# AMS Design

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**Progress in nanoelectronics**

**=**

**progress in manufacturing technology + progress in design technology**

CHALLENGE: increase (speed-up) design capability

Main issues :

New designs (function and specifications) due to diversification of devices and multifunctionnality of systems

Yield improvement: process variation (distribution of transistor parameters)

Reliability and Aging effects (lifetime), stress history of the device

Foundry -dependent processes

**Model is essential for designing**

Structural modeling with lumped elements

Behavioral modeling

Hierarchical modeling

**Model should not become a bottleneck: it should be available and fast !**

**Bottlenecks**
Availability and speed of models
Yield and Aging analysis
Synthesis and optimization

**Roadmap (ITRS ):**
-Interactive and semi-automatic AMS design (circuit structure, place and route, yield and reliability)
- Standardized modeling and analysis of physical effects (including aging) and complex performance features
-Parametric models and simulation of complex AMS blocks
-Simulators with sensitivity analysis capabilities
- Enhanced simulation speed

**Some money should come to design technology !**