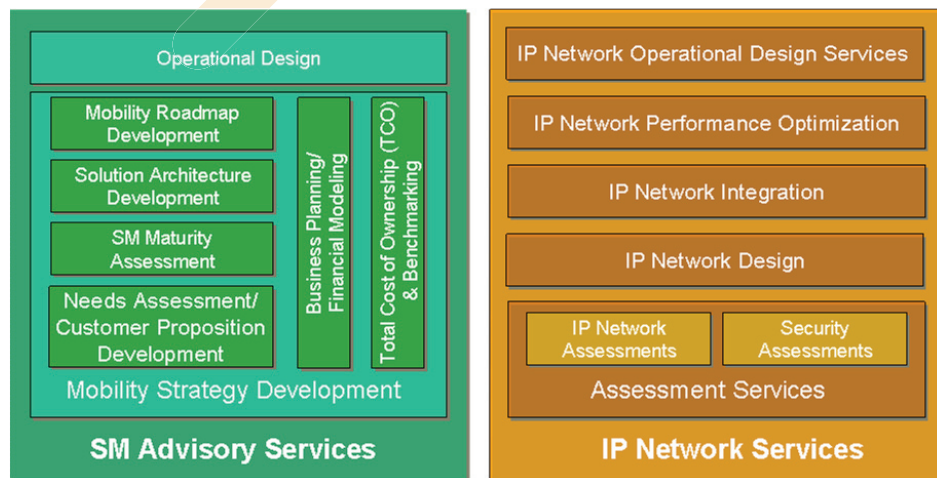


Figure 4: Motorola Global Advisory Services

The Motorola Services difference: People, Processes and Innovation - More than 6,500 service professionals worldwide, Customers in more than 80 countries, Extensive R&D resources, Centers of Excellence around the world and Deep experience in all customer segments. Motorola is committed to helping enterprise and government customers operationalize mobility and achieve critical business imperatives through a portfolio of innovative, comprehensive services. Motorola has expertise and service offerings in advisory services, system integration, security, network optimization, applications, field engineering and managed services to ensure customers achieve optimal performance and an exceptional user experience. With our collaborative, measurable approach and proven leadership in deploying both mission critical and business critical, secure communications systems, customers can trust Motorola to help them navigate the complexity of networks, technology and organizational requirements to design and deploy the optimal solutions to meet their needs.



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