

1 Motivation

Engineers have to act creatively, think critically and draw on their own logic and experience to make decisions which brilliantly solve difficult problems. Especially when they deal with complex systems with dynamically interacting elements.



However, as many specialist senior and experienced engineers are retiring - their design knowledge can be lost, and as teams become globally based, capturing & coordinating design activity challenges develop. This is why it's important to support the management of information.



2 Focus

To support engineers when they are making decisions we need to understand how they manage and use information, as well as the challenges they face. Once we understand their processes and needs, we can better develop support tools which help engineers.

Capture Save Store Access Use

3 Tools

Understanding what is going on when engineers work is difficult. Especially when there are so many different forms of information transfer. This means that a range of complementary methods need to be used to find out what's going on.



Surveys

Asking questions can test theories about present information use and can help check hypotheses



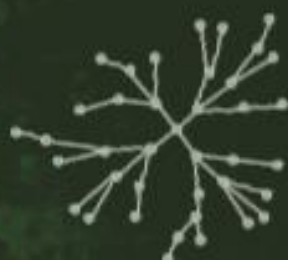
Text Mining

Statistical analysis of the language in documentation can tell us about how engineers share information



Interviews

Talking to engineers helps develop understanding about different perspectives and their behaviours



Designers need to include all kinds of resources and media (like emails, or computer designs) to communicate, explain and justify their actions & decisions.

This information creates stories about how a product was designed. When so many specialists are working together relying upon one another's work - the complexity can mean that these stories are difficult to create and especially hard to re-use.



Findings

4

Engineers need to be able to use these stories, but they are difficult to create, so engineers can spend a lot of time searching poorly structured information. Information management is not a passive activity, especially when change is happening so frequently.

5 Impact

If systems can be put in place which can passively structure the information being produced during the design process - in real time - then that information can be evaluated, automatically structured and re-used.



By studying the data captured through this system we can understand more about the design process and how engineers work.

Patterns and relationships in the data can also be discovered, meaning that systems can learn how to collect and share information based on analysis of previous data, which helps support engineers.