

## **Some Origins of Modern Project Management A Personal History**

Dr. Martin Barnes

My first contact with CPM was in early 1962 when I was working on a dam construction project in the north of England. In early 1963 I was chief planning engineer on building the motorway (freeway) going West out of London including the link to Heathrow airport. Nobody has refuted my claim that this was the first application of CPM to a civil engineering project in the UK! I produced huge arrow networks and wrote up everything on punched card data sheets. Using the Mauchly Associates program, I went into London once a month to use the Lloyds IBM computer (few businesses had their own in those days) to process the data and then drove back again with a thick wodge of printer output. Everybody thought it was terribly clever.

By 1968, after a spell in Canada, I was at Manchester University doing a PhD researching how civil engineering projects could be controlled from the money point of view. Given my background in planning, I was thinking how planning (time control) could be integrated with cost control. This was the main plank of my research. I designed a computer program which did integrate cost, time and resources and could show the effect of decisions about the work and how to do it on both cost and time simultaneously. It was a Fortran programme still with punched card input and needing a very big mainframe to chop. By the way, it used precedence data not arrow diagrams. I later produced, with John Gillespie a Cobol version called Project Cost Model (PCM) which we marketed to the industries from 1971.

I designed a course called 'Time and Money in Contract Control' in 1969 which showed people how to control cost and time in an integrated way. Notice that if the word 'project' had been in general use at that time – I would have used it instead of 'contract'. It was on one of these courses that I pointed out that in managing a 'contract', you did not just have to manage the cost and the time, you had to manage the delivery of what was specified as well. And, guess what, I invented a triangle to illustrate the point with time, cost and quality at the corners. On the overhead projector, I moved a coin around the triangle to show how the three tensions competed etc. This concept really caught on and, as far as I know, it was the first time anybody set down that managing what we would now call a project was not just time control, it was control of cost and outcome as well. I think, modestly, that this was a very significant step in the establishment of modern project management.

In 1972 I went to the Internet (now IPMA) congress in Stockholm and gave a paper about integrating cost and time control featuring my software. I can confirm that, at that time and at that congress, everybody was talking about network analysis, nothing else, and the phrase Project Management was just not in use.

Very soon after the Stockholm congress, we set up Internet (UK). For some years it concerned itself with little other than network analysis. This body developed into APM, the UK professional body for project managers which now has 14000 members.

## About the Author



### **Martin Barnes, PhD**

Founder, Fellow, Former President and Chairman, APM  
Fellow, Royal Academy of Engineering

Oxfordshire, UK

**Dr. Martin Barnes**, PhD, was President of the Association for Project Management (APM), the professional body for project managers in the UK, until the end of October 2012. He was a founding member (no. 10) of APM in 1972 and has been an active APM leader since that time. He was APM Chair in the 1980s and was named an APM Fellow in 1995. Martin has a civil engineering degree from the University of London and a PhD from the University of Manchester, UK. His doctorate was awarded in 1971 for research into improved methods of financial control for engineering projects. Martin Barnes invented the classic Time/Cost/Quality triangle and other project management techniques over the years. He built up his own PM business over 15 years until it merged with what is now PricewaterhouseCoopers in 1985.

Now a consultant in project management, Martin was also Executive Director of the Major Projects Association (MPA) for nine years until 2006. Dr Barnes has advised on significant projects in many countries in Europe, Asia and Africa, for the World Bank, other funding agencies, governments, promoters and major contractors. He has worked on projects in the engineering, defense, aerospace, IT, financial, business change and media sectors. Martin's BBC television programme on project management has been used as a training aid in many countries. He has acted as expert witness in a number of arbitrations concerning major projects. Martin led the team that produced the New Engineering Contract (NEC), a system of contracts designed to facilitate and stimulate the use of modern project management across all the contributors on a project. The NEC is now being used in over 20 countries and has been adopted by the UK government for all publicly funded construction projects.

Martin Barnes has been active in the IPMA since 1972, having attended all but one of its world congresses since that year. He presented papers at most of them. He is a Fellow of IPMA and a former board member and Chairman of its Council of Representatives. Dr Barnes is a recipient of the Chartered Institute of Management's Special Award and of the Institution of Civil Engineers' Watson Medal in the UK, both for his personal contributions to the development of project management. He is a Fellow of the Royal Academy of Engineering, the UK's highest engineering recognition, and is a Churchill Fellow.