

**AN OVERVIEW OF MODERN PROJECT MANAGEMENT PRINCIPLES AND
METHODOLOGIES :
THE BEST APPROACH TO GET PROJECT WORK DONE IN MOST INDUSTRY**

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Introduction

The Harvard Business Review Issue of September 2003's Best Practice section's paper entitled « Why Good Projects Fail Anyway » by Nadim F. Matta and Ronal N. Ashkenas observed that when a promising project doesn't deliver, chances are the problem wasn't the idea but how it was carried out. Projects are failing at an astonishing rate. Studies have shown that about 80% of projects frequently delivered disappointing returns. The problem is the traditional approach to managing projects has been out of date and consequently, companies/organizations need to adopt and implement modern and effective project management principles and methodologies that will increase the probability of success for their projects by addressing not only the traditional schedule, cost and technical aspects of a project but also project execution risks, resulting in clear benefits to them, their clients and the project's stakeholders. Modern project management techniques are being applied to build the biggest infrastructure construction venture ever undertaken in Canada – a multibillion, 10-year megaproject that will transform Toronto's Lester B. Pearson International Airport into a facility capable of handling more than 50 million passengers a year by the time it is finished in 2008. They are also being applied to manage the construction of the largest and most sophisticated engineering facility ever undertaken by mankind – the 16-nation International Space Station (ISS) project anticipated to be completed by 2006. What truly impressed practising project managers worldwide is the super combination of technology, software and sophisticated, modern project management skills to allow enormously complicated projects to tick along with the smoothness and precision of a Swiss watch as it helps them to track costs, watch the project budgets, anticipate potential risks and assist in making, monitoring and controlling changes. While project management techniques may have started in the aerospace and defense industries in the USA, they are now widely applied in almost every industry, including those involving sales and services. The Software Engineering Institute at Carnegie Mellon University in the U.S. says that the return on investment for those companies and organizations using modern project management is five to one ,i.e., for every \$ 1 spent on employing project management techniques and processes, the company get \$5 back. The purpose of this paper is to present an overview of proven project management principles and methoddologies currently being practised by project managers worldwide and their impacts on related education and training for developing countries.

PROJECT MANAGEMENT PRINCIPLES AND METHODOLOGIES

Basic modern project management principles and methodologies currently being practised by project managers worldwide are designed around the current Project Management Body of Knowledge (PMBOK), an inclusive term that describes the sum of knowledge within the profession of project management. Within the project context, these support the function of project management as the application of knowledge, skills, tools and techniques to project

activities to meet project requirements and meet or exceed stakeholders' needs and expectations. Modern project management is accomplished through the use of initiating, planning, executing, controlling and closing processes. These processes have been organized into **nine (9)** knowledge areas as described below :

1. **Project Integration Management** : The processes required to ensure that the various elements of the project are properly coordinated. It involves making trade-offs among competing objectives and alternatives to meet or exceed stakeholders' needs and expectations. It consists of :
 - Project Plan Development : Integrating and coordinating all project plans to create a consistent, coherent document.
 - Project Plan Execution : Carrying out the project plan by performing the activities included therein.
 - Integrated Change Control : Coordinating, monitoring and controlling changes across the entire project.

2. **Project Scope Management** : The processes required to ensure that the project includes all the work required, and **only** the work required, to complete the project successfully. It is primarily concerned with defining and controlling what is or is not included in the project. It consists of :
 - Initiation : Authorizing the project.
 - Scope Planning : Developing a written scope statement as a basis for future project decisions.
 - Scope Definition : Subdividing the major project deliverables into smaller, more manageable components.
 - Scope Verification : Formalizing acceptance of the project scope.
 - Scope Change Control : Controlling changes to project scope.

3. **Project Time Management** : The processes required to ensure timely completion of the project. It consists of :
 - Activity Definition : Identifying the specific activities that must be performed to produce the various project deliverables.
 - Activity Sequencing : Identifying and documenting interactivity dependencies.
 - Activity Duration Estimating : Estimating the number of work periods that will be needed to complete individual activities.
 - Schedule Development : Analyzing activity sequences, activity durations and resources requirements to create the project schedule.
 - Schedule Control : Controlling changes to the project schedule.

4. **Project Cost Management** : The processes required to ensure that the project is completed within the approved budget. It consists of :
 - Resource Planning : Determining what resources (people, equipment, materials) and what quantities of each should be used to perform project activities.
 - Cost Estimating : Developing an estimate of the costs of the resources needed to complete project activities.

- Cost Budgeting : Allocating the overall cost estimate to individual work activities.
 - Cost Control : Controlling changes to the project budget.
5. **Project Quality Management** : The processes required to ensure that the project will satisfy the needs for which it was undertaken. It includes all activities of the overall management function that determine the quality policy, objectives, responsibilities and implements them by means such as quality planning, quality assurance, quality control, and quality improvement within the quality system. It consists of :
- Quality Planning : Identifying which quality standards are relevant to the project and determining how to satisfy them.
 - Quality Assurance : Evaluating overall project performance on a regular basis to provide confidence that the project will satisfy the relevant quality standards.
 - Quality Control : Monitoring specific project results to determine if they comply with relevant quality standards and identifying ways to eliminate causes of unsatisfactory performance.
6. **Project Risk Management** : The processes required to identify, analyze and responding to project risks. It includes maximizing the probability and consequences of positive events and minimizing the probability and consequences of adverse events to project objectives. It consists of :
- Risk Management Planning : Deciding how to approach and plan the risk management activities for a project.
 - Risk Identification : Determining which risks may affect the project's success and documenting their characteristics.
 - Qualitative Risk Analysis : Performing a qualitative analysis of risks and conditions to prioritize their effects on project objectives.
 - Quantitative Risk Analysis : Measuring the probability and consequences of risks and estimating their implications for project objectives.
 - Risk Response Planning : Developing procedures and techniques to enhance opportunities and reduce threats to the project's objectives.
 - Risk Monitoring and Control : Monitoring residual risks, identifying new risks, executing risk reduction plans, and evaluating their effectiveness throughout the project life cycle.
7. **Project Human Resource Management** : The processes required to make the most effective use of the people involved with the project. It includes all project stakeholders – sponsors, customers, partners, individual contributors and others. It consists of :
- Organizational Planning : Identifying, documenting and assigning project roles, responsibilities and reporting relationships.
 - Staff Acquisition : Getting the human resources needed assigned to and working on the project.
 - Team Development : Developing individual and group competencies to enhance project performance.

- 8. Project Communication Management :** The processes required to ensure timely and appropriate generation, collection, dissemination, storage and ultimate disposition of project information. It provides the critical links among people, ideas and information that are necessary for project's success. It consists of :
- Communications Planning : Determining the information and communications needs of the stakeholders : who needs what information, when they will need it, and how it will be given to them.
 - Information Distribution : Making needed information available to project stakeholders in a timely manner.
 - Performance Reporting : Collecting and disseminating performance information including status reporting, progress measurement and forecasting.
 - Administrative Closure : Generating, gathering and disseminating information to formalize project completion.
- 9. Project Procurement Management :** The processes required to acquire goods and services, to attain project scope, from outside the performing organization.
- Procurement Planning : Determining what to procure and when.
 - Solicitation Planning : Documenting product requirement and identifying potential sources.
 - Solicitation : Obtaining quotations, bids, offers, or proposals, as appropriate.
 - Source Selection : Choosing from among potential sellers.
 - Contract Administration : Managing the relationship with the seller.
 - Contract Closeout : Completion and settlement of the contract, including resolution of any open items.

PROJECT MANAGEMENT EDUCATION AND TRAINING

Project management is an emerging and growing profession. However, few of today's senior project managers set they caps as young graduates on the career path they now follow since most undergraduate students are unaware that such a thing as project management exists, there is no opportunity for them to select it as a field of study. Also, there was little demand for an undergraduate degree program in project management. Universities normally aim their offerings initially at the undergraduate level and expect the demand for higher-level degrees to originate from those who earned the undergraduate degree. Project management is also not something one can graduate from university and start doing right away. Consequently, individuals, already earned an undergraduate degree in some other field, generally learn about project management after they have graduated from university and been employed in the work place for several years. Likewise, there was no recognized field of project management within academia until recently. Few universities produce Ph.Ds in this field. As a result, university faculty members must develop related qualifications elsewhere for teaching project management. The accepted solution is to select faculty members who, in addition to having an earned Ph.D. in an appropriate field relating to project management, also have extensive research or working experience within the project management field. Such individuals are difficult to find. At the present

time, project management degrees are likely to be offered at the Master's level and in rare cases, at the Ph.D. level by universities in the USA and Canada. Professional training in project management through courses and seminars, however, has been exploding worldwide. Today the Project Management Institute (PMI), based in Newtown Square, Pa., USA, has about 120,000 members and more than 150 chapters in about 60 countries around the world. PMI experienced 30% growth in membership each year for the last six (6) years and is expected to serve more than 230,000 project managers worldwide by 2005. Project Management Professional (PMP) certification, which is independently administered by PMI, is an important milestone for all project managers. Although a U.S. designation, it is globally recognized as the validation of an individual's knowledge in managing projects by other project managers. In order to be certified, a candidate must satisfy education and project management experience requirements, agree to abide by the PMP code of conduct, and pass a rigorous certification examination. PMI's goal is to bring the project management profession together globally.

CONCLUSION

Project management is now being recognized as a rewarding career path for men and women with strong organizational skills and the qualities that make a good leader. As the trade gains recognition as both a profession worth aiming for and a discipline with a glowing future, project managers themselves are pushing to make what they do less of a career accident and more of a career choice. The demand for capable project managers worldwide seems to be growing almost exponentially as companies and governmental organizations look at a past history of failed projects and realize that assigning anyone other than trained project management professionals to head up projects is a luge ride to disaster. The growth of project management as a distinct discipline has really exploded worldwide. It was a major business trend at the beginning of the 21st century and definitely will become the standard operating procedures for companies/organizations around the world in fulfilling their business globalization strategy.

Thus, an urgent need exists in developing countries to improve all facets of project management operations as they are accelerating their strategies of industrialization and modernization with the execution of a significant number of infrastructure projects. While the need is so great as to be critically required, resources, both human and financial, are quite limited. In addition, project management improvement is further constrained by political realities, including social problems and, to some extent, corruptive practices. It seems that true commitments and serious desires to obtain the modern project management skills needed are existent in these countries, but they are lacking the support and assistance of governments and private industries to obtain this objective. It is my belief that project managers in these countries must recognize the effective application of project management principles and methodologies for successful project implementation and must demand for urgent technology transfer associated with training and consulting in this area. These activities, however, must take into consideration the very cultural and social context in which project work will be executed, i.e., project managers must ensure that the

client's culture and values are in sync with theirs . Practising project managers must use the proven principles and methodologies of modern project management techniques to improve the performances of their projects, resulting in better foreign aid disbursement capability, higher growth rates and improvement of their people's living standards. Gone are the days when they executed their projects in isolation from the entire world. Project management training for them is imperative and they must be trained to apply and advance this approach the same way that it is being widely and successfully applied and advanced in the developed, western countries. Never before has a management process been developed and accepted in an intensive and comprehensive way by practising project managers worldwide. Given the explosion in business-by-project and the fact that projects of the future will require more competence, skill, responsibility; let's hope that this accidental profession will blossom into a choice of career for aspiring, future project managers , those who will be in a position to identify changes that need to be made to improve project management practices in their countries.

- Dr. Nghi M. Nguyen, President of **NDV Project Management Services Inc** and part-time professor (GS think giang) at the Faculty of Engineering and Computer Science at Concordia University, Montreal, Quebec, Canada, is teaching Construction and Project Management courses at both undergraduate and graduate levels and currently delivering project management training seminars for members of the American Society of Civil Engineers (ASCE) and the Engineering Institute of Canada (EIC) throughout the USA and Canada . One of the first graduates with a Master's degree in Project Management in Canada in the 1970s and holder of B.S., M.S. and Ph.D. degrees in Civil Engineering and Project Management, he is an internationally recognized expert in project management and has been providing project management advice for the construction of the Three Gorges Dam in China, the International Space Station (ISS) project in Canada and the USA, among others worldwide. A certified Project Management Professional (PMP) since 1995, Dr. Nghi Nguyen has also lectured under the United Nations Development Programme (UNDP) and is a registered engineer and project manager in both Canada and the USA. He is currently providing consulting services to leading U.S. and Canadian corporations and being involved with the Sagogis project in Ho Chi Minh City.

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