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## The life cycle of HEP offline software

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Modern HEP experiments at colliders typically require offline software systems consisting of many millions of lines of code. The software is developed by hundreds of geographically distributed developers and is often used actively for 10-15 years or longer. The tools and technologies to support this HEP software development model have long been an interesting topic at CHEP conferences. In this presentation we look instead at the software project management aspects, and in particular at the time evolution of the offline software projects of experiments over their lifetimes, from the pre-datataking period to the analysis period. We focus on three mature experiments (BaBar, CDF, CLEO) and one experiment about to start taking data (CMS). We examine quantitatively how the software code base and developer participation evolve through the various phases of the experiment. We also explore the impact of functionality increases, requirement changes and the phases of the experiment in order to draw conclusions for experiments at the beginning of their life cycle.

### **Submitted on behalf of Collaboration (ex, BaBar, ATLAS)**

Multiple (BaBar/CDF/CLEO/CMS)

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