

# The Legacy of Parametric Estimating

Henry Apgar; Technical Director, MCR Technologies, LLC

## Abstract

This paper chronicles the people, methods, and achievements over past centuries leading to today's acceptance of proven parametric methods for credibly predicting future costs of the world's most significant tools, weapons, spacecraft, structures, and processes.

Parametric models, for most cost estimators, became their tool of choice during the past five decades. Parametric methods were refined by government, industry, and academia. They were then enabled by realistic cost and technical databases which satisfied government audit standards, and filled the need for quick, credible, and repeatable cost and schedule estimates. This paper explores the evolution and legacy of these models.

To help appreciate parametrics' foundations, this paper incorporates original research by the late Keith Burbridge who chronicled achievements by early parametricians including da Vinci, Brunel, Bayes, and Freiman - namesake for the ICEAA Lifetime Achievement Award. Frank Freiman developed one of the first commercial parametric modeling systems, working from contemporary databases including the Sears Roebuck catalog.

A compelling example of legacy parametrics assembles the elements of engineering, construction, and economics – the challenge of medieval cathedral builders to estimate their construction costs! As for contemporary model developers, their models incorporated distinctive estimating metrics.

This paper summarizes personal achievements plus contributions from cost estimating societies and associated initiatives. The International Society of Parametric Analysis (ISPA) is one of several original societies merging to create the International Cost Estimating and Analysis Association (ICEAA).

## Author Bio

Henry Apgar is an MCR cost engineer, with 45 years' experience developing parametric models and statistics-based parametric cost estimates for international government and commercial clients.

Hank is a lifetime ICEAA member and a Certified Cost Estimator/Analyst (CCEA), with a degree in electrical engineering and an MBA. He authored the Cost Estimating Chapter for the Space Mission Engineering Handbook; previously, he was a cost engineer at The Aerospace Corporation.

He is co-founder and past president of ISPA and recipient of the Freiman Lifetime Achievement Award.

## Contents

1. Early History .....	2
2. Economics of Cathedral Building .....	3
3. Maturing of the Parametrics Culture .....	5
3.1 Evolution of Professional Societies .....	5
3.2 Parametric Achievements by Decade .....	6
4. The Parametric Cost Estimating Initiative (PCEI) .....	13
5. Now What? .....	14





























