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Making Waves

By Terry Deacon*

Alvin Toffler, futurist and author of the book The Third Wave, wrote that humankind has been transformed by three major waves of civilisation. He described how cave dwellers became agrarian over thousands of years during the First Wave, and then humankind was transformed by the Industrial Revolution during the Second Wave. We are now all experiencing the Third Wave, the Information Age.

Well, I got news for Alvin Toffler, we're actually like a surfer in a storm, being hit simultaneous by wave upon wave. We're all reeling under the impact of the Nuclear Age, Air Travel Age, Television Age, Computer Age, Space Age, Genetic Engineering Age... and before we know it – Old Age!

All these ages superimposed one upon the other result in the so-called "rat-race". I find it increasingly difficult to keep ahead these days, so either I'm slowing down, or they are breeding faster rats. In his book *Future Shock*, Toffler explains the title as meaning a condition of distress and disorientation brought on by the inability to cope with rapid societal and technological change.

Like mankind, the management of projects has also experienced a number of waves of progression, which have forged the modern profession of project management (PM).

The first wave of PM lasted many millenniums during the eras of the Egyptian pharaohs, the Mayan Empire and the Chinese Dynasties. The great age of pyramids started about 4 700 years ago. A pharaoh would decree that a pyramid should be erected and 100 000 labourers, possibly slaves, would be rounded up to do the job. The Great Wall of China was started 2 200 years ago by Emperor Qin, who ordered that 300 000 soldiers and 500 000 civilians be conscripted. The wall is reputed to be the world's longest graveyard with one death for every metre of its length. Time, cost and the needs of the workers were of secondary concern - efficiency (productivity) was not really a consideration - effectiveness (getting results) was everything.

The first wave projects were uncomplicated, but sometimes huge projects, using simple implements and driving the workers to the limit, and sometimes beyond. The first PM wave lasted up to the beginning of the Industrial Revolution circa 1700.

The second wave of PM, starting in the mid-1700s, was dominated by an explosion of technological inventions such as the steam engine, electricity, telephone, radio, automobile, aeroplane and many more. This wave of new technology takes us up to the end of World War II in the 1940s. It was characterised by scarce resources and pressures to deliver ever faster using the new communication and transportation technologies.

Some outstanding examples of fast construction during this wave were: the Crystal Palace in London built in just nine months during 1851; The Empire State Building in New York during the 1930s was a fast-tracked marvel, which at one stage erected 14 floors of structural

steelwork in just 10 days; and during WWII the Kaiser shipyards delivered 1 460 Liberty-class cargo vessels, the first of which was completed just 7,5 days after its keel was laid.

However, behavioural scientists became concerned that technological advances were outstripping the development of social and management skills. Elton Mayo developed his Rabble Hypothesis deploring the fact that management organised work on the assumption that workers were a horde of unorganised individuals, whose only interest was to make as much money as they could for as little work as possible. This led to Douglas McGregor's classic Theory X – Theory Y assumptions about human nature.

The third wave of PM was born from the increasing complexity of projects – combinations of research and development, electronics, mechanical, avionics, chemistry, civil, environmental, and other disciplines. It was largely this factor which was the driving force behind the birth of modern PM tools and techniques in the late 1950s and is attributed to two projects. The Polaris Missile project for the US Navy was used to develop the Program Evaluation Review Technique (PERT). Simultaneously, Du Pont was developing the Critical Path Method (CPM) to schedule project activities. These techniques were refined and expanded over the next two decades laying the foundation for modern PM.

The fourth revolutionary wave started in the 1980s and extends to the present. The advent of the personal computer on everyone's desk, linked to an organisation-wide Intranet or the global Internet has transformed the way we work and communicate, particularly in PM. Virtual teams, distributed around the world and never meeting in person, are now commonplace. Computers are mandatory to plan, execute and control projects. The fourth wave of PM is struggling to come to terms with the "soft" human resource issues – management, motivation, commitment, trust, delegation, communication, and many more.

What and when will the fifth wave of PM be? In another editorial I will look at what the future of project management holds as I ponder the words of poet John Masefield, "To most of us the future seems unsure; but then it always has been; and we who have seen great changes must have great hopes."

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