Why is Software Development so Difficult?

Complexity
- A consequence of complexity is that software is difficult to understand;
- But you cannot remove complexity, because then you do not have a piece of software that solves the problem in question.

Conformity
- Usually software is built within a given context – needs to conform to the given context, this is part of the solution;
- The problems caused by this forced conformity cannot be removed by redesigning the software.

Changeability
- This is an inherent property of software – if it weren't changeable it would not be software;
- The difficulty is the management of this tremendous flexibility.

Invisibility
- Software is invisible and cannot be visualized;
- There is no acceptable way to represent either a complete software system or some sort of overview;
- This is in obvious contrast to our analogy with architecture – architects can build 2/3 dimensional models of the whole building to give an idea of the overall design;
- The good news is, certain aspects of software can be visualized: UML (Universal Modeling Language) diagrams, data flow diagrams, etc.