

Spiral Model

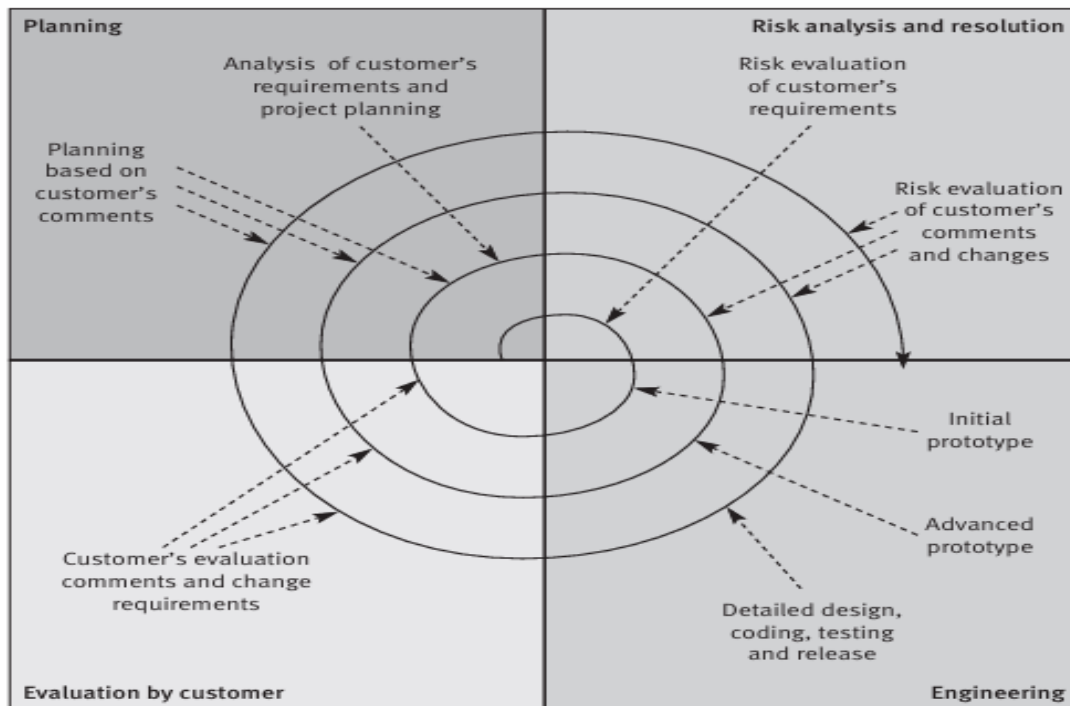


Figure 7.3: The spiral model (Boehm, 1988)

Source: After Boehm (1988) (© 1988 IEEE)

The image illustrates the **Spiral Model** of software development proposed by Barry Boehm in 1988. It is a risk-driven process model that combines elements of both design and prototyping in stages. Each loop in the spiral represents a phase in the software development lifecycle, emphasizing risk assessment and customer feedback.

📌 Key Quadrants and Activities:

1. Top-Left: Planning

- **"Analysis of customer's requirements and project planning"**
This step involves understanding what the customer wants and planning the project accordingly.
- **"Planning based on customer's comments"**
Customer feedback is integrated into future planning.

2. Top-Right: Risk Analysis and Resolution

- **"Risk evaluation of customer's requirements"**
Risks related to the initial requirements are assessed.
- **"Risk evaluation of customer's comments and changes"**
As feedback and new changes come in, associated risks are re-evaluated.

3. **Bottom-Right: Engineering**

- **"Initial prototype"**
A basic version of the software is developed to demonstrate the concept.
- **"Advanced prototype"**
A more complete version is developed based on feedback.
- **"Detailed design, coding, testing and release"**
The final product is built, tested, and deployed.

4. **Bottom-Left: Evaluation by Customer**

- **"Customer's evaluation, comments, and change requirements"**
After each phase, the customer reviews the output and provides feedback.
- This input feeds into the next loop of the spiral, improving the product iteratively.

How the Spiral Model Works:

- Each cycle (loop) in the spiral goes through **4 main stages**: Planning → Risk Analysis → Engineering → Evaluation.
- After each cycle, the product evolves with more features and improvements.
- This model supports **incremental development, prototyping, and continuous customer feedback**.

Advantages:

- Strong focus on **risk analysis**.
- Ideal for **large, complex, and high-risk projects**.
- Promotes **early detection of problems** and **continuous customer involvement**.