

Chapter L

Socio–Technical Communities: From Informal to Formal?

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ABSTRACT

The chapter describes an empirical study of a socio-technical community—as an extended part of an institution—with the aim of revealing its changing processes. One hypothesis is that structures of socio-technical communities evolve from being less defined and informal to being more formal structures supported by evolving social control mechanisms, regulations and rules. The focus is the new emerging forms of socio-technical relationships. It is argued that the more established a socio-technical system is on the societal level, the more regulations will be developed which are enforced first by surveillance and social sanctions, and finally by technical determination. This chapter illustrates how socio-technical networks evolve in this direction under certain conditions.

Things are not what they seem, and appearances are certainly not the whole of the story. This need to look behind appearances in careful, detailed and systematic ways is, of course, the common inspiration of all scientific and investigative work.

—Bob Anderson, 1997

INTRODUCTION

The socio-technical paradigm, introduced by the Tavistock Institute, London, describes “*the study of the relationships and interrelationships between the social and technical parts of any systems*” [Coakes

(2002), referring to Emery & Trist (1960)]. The approach of socio-technical systems (STS) keeps the relevant components together and attempts to improve their relationships. One object of their studies was the British Coal Mine as a new work system had to be integrated into this organisation.

Recently, new forms of socio-technical phenomena have emerged; for instance online communities, Internet-based networks and virtual worlds (e.g., Second Life). People are getting an increasing amount of information through the Internet e.g., e-mail, web-based discussion boards, instant messaging tools, Wikis and Blogs. Social networking applications like Facebook.com and Xing.com, or Social Tagging applications (e.g., del.icio.us) enable people to come into contact, to collaborate, share knowledge and build new relationships. These new forms of socio-technical structures differ from social systems in “how” people connect: their relationships and ways of communication are technically mediated. Technical and social elements are highly interwoven, and affect each other.

O'Reilly (2005) calls the evolving Internet-based relationships “Web 2.0”. This buzzword emphasises social software applications that are heavily reliant on human interactions and collaborations. To describe Web 2.0 and newer forms of its applications, it is appropriate to compare Web 1.0 and Web 2.0. For instance, personal websites are disappearing and Blogging is becoming a new favourite way of maintaining an online presence. Individual publishing is morphing into Social Tagging. Wikis are replacing pure content management systems. The role of the user is changing from reader to author, from consumer to producer (“prosumer”). To conclude, Web 1.0 is still ‘information download’ whereas Web 2.0 is evolving into communication about information.

Current investigations of Internet-based communication show how social structures in Web 2.0 have evolved. Forte and Bruckman (2005) as well as Wasko and Faraj (2005) investigated the motivation of people and why they contribute to Wikipedia. As a result, knowledge sharing takes places when people assume their reputation will grow through online participation. Roberts (2006) has also analysed the social presence in Web based systems. Online presence has a positive impact on a person's reputation. The more often a person is online, the higher the estimation in which she is held by the public.

Another illustration is the study of Viegas et al. (2007) about the Wikipedia community. They show an increase of coordinating activities from 2003 to 2007. In spite of the potential of chaos in Wikipedia, “*the Wikipedia community places a strong emphasis on group coordination, policy, and process*”. Viegas et al. (2004) also explore the behaviour of Wikipedians in conflict situation, how Wikipedians control specific terms in Wikipedia, how they feel responsible and how they discuss new entries. According to Viegas et al., the most activity in Wikipedia is not writing new articles but controlling the quality of written articles. Such controlling activities are first, cleaning new articles from false input, and acting as mediating between two or more authors (e.g., moderating discussions about spelling, or meaning). Third, some Wikipedians provide back-office functions, and finally, some of them take the role of ‘vandal hunters’ (i.e., when visitors enter funny rather than correct data).

Each of the studies reveals some social effects of Web 2.0 technologies. They illustrate that at least some Internet-based communities evolve from informal, trust based forms of organisation to more formal, defined structures that are socially enforced by the members.

In this paper, we will reveal further trends of evolving structures by describing the emergence of a socio-technical community and its evolution over time. In our long-term study from 2001-2007, we explored how a group—as part of a non-profit organisation—evolved into an online community. Instead of designing a socio-technical system from scratch we just offered the conditions in which such a system, network or infrastructure could develop. Thus, the central question is how these conditions became the foundation of a successful socio-technical community. The results indicate how a human network evolves from a trust based community with few formal rules to a community with more formal rules which are socially enforced by its members. It was the social mechanisms and not the software architecture that fostered the community's evolution. This chapter illustrates how a socio-technical community evolves in this direction under certain conditions.

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