# How can we support engineering processes by marking-up emails

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**Abstract.** The authors have identified the inclusion of engineering specific contextual information as a means to improve the usability and re-usability of emails. A proposed system to introduce such contextual information is presented with the aim to gain the insights of the CSCW community into aspects of managing the adoption of new collaborative systems and in selecting or developing the systems to support this contextual information.

## Background

The authors have identified the inclusion of engineering specific contextual information as a means to improve the usability and re-usability of emails. A proposed system to introduce such contextual information is presented with the aim to gain the insights of the CSCW community into aspects of managing the adoption of new collaborative systems and in selecting or developing the systems to support this contextual information.

This research is carried out from the perspective of engineers' reuse of information in the context of projects involving multiple organisations collaborating over $\approx 30$ year product life-cycles. The primary focus is one of improving the quality of records of engineering work but the research is carried out with the understanding that there is a need to provide immediate or short term value to produce an acceptable value proposition for the email authors.

# Proposal

The proposal is to develop a lightweight and flexible engineering vocabulary that describes and provides explicit information about, common engineering activities. A model for the production of vocabularies to support the specifics and work flows of particular organisations would also be developed. The vocabulary developed would focus on supporting the activities carried out by email (and other informal electronic communication systems) that are not currently supported by discrete tools.

An author would structure their email using predefined common elements, either whilst writing or through a process of retrospective classification. The elements would be applied to information on the scale of Information Fragments. Darlington et al. (2008) define an Information Fragment as a meaningful sub-part of an information item without "contextualising information nor conventional form" but is "meaningful by virtue of the information it contains". The addition of elements to information fragments would associate particular concepts or explicit information representations with those fragments. They would also allow for the addition of concept specific meta-data. This approach is simply one of marking-up the information using a particular coding scheme, using an approach conceptually similar and in implementation, to HTML.

The use of elements would act to provide both a guide for the author in writing an email and allow for richer machine interpretation of the content. The approach would aim strike a balance maintaining the freedom of the author to create an email as circumstances and personal preferences require, whilst enforcing a minimum level of structure and consistency in emails across a group or company.

The creation of a set of domain specific vocabularies will be the primary contribution of this research. The vocabularies will allow for information which will support use and reuse of engineering information in email and other free form electronic communications mechanisms. The resulting authoring system would act as a lightweight layer on top of current email clients and would be transparent to clients that do not support the additional information.

Hicks et al. (2008) identify the migration of informal information into more explicit representations is an established approach to information management. This proposal would provide an intermediate approach between free form and highly structured tools by allowing for flexible addition of information and the strictures of templates.

# Implementation

To add additional information around Information Fragments, it is proposed the system will use a combination of standalone XML data island and Microformats (Khare and Çelik, 2006) or RDFa (Adida et al., 2008). The latter of which would make use of standard vocabularies and new domain specific vocabularies.

# Challenges

In terms of the system as described one of principle challenges will be to balance the long term advantages in reuse, which come at the cost of some extra work on behalf of the author, with the more immediate advantages of the direct recipient. Cayzer (2004) speaks to the need to avoid producing cumbersome and overly rigid systems.

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