"Towards an architecture-centric approach for goal-driven requirements elicitation"

Software system development typically starts from a requirement specification followed by stepwise refinement of available requirements while translating them into the system architecture. However, the granularity and the amount of requirements to be elicited for a successful architectural design are not yet well understood.

I propose a process concept for system development with the help of an architecture-centric approach. This approach shall support goal-driven requirements elicitation and lead to (a) more effective requirements elicitation, (b) more precisely formulated requirements, and (c) traceability between requirements and architectural elements implementing them. Therefore, not only requirements can drive architectural design, but also architectural design can selectively drive requirement elicitation with the help of hypotheses connected to the selected architectural design elements (“architectural solutions”).

The approach shall support systematic reuse of architectural knowledge in form of patterns, styles, components and services, based on relevant requirements, and preventing ad-hoc architectural decisions. Patterns and styles, in turn, enable focus on multiple quality dimensions, such as performance, scalability and reliability, that are important for the systematic trade-off decisions.