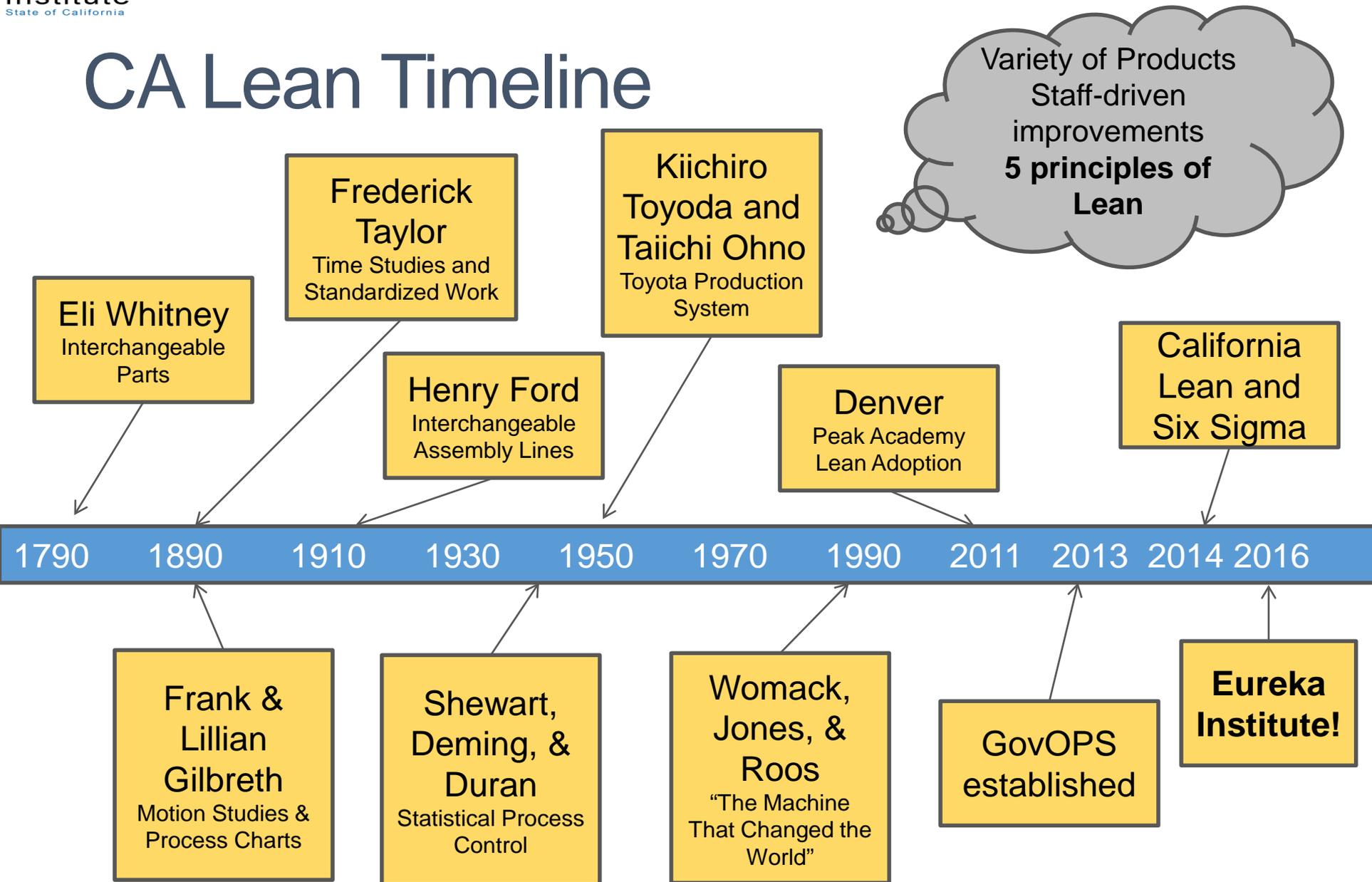


CA Lean Timeline



1790's: Eli Whitney popularized the use of interchangeable parts when he used them to assemble muskets, allowing relatively unskilled workers to produce large numbers of weapons quickly and at lower cost, and making repair and replacement of parts infinitely easier.

1890's: Frank and Lillian Gilbreth were a married team who performed motion studies and created process charts in an effort to improve the human experience at work. Motion study entailed the detailed examination of the movements individual workers made in the process of carrying out their work.

Soon thereafter Frederick Taylor conducted time studies and invented standardized work. Through a deliberative approach to training, employees were provided "detailed instruction and supervision of each worker in the performance of that worker's task."

1910's: Henry Ford invented the assembly line which revolutionized the automobile industry and the concept of manufacturing worldwide. He wanted to make the Model T affordable for the masses. Ford consulted with Frederick Taylor, to examine the most efficient modes of production. He incorporated his observations of assembly lines in slaughterhouses and grain warehouses with the information Taylor suggested to implement a new system in his own factory.

1920's: Walter Shewhart worked for Bell Laboratories and was the first to introduce the concept of continuous improvement utilizing statistical results to show how things get done versus how they should be done.

1940's: Shewhart, Deming and Juran created statistical process control (SPC) - a method of quality control which uses statistical methods applied in order to monitor and control a process and to ensure that it operates at its full potential. Key tools used in SPC include control charts; a focus on continuous improvement; and the design of experiments.

1950's: Kiichiro Toyoda and Taiichi Ohno created the Toyota Production System – after visiting the Ford plant, they developed a system to offer a variety of products, using staff-driven improvements, and creating and implementing the 5 principles of lean.

1990's: Womack, Jones and Roos wrote *"The Machine That Changed The World"* describing the Toyota production system and sharing Lean principles with those outside of the field of manufacturing.