Decision Architect - A Decision Documentation Tool for Industry

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Motivation

- Architecture **decisions are the most important choices** an architect has to make.
- Benefits of explicit decision documentation: avoiding knowledge vaporization, supporting change impact estimation, increasing system understanding, improving knowledge sharing, and facilitating architecture evaluation.
- Architecture **decisions are often not documented** because **existing tools often do not meet the expectations** and needs of the industry.
- We developed a decision documentation tool that **aims to ensure industrial applicability.**

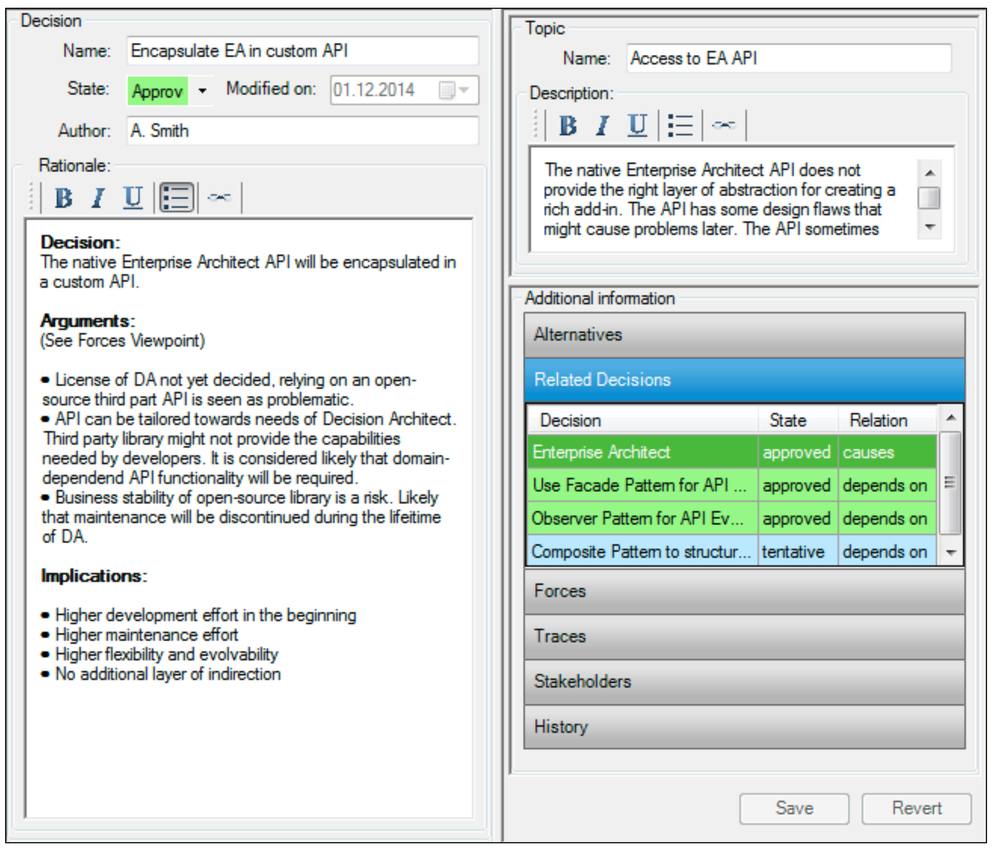

Fig 1. The Decision Detail View provides a holistic overview of one particular decision.

Approach towards Industrial Applicability

- Compatible with existing architecture specification approaches (ISO/IEC/IEE 42010).
- Based on an empirically validated conceptual decision documentation framework [2,3].
- Developed in close collaboration with experienced software architects.
- Integration into existing tool-chains and software development process.

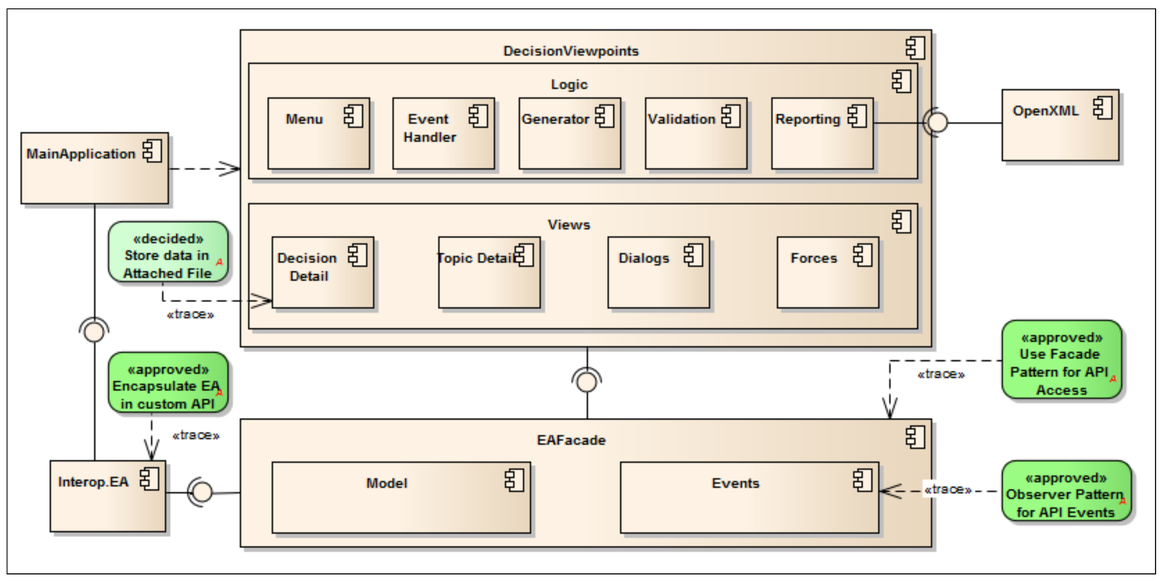

Fig 2. Enrich Architectural Views by tracing decisions to model elements, making rationale immediately visible.

Decision Architect

- Developed as **extension for Enterprise Architect,** a widely-accepted UML modeling platform (Fig 3).
- **Five decision viewpoints**, each framing different concerns with respect to decision documentation.
- The five viewpoints are *decision relationship viewpoint* (Fig 3), *dec. detail viewpoint (Fig 1)*, dec. *chronology viewpoint*, *stakeholder involvement viewpoint*, and *dec. forces viewpoint*.
- **Enrich documentation by linking decisions** to other model elements (Fig 2).
- **Export decision reports** in Word, PowerPoint and Excel, for example, for architecture reviews or stakeholder meetings.
- Publicly available under an open source license at http://decisions.codeplex.com for free

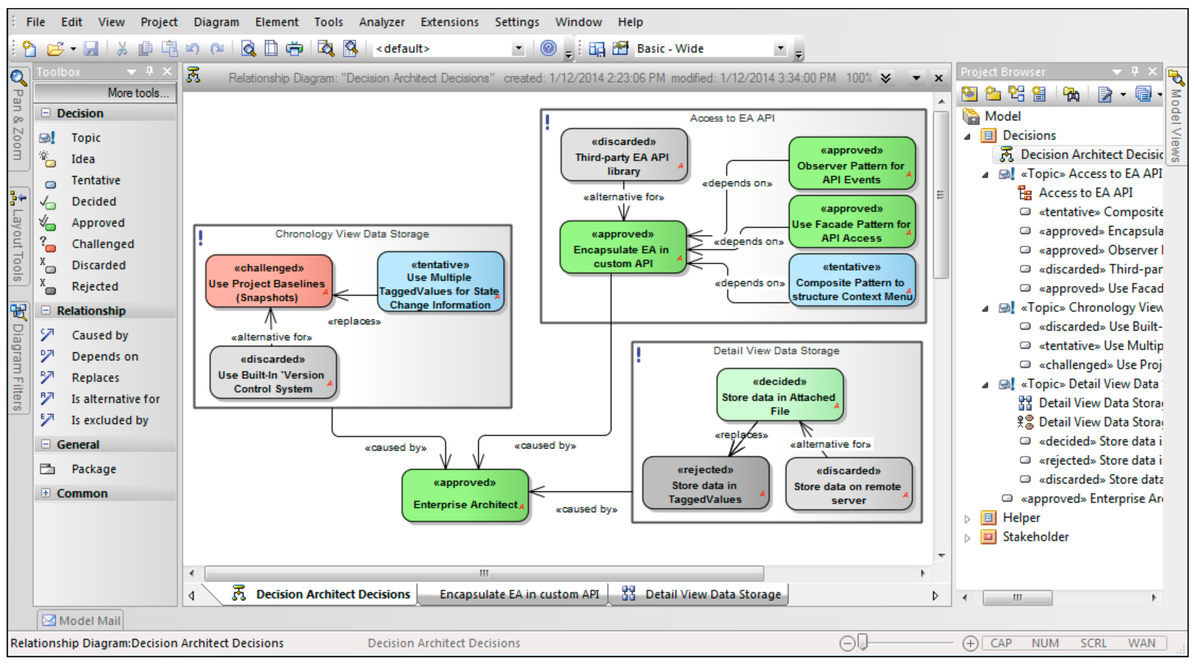

Fig 3. Decision Relationship View embedded in Enterprise Architect.

Is Decision Architect applicable for decision documentation in industrial projects ?

- ➡ Decision Architect has been **evaluated in multiple industrial projects** and is **actively being used** within ABB.
- ➡ Decision Architect is **perceived as useful**.
- ➡ The features have a **high relevance** for the software architects.
- ➡ The tools **improves quality** of decision documentation and **increases productivity** of architects.

References

[1] Manteuffel, C., Tofan, D., Koziolek, H., Goldschmidt, T., & Avgeriou, P. (2014). Industrial Implementation of a Documentation Framework for Architectural Decisions. at Software Architecture (WICSA), 2014 Working IEEE/IFIP Conference on.

[2] U. van Heesch, P. Avgeriou, and R. Hilliard, "A documentation framework for architecture decisions," Journal of Systems and Software, vol. 85, no. 4, 2012.

[3] van Heesch, U., Avgeriou, P., & Hilliard, R. (2012). Forces on Architecture Decisions - A Viewpoint. at Software Architecture (WICSA) and European Conference on Software Architecture (ECSA), 2012 Joint Working IEEE/IFIP Conference on.

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Decision Architect for Enterprise Architect