**History of Software Management**

**1917: The Gantt Chart**

Henry Gantt created his best-known scheduling diagram, the Gantt chart and it was a radical idea and innovation of worldwide importance in the 1920s.

**1956: The American Association of Cost Engineers (AACE) International**

The AACE was formed by early practitioners of project management and the associated specialities of planning and scheduling, cost estimating, cost and schedule control. In 2006, the organization released their Total Cost Management Framework.

**1957: The Critical Path Method (CPM) invented by Dupont Corporation**

CPM is a technique used to predict project duration by analysing which sequence of activities has the least amount of scheduling flexibility.

**1962: Work Breakdown Structure (WBS)**

WBS is an exhaustive, hierarchical tree structure of deliverables and tasks that need to be performed to complete a project. It remains as one of the most common and useful project management tools.

**1969: Project Management Institute (PMI) was launched**

PMI is a non-profit organization that publishes A Guide to the Project Management Body of Knowledge (PMBOK)

**1975: The Mythical Man-Month: Essays on Software Engineering**

This is a book on software engineering and project management by Fred Brooks in 1975. Its central theme is that “Adding manpower to a late software project makes it later.”, which is also known as Brooks’ law. Brooks made this observation while managing the development of OS/360 at IBM. This project was falling behind schedule when Brooks decided to bring more programmers into the team. Later, he realized that his decision delayed the project even more. This book became a classic on the human elements of software engineering.

**1984: Theory of Constraints (ToC)**

Toc was introduced by Dr. Eliyahu M. Goldratt in his novel “The Goal”. ToC is more a management philosophy than a particular technique that is used to applied to software management. It focuses on improving productivity by managing constraints. The theory basically states that productivity of any system is limited by a small number of bottlenecks or constraints and there is always, at least, one constraint. The throughput of the entire system is limited by this weakest link. Using five focusing steps, ToC challenges project managers to identify the constraint and restructure the organization to achieve its goals. The five focus steps are:

* Identify the system’s constraints
* Exploit the system’s constraints
* Subordinate everything else to the above decision
* Elevate the system’s constraints
* Go back to step one

**1986: Scrum Named as a Project Management Style**

1986: “The New New Product Development Game” was introduced in the Harvard Business review by Hirotaka Takeuchi and Ikujiro Nonaka. This paper showed that exceptional performance in the development of a complex product is achieved when small and self-organizing teams are fed with goals or objectives and not with assigned tasks.

Early 1990s: Jeff Sutherland and Ken Schwaber learnt of the Scrum process. They inherited the idea from Takeuchi and Nonaka.

1995: The idea of Scrum was presented at the Oopsla conference in Austin, Texas and the paper “SCRUM Software Development Process” was published. Scrum was first tried and refined at Individual, Inc., Fidelity Investments, and IDX (GE Health)

2010: First publication of Scrum Guide was released.

**1987: PMBOK Guide Published by PMI**

The **Project Management Body of Knowledge** is the encyclopedia of standard terminology and guidelines for project management. It is process centric and divides project work into five process groups (Initiating, Planning, Execution, Monitoring and controlling, closing) and ten knowledge areas. It is a generic project management knowledge that every project manager is expected to possess. The American National Standards Institute (ANSI) and the Institute of Electrical and Electronics Engineers (IEEE) recognized PMBOK as a standard in year 1998 and 1999 respectively.

**1989: PRINCE Method Developed by UK government agency CCTA**

**Pr**ojects **IN** a **C**ontrolled **E**nvironment (PRINCE) published by CCTA in 1989 became a standard methodology for all government system projects. It was revised in 1996 to make it suitable for all kinds of projects. Some of its important characteristics are as follow:

* It is process centric and based on 7 Principles, 7 Themes, and 7 Processes.
* It is prescriptive and provides the set of steps to follow in a logical sequence by the project manager and team in project management and planning
* Process-based and prescriptive approach facilitates the degree of standardization in the organization.

**1994: The Standish Group’s first CHAOS Report**

The Standish Group collected information from 365 companies and total of 8,380 Information System applications. They published not only the failure and success rate but also the factors affecting the success and failure rate. According to the 1994 Standish CHAOS Report, the top five factors in successful projects were: 1) User involvement, 2) Executive Management Support, 3) Clear Statement of Requirements, 4) Realistic Expectations and 5) Proper Planning.

**2001: The Agile Manifesto**

Agile Manifesto was published in February 2001. Bob Martin took the initiative to arrange a meeting among seventeen software developers at the ski resort in Utah to discuss the lightweight software development methods. Here we will discuss some of the previous events and methodologies that had significant influence on the Agile manifesto.

* **1992: Crystal Method**

Alistair Cockburn is the father of Crystal methodology, which is considered the beginning point of the evolution of Agile methodology. Crystal talked about the importance of frequent delivery of usable code, collaboration and communication among stakeholders by being co-located and reflective improvement. Thus sowing the seed for Agile methodology.

* **1993: Refactoring**

Bill Opdyke came up with the concept of refactoring which is defined as “a disciplined technique for restructuring an existing body of code, altering its internal structure without changing its external behavior”.

* **1994: Dynamic System Development Method**

The DSDM principles - (1) Focus on the business need, (2) timely delivery, (3) Collaboration in team, (4) high quality, (5) incremental delivery, (6) iterative development, (7) Communication and (9) Demonstrate control were consistent with the agile values. Arie van Bennekum was involved in DSDM before authoring agile manifesto along with other members.

* **1995: SCRUM**

**SCRUM** was jointly created by [Jeff Sutherland](http://www.linkedin.com/in/jeffsutherland) and [Ken Schwaber](http://www.linkedin.com/profile/view?id=112438&authType=name&authToken=Fuss&locale=en_US&pvs=pp&trk=ppro_viewmore), which is practically the foundation of agile.

* **1995: Pair Programming**

Pair programming was popularized by Jim Coplien and Larry Constantine where two programmers share same screen to write the code. Pair programming enhances code quality, collaboration and learning in team.

* **1999: Adaptive Software Development**

Jim Highsmith coined the concept of [Adaptive System Development](http://productdevelop.blogspot.in/2011/07/what-is-adaptive-software-development.html) which focused on dynamic application development and it’s lifecycle phases: Speculation, Collaboration and Learning.

* **1999: Extreme Programming – XP**

Kent Beck developed the concept of [Extreme Programming](http://www.extremeprogramming.org/rules.html) at Chrysler. XP talked about user stories, continuous integration, release planning and best practices for planning, managing, designing, coding and testing, the concepts that are also common to Agile methodology.

**2003: Lean Software development**

Lean is the term coined by [Mary Poppendieck](http://www.linkedin.com/profile/view?id=3694647&authType=name&authToken=4Y71&locale=en_US&pvs=pp&trk=ppro_viewmore) and [Tom Poppendieck](http://skillsmatter.com/expert/agile-scrum/tom-poppendieck) in 2003. It talks about applying lean development practices to software projects. Some of the lean principles are - 1) Eliminate waste 2) Enhance learning 3) fast delivery 4) team empowerment 5) holistic approach 6) build integrity.

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