

A White Paper by Exact Software



Multi-dimensional Project Management:

Maintaining Control in a Complex Environment



Executive Overview

By definition, corporations are involved in Multi-dimensional Project Management when having to manage many levels and facets of organizational components in order to achieve a desired goal.

Corporations worldwide embrace formal strategies and technologies for managing projects. Even small or secondary projects must be formally tracked as such projects tend to be part of a larger operational plan, where activities are dependent upon the completed project. As corporations grow, projects become more numerous, and typically employees must serve on multiple project teams. Additionally, projects tend to encompass several participants from different departments or divisions within the organization, and often must also include contractors and vendors from outside the company.

From the corporate and divisional planning perspective, every new plan results in a new project; every new event means managing multiple projects affecting multiple departments, participants, documents and budgets. These layers of projects, sub-projects and assignments encompass various activities, resources and locations.

These events and plans require each component to be resourcefully and comprehensively managed, and also require proper prioritization, accountability and communication throughout. There must be assurances that deadlines are met, resources are allocated and optimized wisely, bottlenecks are identified and risk of project failure is mitigated.

The shift towards project complexity and its associated “interlocking parts” has occurred as demands for corporate efficiency and downsizing have risen, placing even more focus and pressure on project management, resource control and optimization. Given that such multi-layered and compounded environments must be included within project management, it is the practice of Multi-dimensional Project Management that has evolved as the standard project management methodology.

By definition, corporations are involved in Multi-dimensional Project Management when having to manage many levels and facets of organizational components in order to achieve a desired goal. The many dimensions within corporate projects include documents, resources (whether they be internal or external), budgets, departments, assets, risks, schedules and activities. Each component must be associated with one another under the overall project umbrella, necessitated by both a strategic and detailed view across all projects within the enterprise.

Organizations are multi-project systems themselves that must remain organic in order to adapt to circumstances. Day-to-day operations by default consist of complex, multi-layered projects which, unless managed by the proper tools and technology in a comprehensive, proficient manner, could curtail and degenerate a company’s expected performance and results.

This paper discusses the evolution, methods and resulting problems that emanate from Multi-dimensional Project Management as well as a conclusive answer to those issues.



The Evolution to Multi-dimensional Project Management

Although ‘project management’, in its most derivative form, would have been practiced for centuries as a natural organizational method, formal Project Management developed from basic business management practices in the early 1900s. As corporate and federal projects grew in size and number, then the increased complexities, huge resource allocations and enormous asset provisions followed suit, which forced decision-makers to incorporate management of their large-scale projects into a practicing business methodology.

As analyses of these new methodologies were reported, it was found that overall business improvements could be made through compartmentalizing and measuring each element of a project. For example, the output of a mill could be improved by scrutiny of each component that went into the development of a product, such as the breakdown of machine-time per finished work on a product.

At the same time, Henry Gantt, an industrial engineer, created a method of putting project operations and tasks into measurement form in the 1920s. His charts, which noted the sequence of tasks and the time estimates for each task, added immense value to businesses by providing a visual method for project analysis. *Gantt Charts* became the most commonly used project management tool due to their ease of production and use, remaining unchanged for the rest of the century.

As project management became a discrete business function, the advancement of business practices made projects more complex by the mid-twentieth century. Gantt Charts however, did not show the dependencies between tasks, so new practices were introduced, such as the PERT Chart and the Critical Path Method. Originally created for military systems, these approaches were eventually put into practice for mainstream industry by the 1960s as they gave managers greater control over extremely complex projects.

As theories of science continued to be applied to project management and adaptations were made to competitive influences and modern business technologies, project management became more multi-faceted and dynamic in nature. In order for enterprises to continue cost-effective practices, it became conventional wisdom that integration of all corporate dimensions were essential for successful project management.

By the 1990s, while multi-dimensional projects touched every part of the enterprise, surveys concluded that the most valuable asset and the greatest liability lie in the participants and the processes. The needed processes to tie together disparate locations, a non-finite team and multiple disciplines or departments did not, and still do not, for the most part, exist. In addition, neither the evolution of technology nor the Internet did anything to advance project management software beyond the virtualization of the paper graph made available for faster distribution; no real-time interactive project management technology was present that could meet the needs of multi-dimensional requirements.



Multi-dimensional Project Management

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A Closer Look at Multi-dimensional Project Management

The basic premise of any type of project management is to utilize an organizational method so that the full life cycle of any initiative is managed from inception to completion, on time, within budget, and with all functions achieved.

Foundational components of project management include planning, implementation and defining egresses while capturing and scheduling all resources, activities and transactions associated with the project. Factors contributing to successful project management include:

Organization: Optimization of project resources including noted roles, rights and responsibilities; effective team organization accompanied by standard methods of communication;

Prioritization: Aligning project initiatives with the strategic goals of the business;

Process: Utilizing usable and repeatable processes that are transparent to any type of project management for any department in the organization;

Metrics: Having timely and accurate performance measurements for workflow activity, budget overruns and participant contributions;

Adjustment: Incorporating the ability to prevent, detect and correct obstacles which could derail project initiatives;

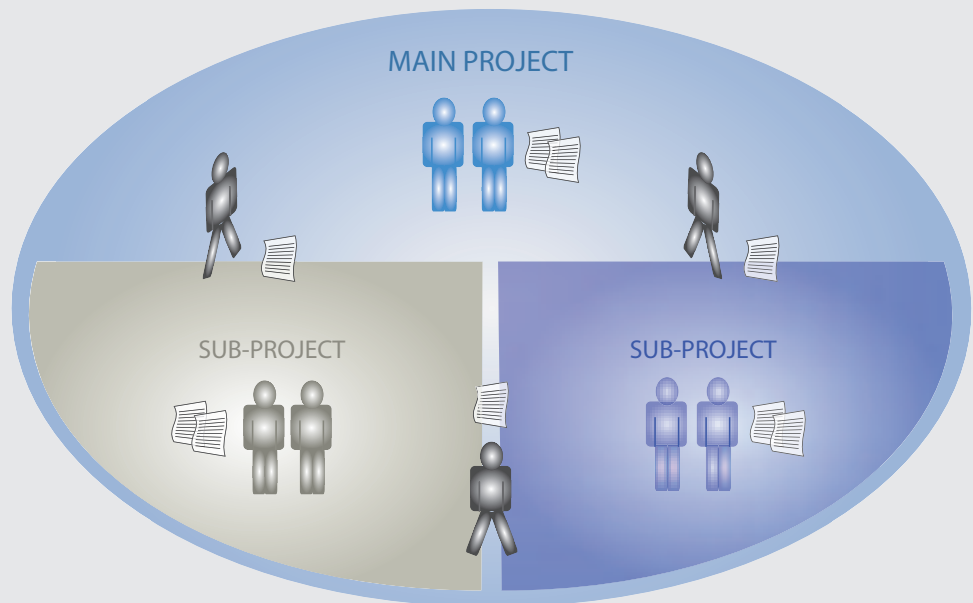
Storage: Ensuring that all plans, schedules, associated documents and workflow are stored in a centralized and accessible location.

A complex corporate project that is *multi-dimensional* differs from *multi-project* management. Most companies have many projects being implemented at one time, in many cases managed by the same project leader; a multi-dimensional project, in its most basic form, can have additional sub-projects, or child projects, and therefore additional and separate budgets and resources, associated with each of the projects.

The innate structure of Multi-dimensional Project Management places most modern organizations at the helm of its practice; virtually all corporate projects at some point involve other departments, (finance, administration), external resources (suppliers, customers), and therefore budgets.

Multiple Projects Mean Increased Requirements

Multi-dimensional Project Management fundamentally consists of a main project with associated sub- or child-projects that represent multiple budgets, overlapping resources and related processes. Most corporate projects by default are multi-dimensional, and successful completion of such projects require association, integration and accessibility of all project components.



Multi-dimensional projects can occur in two different types: *hard*, which involves mostly tangible logistics management, and *soft*, which involves mostly services:

A typical construction project of any magnitude requires one project manager who is considered the main point of contact. However, multiple suppliers of goods, installers and sub-contractors are constantly interfacing through this manager in order to complete the actual project. Raw materials, consisting of hundreds or thousands of inventory items, must be accounted for during multiple phases of the project. Deliverables, including contracts, permits, budgets, timelines and technical documentation, must be stored, referenced and adjusted on a constant basis. This type of Multi-dimensional Project Management is of the *hard* form.

An advertising agency, when hired for an ad campaign, puts in place an account executive as the project manager, who reviews the goals, owns the budgets and schedules and works with internal and external resources. Multiple employees have input, decision-making power and project requirements, such as copywriters who interface with clients on the ad content and creative directors who approve the strategy, copy and design. External vendors, such as production companies, printers and photographers, are hired, each having specific contract requirements requiring approval. Constant customer input, shifting schedules, document revisions and fluctuating expenses can be abundant, necessitating immediate action. This type of Multi-dimensional Project Management is of the *soft* form.



Multi-dimensional Project Management

In both examples, each project takes on many dimensions, all the while requiring review or oversight by many resources. There are many contributions to the various aspects and magnitudes of Multi-dimensional Project Management:

Resources: Typically there are many individuals assigned with responsibilities for any given project, which might require different access rights to information. Examples include: business partners, sub-contractors, vendors, suppliers, employees, customers and executive management.

Logistics: Project participants do not reside in the same place; more often than not, they are distributed throughout multiple office sites, varying departments or divisions and vendor or client business locations, domestically and internationally.

Finances: Although a project might have a single overall budget, financial requirements can affect other internal or sub-budgets and may rely on external resource expenditures.

Documents: Multitudes of documents can accumulate at a rapid pace, ranging from contractor quotes, marketing collateral, vendor contracts, print materials, expense receipts and meeting notes.

Assets: Each project has an association to inventory, which could include such examples as medical supplies, product updates, trade show badges, palettes of lumber or customer giveaways, each of which is related to project budgets and timelines.

Processes: The workflow and disciplines of various resources produce dissimilar processes throughout a project, which is typically not visible to other project members.

Given the nature of compounded levels of components within Multi-dimensional Project Management, the catalysts for success lay in a foundation where all components are required to be:

Integrated and associated: every document, resource, item or workflow that is initiated within a project must be associated with other project components. This ensures that all parts of a project are connected and accessible when necessary, for strategic views or immediate updates.

Accessible from one centralized location with consistent models: all project participants require secure access to information pertinent to projects, and based on their roles and responsibilities, can actively participate in projects with definable and constant standards.

Triggered and based upon preset parameters: cost overruns, missed deadlines or lack of participation are examples where any component of a project should trigger further action, from management notification to customer updates.



Multi-dimensional Project Management

Tracked for accountability: Each project participant is held to responsibilities that make a project successful; the ability to monitor workflow adherence must be available.

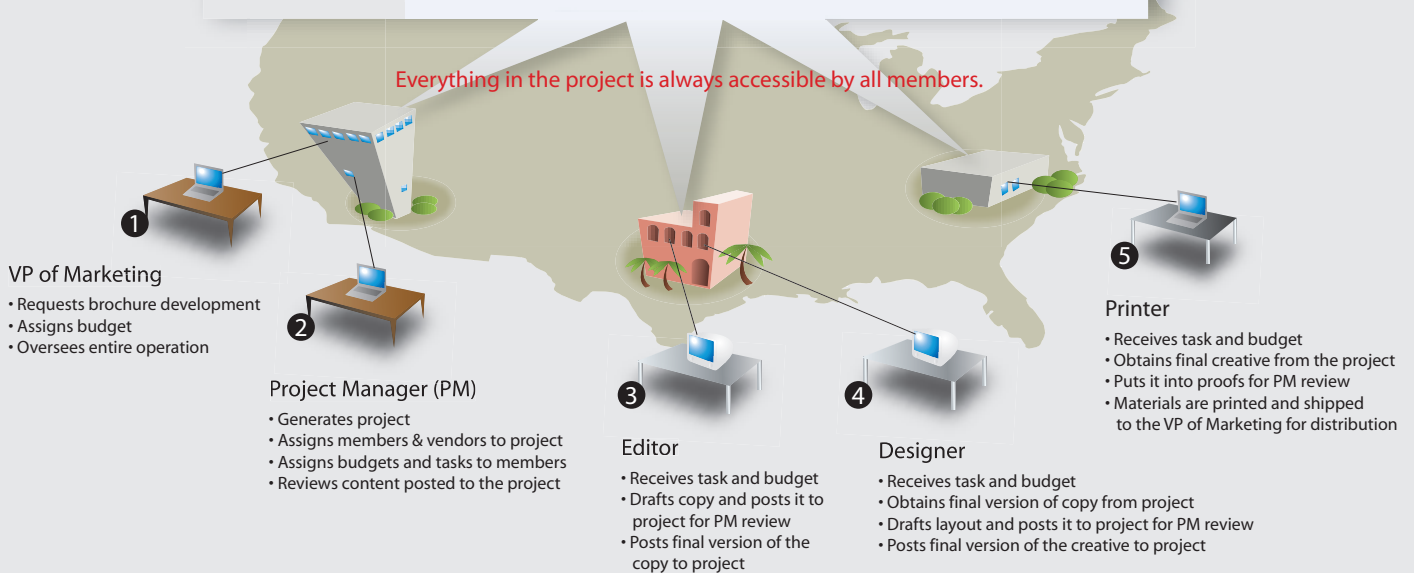
Exact Software™ believes that unless the above impetuses are by default included within Multi-dimensional Project Management, such projects have a greater liability for failure. It is the ability to participate and strategically track and view project status from a centralized location, where all components are associated, that will better ensure project success.

Project Management—Centralized and Always Accessible

Organizations that implement successful multi-dimensional projects focus on the association of all business components involved, while providing all participants access to those components, without regard to resource type or location. A centralized database for all business data that tracks workflow involvement, flags obstacles and manages all documents, assets, resources, child projects and calendars will ensure multi-dimensional project success.

2005 Marketing Brochure Project (Web-based access)				
General	Members	Requests	Status	Posted Documents
Description	1 VP of Marketing	Define Project & Budget	● Open ● Processed	
Security Level 2	2 Project Manager	Assign & Manage Tasks	● Open ● Processed	
Suppliers/Vendors	3 Editor	Write Brochure Copy	● Open ● Processed	
Calendar	4 Designer	Create Brochure Layout	● Open ● Processed	
Budget	5 Printer	Print Brochure	● Open ● Processed	
Child Projects				

Everything in the project is always accessible by all members.





Current Challenges with Multi-dimensional Project Management

Contemporary methods of general project management have utilized improved communications and technologies for greater project management success (on-time completion, within budget, original features/functions accomplished). However, industry analysts believe that costly and failed projects continue to be the norm.

The likelihood of project failure increases due to a number of key factors. Any lack of collaboration between project team members greatly alters the success of a project as it depends upon how the resources work and communicate together. In addition, if common review metrics for projects do not exist, critical project information, including audit trails, resource management and knowledge management, cannot be captured.

Lastly, if project managers or executives cannot strategically view the project as a whole, they have less control over a project's success. Projects are conducted within a delicate mix of finances and users amidst changing organizational dependencies. Not being able to analyze an entire project, including changes or diversions, from a single, high-level scope, produces a greater rate for failure for projects.

Only in the last few years has project management technology included some organizational business processes and role-based definitions. The problem is that these technologies do not take advantage of the integration path of software in order to incorporate component technologies that are affected by project management, such as financial, resource and document management. In addition, the ability to collaborate, review and verify project information in real-time by utilizing a common storage of intelligence is virtually non-existent.

Exact has found that there are currently few pre-built solutions that bring together all the components for project management within a project environment that can be accessible by project stakeholders. Multiple departments, offices and locations typically use isolated technologies in order to perform those specific tasks. Component technologies, which are clear in focus for their specific business and function objectives, however rely on intelligence from disparate sources and cannot make the important associations needed for successful Multi-dimensional Project Management.

The challenges faced in Multi-dimensional Project Management cannot be alleviated with current technologies that do not address the standardization of processes, nor provide broad-based views and ongoing collaboration practices. When scheduling software, collaboration tools, document management software, and other key solutions are not integrated, then coordination suffers and projects fail.



Making Multi-dimensional Project Management a Success

Companies cannot treat project management as isolated, linear plans that can be completed with different reporting formats, technologies or status meetings. Underestimating the importance of collaboration amidst all resources, a centralized location of project management information and integrated project components can result in staggering costs for a business.

Project initiatives innately have their own Return on Investment factor. Projects that are on time and budget are a success; projects that are over budget, past schedule deadline or worse, cancelled, can cost a company even hundreds of thousands of dollars in both wasted expenditure and man-hours. According to the Standish Group, a consulting organization in project and value performance, the success rate for Fortune 500 companies in executing projects is approximately only 25%.

Exact deems that the missing element to appeasing such failure rates is a broad-based method of communication and management that encompasses and actively incorporates all elements of the business for each project—a business management solution that can unify all processes and components within projects. Those discrete facets need to include financial, resource, knowledge and document information.

An integral and underlying component of such a solution is that it be contained in a single, shared, collaborative portal environment in order for communication to be direct, immediate and inclusive. The entire operations of an organization must be contained within such a business management solution so that all project processes are accounted for.

An example of such a broad based approach to Multi-dimensional Project Management is that of software development and product rollout. A true multi-project business management solution would enable both linear and closed-loop approaches to entail:

- Separate secure portal logins for developers, consultants, outsourced developers, QA, marketing and customers, for access when needed during the project delivery process
- One shared environment containing content knowledge such as consultant contracts, specifications, marketing collateral, source code, vendor payments, etc. that are affected by the project
- Association of all project-related business components with visibility triggers for missed deadlines, budget overruns and resource accountability
- Standard, customizable and repeatable project infrastructures including enablement of sub- and parallel projects and automation of key business processes
- Utilization of resources and skill sets across departments and geographical boundaries
- Broad- and role-based views for high-level project planning, analysis, interaction and reporting



Multi-dimensional Project Management

The above facets, by default, must be contained within a solution that can satisfy and move forward a multi-dimensional project to success. They must also contain triggers for accountability and bottlenecks, and whose business components are linked to one another.

Exact believes that Multi-dimensional Project Management requires an enterprise-wide tool that recognizes and associates all business processes within the organization as well as all involved resources inside and outside the organization.

Summary

Project Management has evolved from a static or linear methodology consisting of basic schedules and task lists to a multi-dimensional level of complexity touching every part of the business, including multiple office locations, remote resources, and diverse skills and roles.

Exact believes that Multi-dimensional Project Management requires an enterprise-wide tool that recognizes and associates all business processes within the organization as well as all involved resources inside and outside the organization. Any type of project management solution need not be a separate entity rather, a natural extension of the core business that seamlessly integrates with the overall organization.

Current discrete technologies that try to attend to Multi-dimensional Project Management will not provide the necessary business infrastructures; only a business management solution that covers all project processes and elements can address the complexities of Multi-dimensional Project Management.

A single business management solution requires ONE centralized place for all project data as well as ONE secure portal accessible by many, including employees, vendors, suppliers and customers (with different rights, roles and secure access). By having all aspects of the business share information, greater efficiencies, more fluid decision-making processes including reduced operational costs, will evolve through centralized Multi-dimensional Project Management. By associating and incorporating all affected processes from all departments, offices and resources, only then can Multi-dimensional Project Management achieve a greater success rate.

Through greater centralization of critical business information, companies can put themselves in an improved position to have a better-trained staff and foster more immediate and seamless communication throughout the organization. Businesses will ultimately decrease the complexities of Multi-dimensional Project Management, while increasing productivity and ROI.

For more information on how Exact Software can assist you in Multi-dimensional Project Management, please visit www.exactamerica.com or call 1.800.468.0834.



About Exact Software

At Exact Software™, we believe in Business Unified™—being a leading provider of solutions that connect the people, processes and knowledge essential to an efficient, competitive business. Exact's integrated solutions encompass executive control, accounting, manufacturing, distribution, online commerce, CRM, HRM, document management, Web portals, workflow and more, empowering collaboration among employees, suppliers, and customers with real-time access to central Web-based corporate information and exchange. Exact Software's solutions provide greater visibility across the organization, maximizing control, productivity and efficiency for the entire value chain.

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