



White Paper

Developing a Telecommunications Roadmap: Preparing for the promise of convergence



Telecommunications and Information Technology

Telecommunications as an industry has been around since the commercialization of the telegraph in the mid 1800's by Samuel Morse. Overnight, the ability to communicate with remote locations using a simple on-off connection created amazing new possibilities for commerce, government and society as a whole. While originally a novelty, the telegraph soon became incorporated into the core business operations of almost all types of geographically dispersed organizations. The explosion of telecommunications further continued with the invention and commercialization of the telephone in the late 1800's. Today the telecommunications industry has become a key driver in the global economy and has become a foundational element for all societies, both in the developed world and in the developing world. The availability of stable, robust, affordable communications is a precursor to economic development and delivery of services within a geography.

Another phenomenon that has come to the fore in more recent history is the advent of computer systems and networks. Originally designed as stand-alone "thinking machines" the original computer systems were very limited in their ability to provide value beyond conducting computational services for a series of pre-coded instructions. The next major step for this new Information Technology field was the addition of connectivity between computer systems, starting in the early 1980's. The explosion of the Internet in the 1990's again resulted in wholesale changes to commerce, government and society as a whole with new methods of reaching consumers, friends, family, and even competitors, changed the fundamental business rules of the global economy.

Today there is another change on the horizon as these two major forces, Telecommunications and Information Technology, combine to create a single, converged presence in the marketplace. Termed "ICT" or "Convergence" this phenomenon will again have fundamental impacts on the way in which business, government and society as a whole acts. In short, what in the past has been viewed as discreet components are no longer going to be separate and the resulting cross-impacts, both positive and negative, can be significant to the organization.

While the term "Convergence" has been around for a number of years it has traditionally been viewed as synonymous with "Voice over Internet Protocol" or VoIP technology solutions that have been seen as a cost savings approach for telecommunications owners. The real benefits and risks of Convergence are far more reaching than simple cost avoidance exercises. Merging telecommunications and IT components has a ripple effect throughout the organization, including impacts on Human Resources, Organization Structure, Governance, Purchasing and Security to name just a few.



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Additionally, the implementation of converged telecommunications and IT services opens the door to a new realm of potential services and productivity options for all organizations that are as revolutionary to the business as the original invention of the telephone was in the 1870's.

Convergence challenges the way in which services are designed, developed, delivered and consumed, and will have significant impacts on the way in which providers of these services, either public providers or internal organizational providers, operate their business. It changes the focus from one of infrastructure and technology, to one of services and service levels; from purchasing equipment to managing relationships. If handled appropriately, this convergence can allow organizations to focus strategically on what they do best—focus on providing their core services to their stakeholders.

The Effects of Convergence

Under Convergence all the communications that occur within the enterprise is considered as data; there is no specific dedicated infrastructure for conducting voice conversations. This is a significant change from today's traditional voice networks where dedicated Private Branch Exchanges (PBX's) concentrate access to a Public Switched Telephone System (PSTN), and distribute voice traffic within the enterprise to individuals through handsets. This paradigm of dedicated equipment, including PBX's, trunk lines, telephone cabling and handsets, is no longer valid. Instead voice is treated as an application in the Information Technology infrastructure. This is a significant change in thought process for many organizations. Very few people would conceive of a separate infrastructure on their desktop to receive e-mail that would be different from their other applications, such as a word-processor or web browser. People believe their applications should be able to be delivered via a single contact point on their desktop,

primarily their office computer or laptop.

Taking this paradigm further, a major component of today's office productivity involves the use of suite-based office software, such as Microsoft Office or WordPerfect. Again, few people would be able to function effectively in a proprietary system that would not allow you to "cut" or "paste" information between applications. This has extended to the entire desktop application environment with the ability to move information freely between an office suite, a web browser, an ERP application, e-mail, etc.. The information is viewed as data that is handled by a variety of applications. Few people would have envisioned the huge change in business conduct wrought by the ability to share information across applications that most individuals today take for granted. Imagine the productivity loss if, every time someone wanted to move information from one application to another, it had to be completely re-keyed or an image re-scanned!

As another consideration of the importance of an application approach to data, typically today we expect that, not only can our various applications share a common data set through a "cut and paste" model, but that applications will actually work together to coordinate information to further improve efficiency. This is demonstrated in the drive for Information Agility, or the ability to make information device and application independent. Information Agility is seen in the proliferation of mobile devices, wireless extension of networks and the convergence of functions such as media, computing and entertainment devices within the home. Similarly, this Information Agility is demonstrated in the integration of applications to ensure that, if an e-mail is received that changes a document or calendar, that all the affected components are updated to reflect the new information.



Considering all this, the change of view for voice from a service with dedicated infrastructure to an application has far-reaching implications. While originally viewed as a cost savings measure to reduce investment in telecommunications infrastructure, the real value of Convergence will be seen in the ability to integrate voice data into the rest of the organizational business process; where voice data can be incorporated into applications like e-mail to create a single mailbox for information and where voice data interacts with applications to provide visual and historical information on screen when a call is made. Furthermore, by treating voice data as part of an application it changes the way we use voice from a primarily synchronous event, where a phone call is made and a conversation occurs, to one with both synchronous and asynchronous applications.

Changing our view of voice to one of an application on the IT infrastructure will also have implications on business processes in place. Being able to attach a voice approval to an authorization for purchasing has the potential to fundamentally change audit trails as one example.

Similarly, there is an effect for convergence on various other elements of the organization. For example, creating a single converged service for voice and other applications creates a myriad of issues for security and management; very few people consider the security implications of a voice call today, or are concerned about voice virus attacks. These types of issues become real considerations in a converged world.

The effects of Convergence are multitudinous, and organizations that focus primarily on cost savings are not going to be able to position themselves to take full advantage of the revolutionary way that Convergence will impact on their business.

Preparing the Enterprise

Preparing the enterprise for Convergence requires a change in mindset; the focus must change from purchasing equipment to managing service levels. All applications within an enterprise have service levels, whether or not they are formalized by the IT function; let the e-mail system in an enterprise fail for an extended period and it becomes readily apparent that there's a service level expectation! Convergence forces the organization to focus on the service level of the voice application, as it must also focus on the service level of all applications. Indeed, this is the first key element that must be addressed in preparing for Convergence.

The second key element that must be addressed in preparing the enterprise for Convergence involves the development and systematic implementation of a long-term vision for delivering the voice application. It is important to ensure that the implementation of the vision includes a review of both the business and technical requirements of the organization and its stakeholders; merely completing a technical architecture that meets existing voice requirements will restrict the organization from being able to avail of the wide range of possibility opened up from Convergence.

To address these two key requirements, Aliant has developed a Telecommunications Roadmap

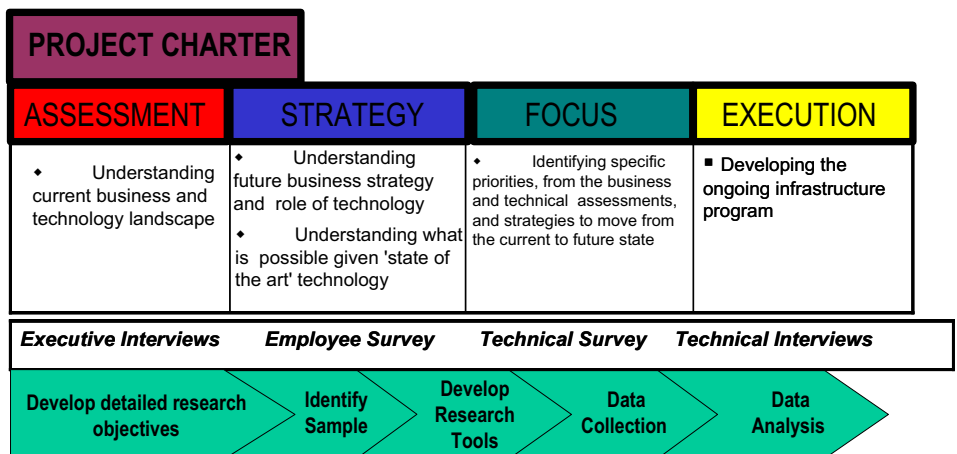
Program that comprises four phases—Assessment, Strategy, Focus and Execution—and results in a detailed, highly customized technology roadmap. This approach incorporates investigation of both the business and technology requirements of the enterprise through a systematic, proven methodology. The focus of the business research is on understanding the core function of the business, and understanding how technology can act as a facilitator and enabler for the organization, while the technical investigation develops the roadmap required to move towards the long-term goals of the organization.

The following is an overview of the Telecommunications Roadmap Program core components:

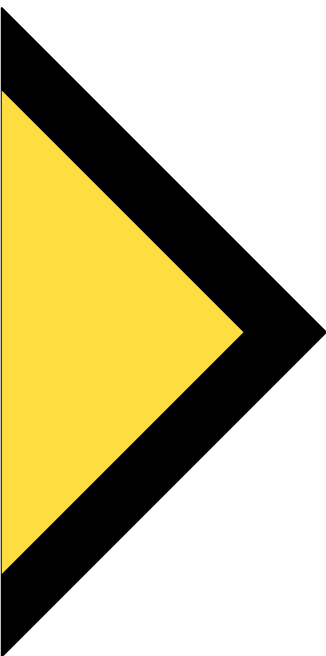
Assessment

Assessment involves a parallel exercise of understanding the business and technology landscapes within an organization. This understanding is based on:

- An inventory of technologies that will support development of the Program
- In-depth knowledge of the organization's underlying business drivers and associated processes, and how they are affected by the availability of technology, infrastructure and resources
- Possible site visits and interviews with business and technology stakeholders to create a baseline assessment



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Strategy

Focusing once again on both the business and technology of the organization, this phase involves:

- Understanding the art of the possible (by thinking outside the box)
- Clarifying the business strategy in terms of where the organization wants to go
- Scanning the business environment to identify specific technologies that make achieving the business vision possible
- Identifying key drivers that must be considered in developing the plan
- Working with key stakeholders to ensure a broad understanding of what's required in the short, mid- and long-term to execute the plan and achieve the vision

Focus

The third phase in the Program:

- Extracts key elements from the Strategy and Assessment phases and evolves them into tangible organizational goals
- Compares key business processes and technology investments from the Assessment phase with key business strategies, stakeholders and potential technologies within the Strategy phase—the result being the identification of specific focus areas of need and opportunity
- Selects specific priorities from the potential focus areas and implements bridging strategies to ensure controlled movement from the current state to the desired state

Execution

Phase four of the Program entails:

- Establishment of an ongoing infrastructure program that will bring about a controlled, measurable and manageable outcome

- Development of focus areas into concurrent and sequential projects to provide the organization with the core infrastructure needed to support current and anticipated business solutions
- Systematic re-evaluation of the Program at specified intervals to provide an ever-greening mechanism for the organization. This ensures the continued implementation of the program as a best practice and integral component of business planning

The Telecommunications Roadmap Program results in the development of a detailed guide for organizations to make the paradigm shift for voice applications; it provides a systematic way to invest in both the technology and business processes necessary to avail of the benefits offered by Convergence.

Conclusion

Convergence is a reality today, whether or not organizations realize it. Preparing the enterprise for availing of the promise of Convergence requires development of a strategy and plan to guide development and investment in technology. It is of paramount importance to ensure that organizations are preparing themselves now for the huge potential changes that are coming.

By preparing a strategy and plan to move to a Converged world the enterprise is able to more intelligently invest, identify issues with business processes, and take advantage of the many opportunities presented by this merging of these two key forces of Telecommunications and Information Technology. Organizations that adequately prepare and plan will have an opportunity to survive and thrive, while organizations that ignore Convergence do so at their own peril.