

WP01

# Software Architecture

**Design of Software Architectures**

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# Software Architecture

## What is it about?

- various components and relations among them
- architecture patterns
- data flow management
- use cases
- requirements
- business logic
- non-functional reqs

## Why do you need it?

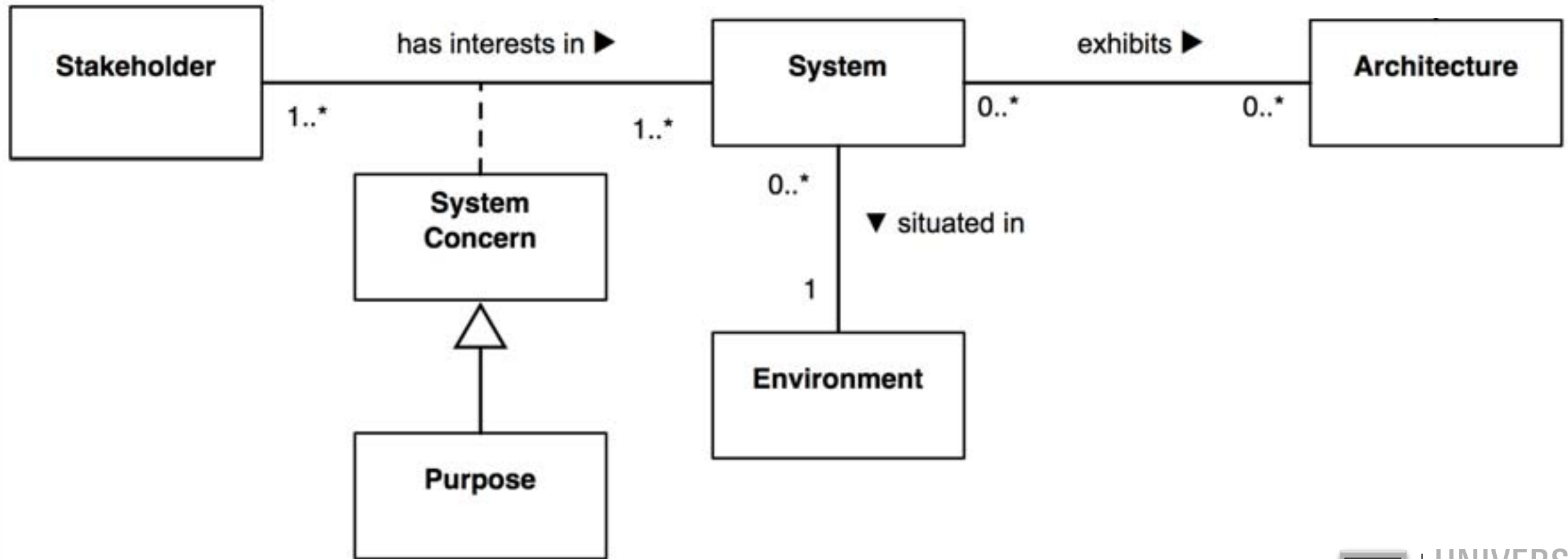
- to ease the development
- maintainability, ensure it
- to connect CEOs to devs
- communication is easier
- ensure robustness
- cost evaluation
- risk evaluation
- to solve a real life problem correctly

# ISO/IEC/IEEE 42010

- *Conceptualisation* of a system's architecture, as expressed in an *architecture description*, assists the *understanding* of the system's *essence* and key *properties* pertaining to its *behaviour*, *composition* and *evolution*, which in turn affect *concerns* such as the *feasibility*, *utility* and *maintainability* of the system.



# ISO/IEC/IEEE 42010

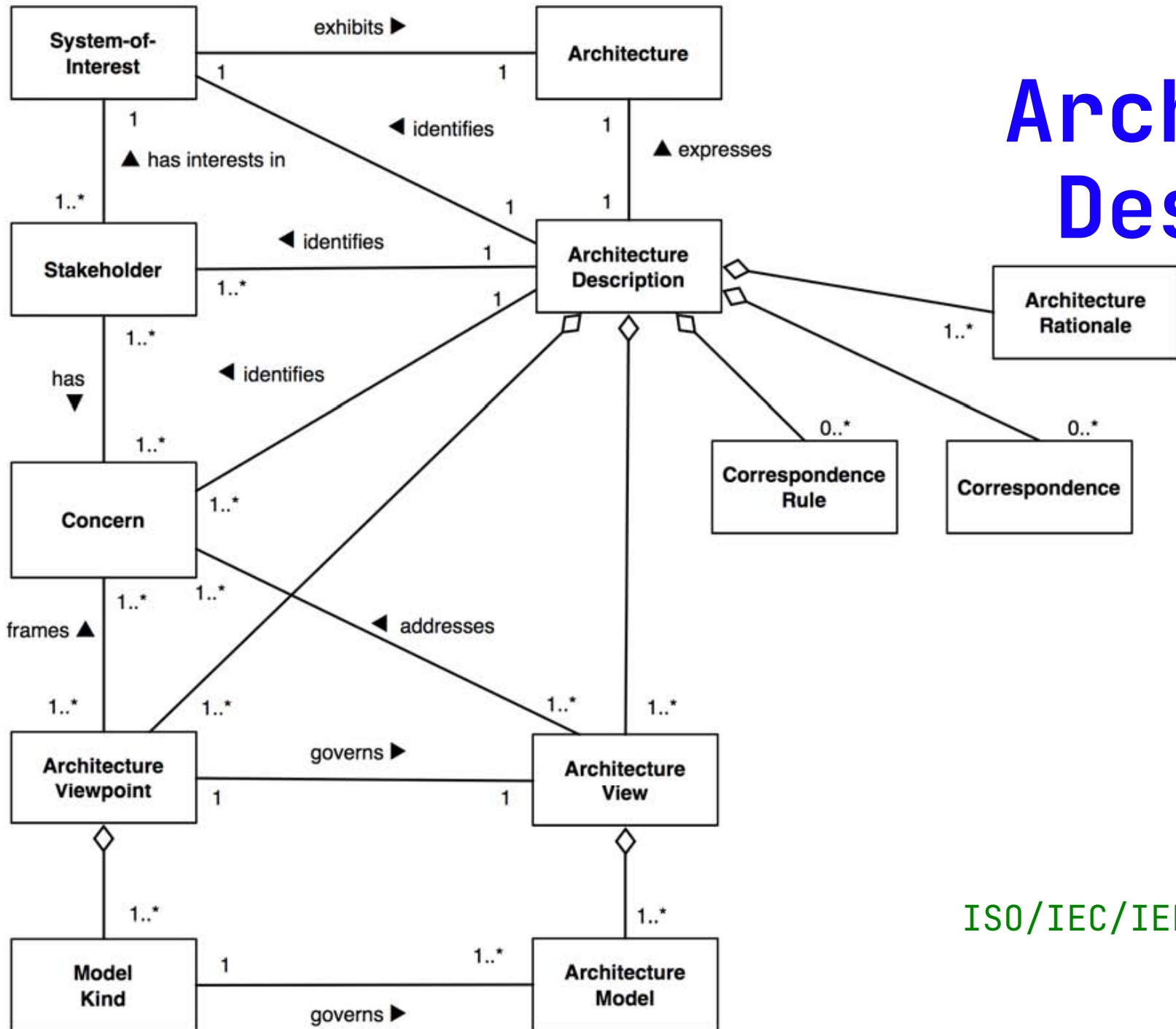


# What is Important in Software in Autonomous Cars?

- reliability (car not crashing, not killing other people, reaching the destination)
- navigation
- what the hardware can do
- the braking system
- control over acceleration
- weather systems
- latency & performance
- recoverability after crashing
- security / hackability
- sitting in the car and talking, ease of use
- error protection
- avoiding liability
- redundancy
- should be maintainable
- (in)compatibility across vendors
- indefinite support



# Architecture Description



ISO/IEC/IEEE 42010:2011(E), §4.2.2

# ISO/IEC/IEEE 42010

- Read the standard
  - know your way around
- [req] UML class diagram knowledge
- Be able to explain §3–5 concepts
  - stakeholder
  - viewpoint
- Ask questions if needed
- Read your case, record questions

