Biography of an Influential Software Engineer

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Biography of Watts Humphrey

Overview

Watts Humphrey was an American pioneer in software engineering. He was born in Battle Creek, Michigan on July 4, 1927. As well as being a great software engineer, Humphrey was also an author and lecturer. He is seen as father of software quality and founded the Software Process Program at the SEI (Software Engineering Institute) in the 80s and 90s. He also published Capability Maturity Model and inspired the later development of the TSP (Team software process) and the PSP (Personal software process). During his life he authored over 12 books and had 7 children and 11 grandchildren.

Early Life

Humphrey credits his father—an MIT-trained engineer who later worked on Wall Street—with shaping his work ethic and approach to problem solving. Early in his school years, Humphrey struggled to read and failed first grade. His father, also named Watts, pulled his son out of school and moved the family to Litchfield, Connecticut, where Humphrey could attend a school to receive more individual instruction. In 1944, Humphrey graduated from high school. After high school, he deferred studying at the California Institute of Technology to serve in the United States Navy during World War II.

After his service, Humphrey earned a bachelor's degree in physics at the University of Chicago, studying under Enrico Fermi. He then completed a master's degree in physics from the Illinois Institute of Technology (IIT) and an MBA degree, with an emphasis on manufacturing, from the University of Chicago.

From 1953 to 1959, Humphrey worked at Sylvania in Boston. During this time, he became a professor and taught a computer design course in Northeastern University.

When Humphrey arrived at IBM in 1959, he initially worked in hardware as a computer designer and architect. He transitioned into software and became the director of programming and vice-president of technical development where he supervised 4,000 software professionals across 15 laboratories and seven countries. And he worked in there from 1959 to 1980.

His Work

In 1980s, when Humphrey first arrived at the SEI (Software Engineering Institute) at Carnegie Mellon University, he worked to clarify that process. In 2010, after reviewing that time, he said:

"Changing the world of anything is an outrageous personal commitment. That's what makes it outrageous. I felt it needed to be done. I knew I couldn't do it alone, and I wanted an environment where I could work with folks and do that."

He worked with Larry Druffel and they founded the Software Process Program, this program's purpose was to understand and manage the software engineering process and set up the base for the significant improvement afterward.

Humphrey is best remembered for his contributions to build the CMM (Capability Maturity Model) and use it to inspire the later development of the TSP (Team software process) and the PSP (Personal software process). The CMM is development model created after a study of data collected from organizations that contracted with the U.S. Department of Defense, who founded the research. The term "maturity" relates to the degree of formality and optimization of processes, from ad hoc practices, to formally defined steps, to managed result metrics, to active optimization of the processes. The model's aim is to improve existing software development processes, but it can also be applied to other processes.

Humphrey had begun his work in bringing discipline to the individual software engineer—the basis for the Personal Software Process (PSP)— long before Jim Over, who now leads the TSP initiative at the SEI. Humphrey first tested his theories on a process that he developed for managing his personal checking account. Next, he tested this on the personal software development

process by writing more than 60 small programs in Pascal and C++, Over explained. He then began working with organizations to pilot this new personal process for software engineers.

Over, who enrolled in the first PSP course offered at Carnegie Mellon, said it changed his career then he worked with Humphrey to transition TSP and PSP into software engineering practice. During their work together, the two became close friends. And Humphrey made three rules when built the PSP, they are:

1. Watts on planning: What's the most significant factor in determining when a project will finish? When it starts. If you can't make accurate plans, plan often.

2. Watts on producing quality work: If you want a quality product out of test, you must put a quality product into test.

3. Watts on assessment: If you don't know where you are, a map won't help.

After PSP was established, Humphrey applied those same concepts to engineering groups as part of the Team Software Process (TSP).

Today, TSP has been adopted by leading software organizations across the globe including Intuit, Oracle, and Adobe. And that's a big part of the achievement should belongs to Humphrey.

In his later years he served as a director of SEI and award the National Medal of Technology, the country's highest honor in this field in 2003. And became a fellow of the SEI and of the Association for Computing Machinery in 2008. He received an honorary Doctor of Software Engineering from Embry Riddle Aeronautical University and was a member of the university's Industry Advisory Board, and computer and software engineering departments. Watts Humphrey died in 2010 at the age of 83.