Socio Technical Systems and Policy Activity: Some Evidence from the Piedmont Region

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ABSTRACT

Today’s advancements in Information Communication Technologies (ICTs), and notably the increased spreading of web 2.0 Internet based services and mobile computing, make an information-rich environment increasingly available where new types of Socio-Technical Systems (STS) can be established. Because of the ICT increasing pervasiveness, designing and developing Socio Technical Systems are raising an increasing interest also from a policy point of view. In fact, they play a crucial role in the improvement of the so-called soft-infrastructures, a main asset for delivering social innovation. Raising the performance of such an infrastructure turns out to be a major challenge to be addressed in order to meet the EU requirements for a smart growth. In this contribution, a concept of STS is suggested, and its ICT-enabled implications for policy activity are highlighted. To support the discussion reference is made to some findings in the Piedmont region, where since 2006 the Piedmont ICT Observatory (PICTO) has been monitoring the spreading of ICT among citizens, firms and local governmental bodies. The experience of a STS project recently implemented to accompany the regional road safety policy is also mentioned.

Keywords: Information Communication Technologies Diffusion (ICT Diffusion), Piedmont ICT Observatory (PICTO), Policy Innovation, Socio-Technical Systems, Soft Infrastructure

INTRODUCTION

In everyday life, Information and Communication Technologies (ICT) and Internet access are progressively transforming the ways people gather information about their surrounding environment and interact with it (Atkinson & McKay, 2007; Castells, 2009; Horrigan & Rainie, 2002; Dodge & Kitchin, 2004; Wellmann & Haythornthwaite, 2002; Wilson & Corey, 2000).

These technologies alter the distance limits prescribed by social practices, thus allowing for a higher degree of accessibility. They are also time-adjusting as the time used in an activity can be freed for alternative ones. Furthermore, they affect the ways people perceive their surrounding environment and mediate human communication (Fuch, 2005). Finally, these features have an impact on activities which can be more easily segmented in tasks and spread out across space and time (Couclelis, 2009), although their ultimate effects are not easily accountable.

In the late nineties, notwithstanding the difficulty to grasp the phenomena, the idea that a digital space might combine with the
existing geographic, social, and environmental spaces raised a lot of expectations (Graham & Marvin, 1996, 2001; Kwan, 2001; Fuchs, 2005; Townsend, 2001; Warf, 2001). The speculative bubble of the dot.com in the early 2000 abated much of the earlier enthusiasm. Lately, however, in spite of or because of the persistent, critical situations for most national and regional economies, the new generation of ICT, and notably mobile communications and web 2.0 Internet based services, are again stimulating an upsurge of interest as new facets of ICT potential are gaining momentum, i.e., ubiquity, information knowledge sharing, co-creation.

The recent emphasis on digital connectivity shows that the Internet is not operating at the expenses of the real face-to-face relationships. Rather, it is an additional means of communication that is being integrated in everyday life (Wellman et al., 2003), and likely to deliver new types of relationships and relation opportunities (Fuchs, 2005; Quitney Anderson & Rainie, 2010).

As the penetration of ICT creates an increasingly rich information environment, questions about the influences of the interaction of technical and social networks also arise: how does it, by giving access to a globalized and information leaden society, encroach on existing organizations and how does it enable the establishment of novel types of systemic entities, herein called Socio Technical Systems (STS).

Although the notion is already well established in the literature (Berra & Occelli, 2009), the current features of STS, and namely those associated with the knowledge flux associated with the networks of interacting ICT enabled agents, raise a renewed interest to sharpen its underpinnings and investigate its functioning.

This article is a contribution to such an endeavor. First, in the next section, a conceptual framework is suggested which highlights the components and organizing mechanisms of STS.

Then, having this framework as a background, reference is made to some findings in the Piedmont region, where since 2005 the Piedmont ICT Observatory (PICTO) has been monitoring the spreading of ICT among citizens, firms and local governments. Discussion provides some evidence that STS are not just intellectual constructs, useful for a better understanding of current organizational changes, but have also an impact in supporting those changes. Within this context, reference is made to the regional project for collecting crash data and accompanying the road safety policy, which represents an example of STS implementation.

In the final section an argument is made that, in the near future, applications of the concept of STS in policy practices will multiply and STS representations will be progressively refined. In this regard, some topics for the future are mentioned.

SOCIO-TECHNICAL SYSTEM: AN OLD CONCEPT FOR A NEW KIND OF SYSTEMS

The concept of Socio Technical System (STS) is a longstanding one, loosely applied to describe any kind of organization that is composed of people and technology.

Originally introduced in the fifties, it has been progressively refined since then as computing and human requirements evolved (Eason, 2008; Trist, 1981; Withworth, 2009). Notwithstanding, the term has been used with varied nuances in the literature (Ackerman & Project Oxygen Laboratory, 2001; Berra, 2007; Castells, 2004; Gallino, 2007; Meyer, 2006; Withworth & Withworth, 2010), underlying the existing STS notions are two main principles: (1) The fact that the interaction of social and technical networks creates the conditions for successful (or unsuccessful) system organizational performance. This interaction can result partly from linear cause-effect relationships (such as those informed by design) and partly from non-linear, even unpredictable relationships. Whether designed or not, both types of interaction occur when socio and technical networks are made to work together; and (2) The fact that, addressing each network alone (socio or technical) tends to amplify those net-
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