

Many enterprise IT organizations are tackling large, complex efforts that combine the delivery of software elements, new and changed business models, and overall changes to organizational structure and capabilities.

Typically these efforts involve several parallel projects, and managers are finding that “traditional” project management approaches fall short for such undertakings. Consequently, as IT professionals, NDC incorporates a substantial body of experience, and the smaller body of documentation, that supports the discipline of program management. This discipline describes principles, strategies, and desirable results for managing large-scale efforts comprising parallel projects with the intention of improving an organization’s performance.

Responsibilities of a program manager/director

- ❑ Accountable to executive sponsors for schedule, budget, and quality of all program elements
- ❑ Leads high-level sessions for program plan and schedule development
- ❑ Reviews/approves project plans for conformance to program strategy and program plan and schedule
- ❑ Acts as the communications conduit to client’s Project Management, and program steering committee
- ❑ Conducts periodic briefings/status updates
- ❑ Escalates decisions to executive sponsors as necessary.

The Program Manager owns and oversees the implementation of the program’s underlying business and IT strategies, and defines the program’s connection to the enterprise’s overall business plan(s) and direction. Management activities include providing and interpreting policy, creating an environment that fosters sustainable momentum for the program, and periodically reviews program progress and interim results to ensure alignment with the client’s overall strategic vision.

The Program Manager submits periodic summary reports and briefings on funding consumption, resources and their utilization, and delivery of interim work products and results to the client’s Project Management.

At the project level, managers perform these activities, but the program manager/director addresses a different set of program goals or needs, which requires a different a different view of what is happening and what needs to get done.

A Methodology of Frameworks

The need for an SOA-specific program management methodology emerged from the challenges and complexities of delivering a fully deployed SOA within a service-oriented enterprise (SOE). To attain the goals of SOA within an SOE, an organization has to consider its objectives not just from a project perspective, but from the perspective of a number of continuing projects evolving in iterations and incremental department, business unit, internal firm and external firm solutions. This is simply a reflection of the enterprise-centric nature of SOA. Today’s SOA projects tend to evolve, as follows:

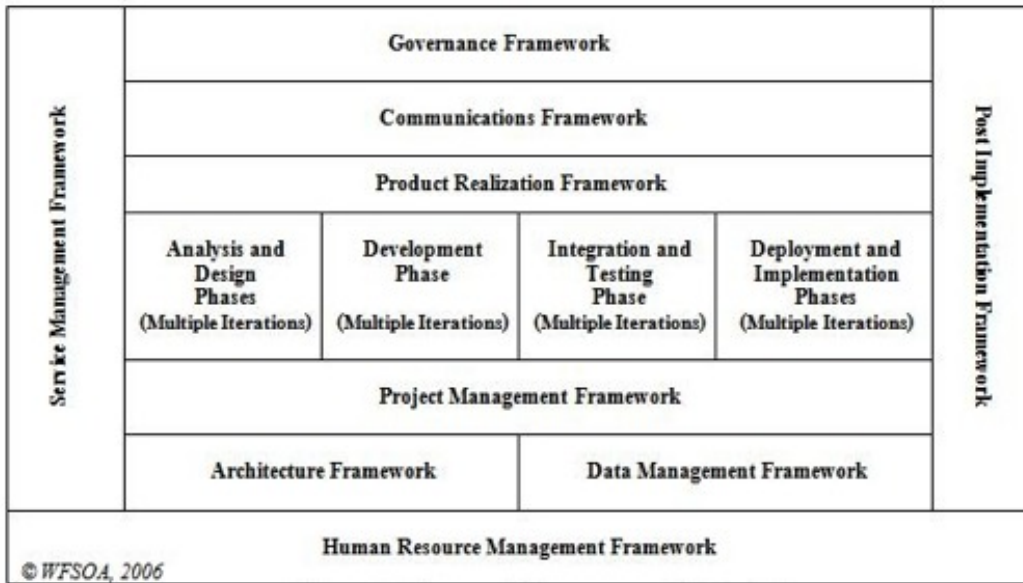
1. Department and business unit expansion of Web services to deployment of services, based on a low maturity of SOA; to
2. Integration of process and services architecture and restructuring of organizations and staff; and to
3. Deployment and exploitation of enterprise services, based on a high maturity of SOE.

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The methodology we are about to describe - formally known as the “Methodology for Enabling Service-Oriented Architecture (MESOA)” - essentially proposes an approach for attaining an



evolutionary SOE. It is comprised of a series of frameworks of best practices for participating corporate, business, governance and technical staff.

The frameworks are summarized Figure 1 and will be briefly explained shortly.

Figure 1: An overview of the individual “frameworks of best practices” that comprise the program management methodology.

These frameworks all support the application of service-orientation principles and SOA, and can be further customized, as required. Furthermore, by creating these frameworks, we can establish an overarching methodology capable of evolving as its underlying projects are carried out in iterative phasing and in incremental steps. The frameworks and the projects gradually work toward establishing a true SOE.

Governance Framework

Governance enables the alignment of processes and services with strategy, and oversees the evolution of our service-oriented goals. SOA project governance ensures that utility and business services conform to design standards part of an overarching IT strategy that is subordinate to the business strategy.

To successfully establish an SOA governance framework, our business and technical staff are required to stay apprised of the latest project management methods - and - possibly unlearn old methods.

Furthermore, governance is generally centralized in that it is owned by a group of business and technical staff. This group controls the service inventory, the service catalog, and the service registry.

Communications Framework

Effective communications is critical to running a successful SOA program. A formal communications framework includes the chief information officer (CIO), and/or the chief executive officer (CEO).



Product Realization Framework

Product realization relates to the analysis, design, and development stages (including related integration, testing, deployment, and implementation) of service-oriented programs. This framework is the core of an SOA project management methodology. A primary goal of the product realization framework is to ensure that the product to be realized is either the service or a service-oriented solution comprised of composed services. The consistent application of key design practices, such as those established by service-orientation design principles and SOA design patterns, are a priority in order for this framework to guarantee that every service and service-oriented solution is delivered consistently and with future reuse and interoperability in mind.

Project Management Framework

The framework dedicated to project management represents the delivery lifecycle of SOA projects. It ensures that changes in business strategy are applied as appropriate throughout a project and that processes and services are functioning and implemented as originally planned. This framework advocates the interaction of technical staff with business staff. Our project managers are experienced with SOA phases and intricacies.

The project management framework also benefits from the knowledge management and dashboard metric portal systems. These tools can provide instant access to project and service statistics and can also be used to share critical information between project team members.

Architecture Framework

Architecture supports the conversion of functions into services and the composition of services into service-oriented solutions. Project-specific architectures often need to be managed so that they can be delivered in compliance with, and as part of larger, inventory-level architectures that support pools of services. These service inventory architectures can then accumulate to form the basis of the SOE.

This framework provides practices and standards for the seamless communication of services within inventory pools and the infrastructure required to enable cross inventory communication as well. Scalability, performance, and capacity are high on the list of priorities in this framework, as are the technologies, tools and resources required to govern technology architecture implementations as part of the overall SOE platform.

Data Management Framework

Data management supports the delivery of “behaved” data services that abstract and expose legacy data without disrupting underlying legacy applications. Data management is concerned with access, availability, and the breadth and accuracy of data already residing in legacy repositories.

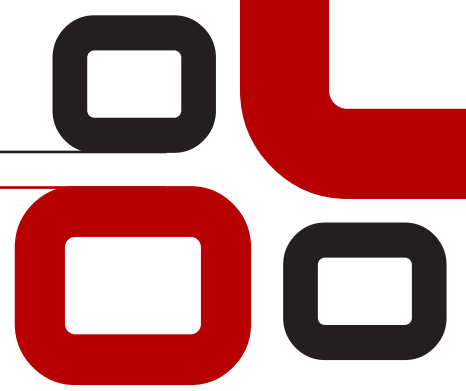
This framework ensures the consistency of data and the control of data redundancy, as well as fractal data replication. The database administrator(s) in charge of the existing data dictionaries and the metadata catalogs will probably become the owners of this framework, which will entail learning about SOA (and most likely Web services and XML schemas).

The framework also supports the architecture framework’s goals in relation to capacity, performance, and scalability. Often separate data architecture needs to be defined that spans both frameworks.

Note that the data management framework can also be supported by data analysts and database developers.

Service Management Framework

By service management we are referring to the continued conformity and coordination of processes and services to the business strategy defined in the governance framework. In other words, the service management framework supports the governance framework by focusing



exclusively on the services.

This framework is usually coupled with the product realization framework to ensure that requirements for new processes and new services (or revisions) are not redundant with existing processes or services. This type of cross-project coordination is critical to achieving Logic Centralization with the goal of maximizing service reusability.

Those generally involved in service management are business analysts, process and project coordinators, and enterprise architects.

Human Resource Management Framework

Human resource management enables the identification of new and revised responsibilities and roles of business and technical staff, as they pertain to SOA projects. Education is therefore a paramount concern, for both business and IT professionals, as is the change in culture brought upon by the adoption of service-orientation. Although human resource management emphasizes organizational transformation, it actually helps carry out a transformation in technology once developers, analysts, and architects apply their training with the proper mindset and an appreciation of the overarching strategic goals of SOA.

Post Implementation Framework

Post implementation enables the service and process lifecycle phases that follow product realization. This framework is focused on service availability and the technologies, tools and utilities related to general quality-of-service (QoS) requirements and service level agreements (SLA).

Factors for Enabling Frameworks

The program management methodology defines our business, procedural, and technical factors.

- Examples of business factors are agility, efficiency and flexibility benefits, client participation, culture of innovation, executive sponsorship and focus on improvement of process.
- Examples of procedural factors consist of the creation of an SOA center of competency, education and training, common reference, infrastructure architecture, and process and service deployment techniques.
- Examples of technical factors are the definition of internal SOA project domains, external SOA domains, technology platform, specialty tools, and service description and discovery standards.

These factors provide a helpful checklist for creating our SOA strategy, and are further supplemented by a set of roles and responsibilities that form the foundation of the overall program management methodology.

Program Management and Methods for Ensuring Business Continuity Plan in Case of Emergency

Program Management

The Project Management Methodology was developed by leveraging methodologies adopted by Project Management Institute internationally accepted best practices (PMBOK™), International Project Management Association, Prince2 Methodologies and Stanford University. Team Nationwide follows a four-phase project management process these phases are Initiation, Planning, Execution, and Closure. This disciplined approach allows the project management team to maintain a strong customer focus that maximizes customer value, while controlling project scope and ensuring consistent high-quality deliverables.

Nova Datacom's solutions are built upon a solid foundation of Program and Project Manage-



ment, to ensure customer requirements are met – on time and within budget – and all quality metrics are achieved. The company's Program Management Office (PMO) supports each project by providing standard templates, historical information, a Knowledge Management Center, and standardized policies and procedures. Program elements include:

- Project Initiation
 - Determine Project Objectives and Project Charter
- Project Planning
 - Develop WBS, Schedules, PM Plans
- Project Execution
 - Execute PM Plans
 - Create Status Reports and Recommend Changes
- Project Monitoring and Controlling
 - Configuration Management and Performance Reports
- Project Closing
 - Deliver Final Products
 - Knowledge Transfer and Lessons Learned

NDC use of the project management process promotes successful delivery throughout all phases of the project. Our project managers are PMI certified Project Management Professionals experienced in the use of quality project management tools and techniques. As identified in the figure below, our project life cycle is easily modifiable to specific technical and industrial environments and combined with sound instructional design skills, help ensure that project timelines and rigid quality standards are met.

Project Management Process

Initiation Phase

The initiation phase is the first phase in the process. A feasibility study is conducted along with the customer to investigate the likelihood of each solution option addressing the business problem and a final recommended solution is put forward. Once the recommended solution is approved, a project is initiated to deliver the approved solution. A 'Project Charter' is completed, which outlines the objectives, scope and structure of the project. The Senior Project Manager begins recruiting a project team and establishes a Project Office environment. Approval is then sought to move into the detailed planning phase.

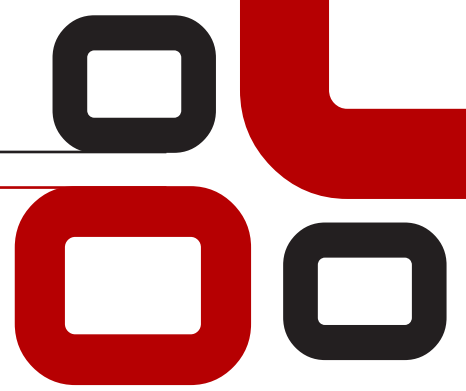
Planning Phase

At this point the project is reviewed with the customer and after approval the project is ready to be executed.

Project Execution Phase

Involves the execution of each activity and task listed in the Project Plan. While the activities and tasks are being executed, a series of management processes are undertaken to monitor and control the deliverables being output by the project. This includes the identification of changes, risks and issues, the review of deliverable quality and the measurement of each deliverable being produced against the acceptance criteria. Once all of the deliverables have been produced and the customer has accepted the final solution, the project is ready for closure.





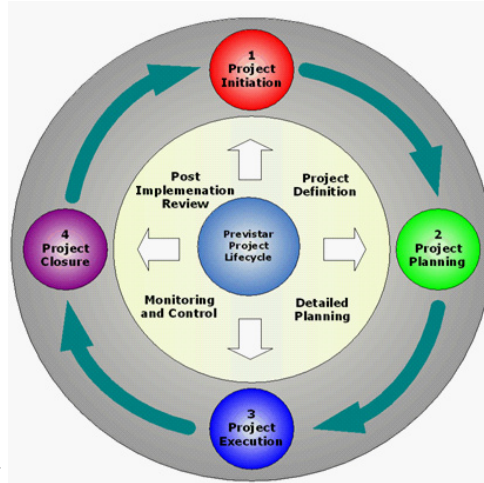
Project Closure

Involves releasing the final deliverables to the customer, handing over project documentation, terminating supplier contracts, releasing project resources and communicating the closure of the project to all stakeholders. The last remaining step is to undertake a Post Implementation Review with the customer to quantify the overall success of the project

Related Activities (Client Emergency Services - NDC Business Continuity Plan)

Nova Datacom understands mission support requirements and believe this responsibility entails more than weekly or monthly progress reports. It is also our corporate practice to establish a Client Emergency "Hot Line" to ensure full and rapid response 24/7 to all requirements.

HSPD 20 National Continuity Policy requires that all Federal, state and local, tribal nations and private sector with critical infrastructure support functions to the National Continuity Functions must have a continuity of operations plan in place. NDC in compliance with this directive will provide a copy of our Business Continuity Plan with a specific Annex to support ASAM in their Continuity of Business objectives. This plan should become a part of the overall ASAM COB – COOP until contact end or termination.



Other Considerations

Beyond meeting Federal Executive Branch Directives and associated Mission Assurance standards, Continuity of Business and guidelines additional benefits include:

- ❑ No Ramp-up time, NDC is ready to execute upon award with trained staff
- ❑ Inter-operability of plans, processes and procedures
- ❑ Return on investment - optimization of critical funding
- ❑ Standard ASAM Organization process management
- ❑ Document configuration controls
- ❑ Availability of resource pool (NDC technical support)
- ❑ Scenario based exercises focused on ASAM Organization operating environment(s)
- ❑ Unified scalable Multi-year Strategy and Program Management Plan
- ❑ Nova Datacom will provide a copy of internal Business Continuity Plan to ensure execution of essential contact support in any emergency.

Staffing Plan

The purpose of the staffing plan is to make certain the project has sufficient staff with the right skills and experience to ensure a successful project completion.

Role Requirements

The following is a detailed breakdown of the roles required to execute the project. It includes: the project role, the project responsibility of the role, skills required, number of staff required to fulfill the role, the estimated start date and the expected duration the staff resource will be



needed on the project.

Role	Project Responsibility	Skills Required	Number of Staff Required	Estimated Start Date	Duration Required FYyy-yy
Continuity of Business Analysts					

Staff Assigned to Roles

The following is a detailed breakdown of the actual staff assigned to the project role, the amount of Full Time Equivalent (FTE) requested for the role, the actual FTE acquired, the labor rate and unit of the labor rate for the resource and the source from which the resource is recruited.

Role	Name	Requested FTE FYyy-yy	Aquired FTE FYyy-yy	Rate	Rate Unit	Source
Total						

Training Needs

The following are the detailed training needs to bring staff to a level of skill required for project execution.

Role/Staff Resources	Training Need	Timeframe Needed	Anticipated Cos	Suggested Vendor/ Method

The program manager assigned to your project is responsible for pulling together software requirements into a new feature list and high level design. The program manager then shepherds that design through the process of software implementation, testing delivery and ongoing support. They provide technical leadership of a cross-functional team put together to deliver the software. Communications with the client's Project Director are also critical in this role because the process of gathering requirements, designing and evangelizing new features and then driving them through the development process requires much cross-group and cross-functional communications.

- ❑ Close collaboration of the information technology department with the business departments and business units on business requirements can contribute to fast deployment of a service-oriented solution.
- ❑ Collaboration and dependence of business units on a technology firm without a definition of business process requirements can contribute to slow deployment if not failure of a project.
- ❑ Collaboration on enterprise architecture requirements can slow deployment of a service-

oriented solution and may not be agreeable with business staff.

- ❑ Enterprise governance of services based on strategic planning can ensure effective and economical reusability of services, especially if governance is centralized and funded by senior management. (However, decentralized governance seems to still be the current norm.)
- ❑ Evolution of functionality on incremental projects can provide more visible benefits when compared to “big bang” approaches focused only on long-term benefits.
- ❑ External projects may be more possible than internal projects because of less external political constraints.
- ❑ External projects may be possible merely due to more defined external industry standards (compared to non-defined or immature internal standards).
- ❑ Focus on service-orientation and design standards at the beginning of a project can help establish a proper foundation for service-oriented solutions.
- ❑ Focus on service-orientation training of internal technical and business staff from the beginning of a project, and continuous technical training during the projects, is crucial for carrying out a successful SOA strategy.
- ❑ Culture of innovation in the technology departments may be helpful in initiating training. Internal expertise in an SOA center of competency may also be beneficial.

The PMO provides administrative and management support to the program manager/director and all other program participants. It also provides specialized staff expertise for specific work areas.

PMO Roles

- ❑ Program office management
- ❑ Resources coordination
- ❑ Budget administration and procurement
- ❑ Risk assessment
- ❑ Work products tracking and review
- ❑ Facilities administration
- ❑ Contracts administration
- ❑ Technical support liaison
- ❑ Training coordination
- ❑ Methodology and process support
- ❑ Issues management
- ❑ Communications management
- ❑ Status reporting management

The PMO involves many roles covering numerous areas and activities (see sidebar). In addition to serving the program manager/director, the staff members, a group of senior specialists, fill essential program roles. For large, complex programs, the PMO helps establish and maintain appropriate work processes, controls, and reporting functions to keep management apprised of the program’s progress. It also defines, plans, and completes various work efforts.





As an example, let's examine just one role in the PMO -- facilities administration -- and how it contributes to program success. Whoever takes on this role must identify, plan, and deliver all necessary facilities for either a program-specific or permanent PMO. To do this, the facilities administrator must:

- ❑ Work with the PMO manager and program manager to define what should be included in facilities and define and prioritize facility needs.
- ❑ Develop and gain approval for a facilities plan.
- ❑ Manage execution of the facilities plan and associated deliveries, construction, and installation.
- ❑ Collaborate closely with the infrastructure and technical environment coordinator.

Technical environment and tools

A program infrastructure also includes both hardware -- for desktop and network devices for storage and communication -- and software, including desktop software and shared platforms with development tools, modeling software, planning tools, communication tools (email, Internet browser, virtual meeting /collaboration programs, telecommunications programs), and software for document retention and reproduction.

An individual project, especially a pioneering effort, may introduce new tools or hardware partly in order to understand their capabilities and limitations. The project manager may become involved in technical support or infrastructure functions, to acquire, install, and/or "tune" the hardware and software. Typically, this will involve a small number of installations for a small number of IT staff. Periodic changes and/or additions to the development environment will affect larger numbers of IT staff, but these are typically defined and managed as separate projects.

Program technical activities, in contrast, usually include large numbers of staff from a variety of sources (internal and external) and various technology backgrounds. As managers identify and staff component projects in the program, they must also specify, acquire, and install technology environments and tools for each project, which collectively form the program's technical infrastructure. This effort might encompass creating a new, remote development site or integrating two companies' technologies following a merger, for example.

This infrastructure effort should be treated as an internal program project (as opposed to an external project, which delivers components or results to clients). Managers should plan a well-defined, rapid, and brief lifecycle for creating the technology environment. The effort should include defining needs and requirements, setting a scope, and installing, testing, and implementing all technologies. If some tools will be new to some portion of the program staff, it may also be necessary to define a rapid-delivery training effort.

Managers should also consider how the infrastructure's hardware and tools will be used beyond the program's boundaries. If they felt compelled to select technologies different than those in the current enterprise IT architecture, then supporting and maintaining new software applications built with those technologies may require additional personnel, software, and training. Managers should always carefully evaluate the potential impact of their program technology selections upon existing IT architecture and resources (and perhaps future direction) before actually making the acquisitions.