

**Manufacturing Efficiency is an Important Factor
in the Growth of the Project Management Profession**
by Fernando Portes, MBA/MEng/MPS/PMP/CQE

Introduction

The project management profession has experienced exponential and explosive growth in the past twenty years throughout the industrialized and non-industrialized nations. As a result of this, the Project Management Institute (PMI)® has increased its membership from 7,500 in 1990 to more than 250,000 members in 2008.

Various authors have attributed this increase in the project management profession to several factors. Meredith and Mantel (1) attribute such increase to the expansion of knowledge, complex and customized products, cultural and environmental differences, increased competition, and larger projects. Gray and Larson (2) assign the increase to compression of the product life cycle, global competition, knowledge explosion, corporate downsizing, increased customer focus, and third world economies.

This article does not quarrel with the reasons stated by these authors. The purpose of this article is to analyze and reveal a hidden cause that is driving many of the reasons listed above. In other words, it is shown that many of the reasons listed above are effects of improved manufacturing efficiency, and not the root cause for the increase in the project management profession.

Discussion

The industrial revolution started in Britain in the middle of 18th century and through this process most economies in the world changed from agriculture based, rural societies, to urban and industrial based economies. For example, figure 1 shows that at the beginning of the 20th century most employment in the US, Britain, and Japan was based on agriculture. By the end of the 20th century agricultural employment represented less than 2% of employment in these countries. This percentage would be even lower if not for the protective tariffs and subsidies that the US, the EU, and Japan offer to their rural areas.

From the beginning of the 18th century up to today, many agricultural employment jobs migrated to the manufacturing and service areas. Starting at around 1960 the countries that belong to the Organization for Economic Development and Cooperation (OECD), which are mostly industrialized nations such as the US, Britain, Germany, and Japan, have experienced a decline in the number of manufacturing jobs as a proportion of the total economy (see figure 2). This decline in manufacturing employment has not been limited to OECD countries. Between 1995 and 2002, 22 million manufacturing jobs were lost in the world's twenty largest economies, including China, Russia, and Brazil. During the same period, Brazil, China, and the US lost 20, 15, and 11% of their manufacturing jobs, respectively (5). This is revealing because there is the wrong popular perception that India and China are increasing their manufacturing output at the expense of the US.

Those countries experienced and continue experiencing losses of manufacturing jobs too (5).

This worldwide decline in manufacturing employment does not mean that the value of manufacturing output is declining. Instead, it means that economies are getting more productive by producing more value with fewer workers. At the same time that manufacturing jobs were being eliminated worldwide (2), between 1995 and 2003 global industrial output grew by 30% (5). Since 1991 the US manufacturing output has increased at 4% per year, faster than the gross domestic product (GDP¹) growth (6).

The above data shows huge worldwide job migrations from agricultural to manufacturing employment, and then from manufacturing to other areas. Starting in 1960 manufacturing employment has been migrating worldwide to other areas, such as services, R&D, and software. The later in particular continues to generate a very significant number of new jobs, which did not exist prior to 1960. The cause behind these shifts in worldwide employment is manufacturing efficiency. As it happened with agriculture, year after year, companies need fewer workers to produce more manufacturing value.

Looking again at the reasons that mainstream project management textbooks attribute to the increase in the project management profession, one can see that many of those reasons are the effects of manufacturing efficiency, and that it is the later that is behind the increase in the project management profession, and not the effects reported by Meredith and Mantel (1) and Gray and Larson (2). In particular, these factors are effects of manufacturing efficiency: increased competition, larger projects, compression of the product life cycle, global competition, knowledge explosion, corporate downsizing, increased customer focus, and third world economies.

As it relates to the pharmaceutical industry, the manufacturing area of this industry is particularly affected not only by the irreversible macro economic trends discussed before, which reduce manufacturing employment in all industries, but it is also affected by the widely known patent expiration problem of big pharma.

\$67 billions of US sales will lose patent protection between 2007 and 2012, which represent roughly half of the combined 2007 US sales of big pharma (7). This has produced regular job losses in those organizations. Between 2000 and 2007 the pharmaceutical industry lost 120,000 jobs (8). When organizations announce job losses they usually do not break down where those job losses will take place, but there is evidence to suggest that manufacturing has a higher share of the losses. For example, AstraZeneca announced that it is planning to outsource its entire drug manufacturing activities within 10 years (9). Bristol-Myers announced that it plans to close or sell about half of its 27 manufacturing plants by 2010 (7). Pfizer intends to outsource 30% of the its manufacturing capacity, mostly to Asia (10).

¹. The gross domestic product is the value of all the goods and services produced by a country in a year.

The above data does not necessarily mean bad news for project managers. At the same time that the economy destroys manufacturing jobs in all industries, it creates other types of jobs. The US economy destroys and creates roughly 7% of its jobs every quarter (11). What this means is that project managers and all workers should not marry themselves to a particular industry or to a particular area in any industry, especially sectors like manufacturing which are subject of irreversible job losses beyond the control of project managers. It is better to place ourselves in the correct side of economic trends and seek employment in growing areas of the economy. To do that, it is important to develop and maintain universal, non industry specific skills which allow transfers to other industries or to other areas of challenged industries. The universal and non industry specific nature of most project management knowledge (the PMBOK for example) can facilitate those transitions.

Figures

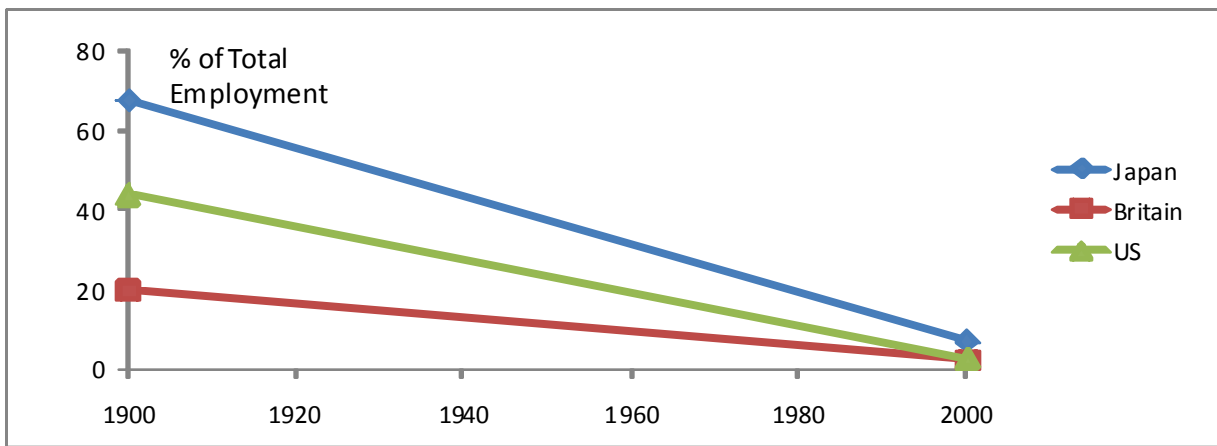


Figure 1 : Agricultural Employment (3)

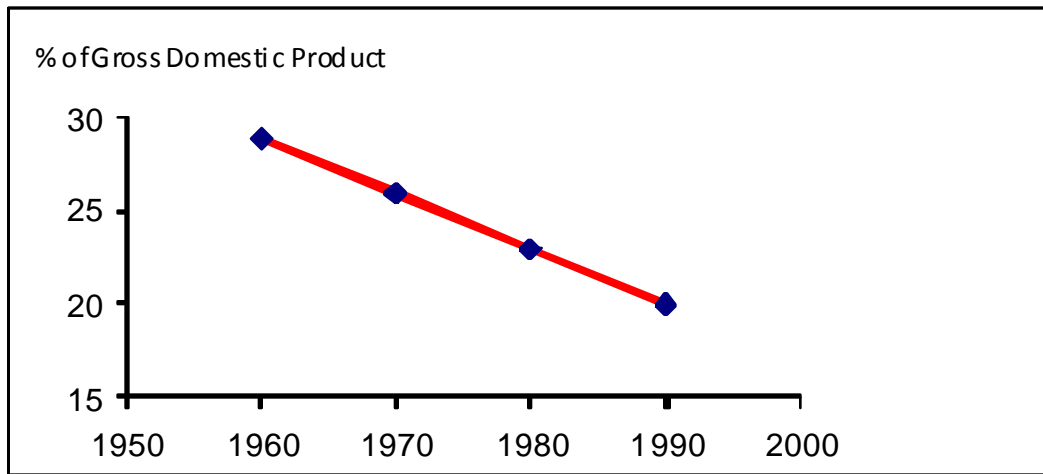


Figure 2: Manufacturing Employment in OECD Countries (4)

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