Managing large software systems is a difficult task, mainly due to the constant evolution of these systems. The software developers have to manage the continuous software changes with little downtime and cost. In this talk some methods are presented which can assist the software maintenance and evolution process. Software quality models based on product metrics can be used to identify bad smells and error-prone constructions in software code. Static slicing methods are able to identify the data and control flow dependences of software elements. Dynamic slicing approaches can be used in the optimization of testing a program debugging. Finally, we give some remarks on the applications of machine learning methods in software maintenance.