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Interpreting information security culture: An organizational transformation case study

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ABSTRACT

When two companies merge, technical infrastructures change, formal security policies get rewritten, and normative structures clash. The resultant changes typically disrupt the prevalent security culture, thus making the new organization highly vulnerable. Literature in this area has been rather scant, and there is a lack of empirical studies. In this paper, we use Hall's (1959) theory of cultural message streams to evaluate disruptions in security culture following a merger. We carry out an extensive case study of a telecom firm. Data were collected whilst the merger was taking place, which allowed us to evaluate the changing structures in real time. Findings from our analysis will be beneficial for researchers and practitioners alike. For researchers, it provides an opportunity to theorize about security culture formulation during a merger. At a practical level, decision makers will find this analysis useful for engaging in strategic security planning.

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1. Introduction

When two companies merge, there are significant challenges in terms of integrating their technical infrastructure, policies and procedures, and also the normative aspects related to how work gets done. Such changes also have a consequent effect on the security and integrity of the enterprise. Previous research shows (see Dhillon, 1997; Segev et al., 1998) that structural and business process-related changes do indeed make an organizational vulnerable. Research has also shown that building and sustaining a good security culture is extremely important in times of radical change. In this paper we use Hall's theory of cultural messages (Hall, 1959) to evaluate information security consequences of an organizational transformation. The paper also interprets disruptions in the security culture.

In a final synthesis, the paper proposes security culture principles for managing information security and for maintaining a sound security culture.

2. Literature and theory

In the existing literature, security culture is deemed to be important for the protection of organizations' information assets. Various definitions of security culture have been proposed. For example, Dhillon (1997) defines it as the behaviour, values, and assumptions, which ensure information security. Helokunnas and Kuusisto (2003) define security culture as being a system in which attitude, motivation, knowledge, and mental models about information security all interact together. With respect

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to organizations' information assets, researchers have expressed the need for a coherent security culture which focuses beyond technical and formal controls (Dhillon, 1997; Ruighaver et al., 2007; Von Solms, 2000; Vroom and Von Solms, 2004). As evident in the recent literature review by Ramachandran et al. (2013), very few studies exist which focus on security culture. Moreover, cultural conflict in information security has not been studied very well.

Buono et al. (1985) argue that organizational culture has both objective and subjective dimensions. Whilst objective culture pertains to artefacts and processes, subjective culture refers to shared patterns of beliefs and assumptions held by members of an organization. In this context, the existing studies, which propose security artefacts, analyze the security culture objectively. However, organization merger forces divergent cultures to be just one, which essentially creates possibilities for cultures to collide at both subjective and objective levels. The cultural distance in pre or post-merger organizations may not resonate with the beliefs and behaviour of employees who are accustomed to different cultures. This divergence can potentially disrupt the working of new organizations, and can lead to the failure of various strategic initiatives (see Buono et al., 1985; Rao and Ramachandran, 2011). Subjective assessment is thus very helpful in analyzing cultural differences and similarities. As Buono et al. (1985) note, "Although both aspects of culture are important for a full understanding of a particular organization, subjective organizational culture can provide a more distinctive basis for the characterization and interpretation of similarities and differences amongst people in different groups" (p. 481). Subjective culture is often also referred to as "managerial style." Along similar lines, Leach (1976) and Pettigrew (1979) argue that leadership styles, policies, and strategies, are in fact all a reflection of an organization's indigenous culture.

Building on the subjective dimension of organizational culture, we use Hall (1959) taxonomy of behavioural patterns to interpret the attitude or behaviour of employees towards information security. Hall classified culture into streams that interact with each other to exhibit patterns of behaviour – silent messages. These streams form the primary message systems. Hall identifies ten different cultural streams, which all inter-act with each other to produce numerous cultural settings. The framework helps to interpret the cultural consequences of an information security which are likely to be problematic. A brief description of Hall's ten cultural streams is presented below:

1. Interaction is at the hub of the "universe of culture", and everything grows from it. It is the mechanism used for communication, such as symbols, signs, language, processes, and procedures.
2. Association is the formal structure that defines relationships amongst people and their expected roles. Hall uses the analogy of bodies of complex organisms as being societies of cells. Association begins when two cells join.
3. Subsistence refers to the processes and attitudes towards the basic physical needs of life, such as food, life, and work.
4. Bisexuality (gender) refers to the perceptions about gender and the relationships permitted between them.
5. Territoriality refers to *division of space*, which is a convention for defining space amongst people for various purposes, and the rights to carry out activities in that space.
6. Temporality refers to *division of time*, which is a convention for defining the division of time in order to perform certain activities.
7. Learning is a basic activity of life, which is a convention for learning and teaching behaviour.
8. Recreation and humor are the aspects which are regarded as culturally playful and amusing.
9. Defence refers to the strategies and mechanisms used for defending members of an organization.
10. Exploitation refers to the knowledge of using tools, techniques, materials, and skills for being competitive.

3. Case description and analysis

In this study we adopt an interpretive case study research approach (Walsham, 1993). A case based research design is desirable when the intent is descriptive and the focus is on theory building or theory testing. Data were collected primarily through semi-structured interviews and informal conversations. The participants were employees at different management levels in the two merging companies. Participation in the interview was voluntary, and each interview lasted about 60 minutes.¹ The majority of the data collection occurred over an 8-month period during which the merger was in progress.

3.1. The setting

Two European companies, namely AirTelco and Relicom, which belong to the telecommunication sector initiated the merger of their operations in 2010–2011. Both AirTelco and Relicom belong to a business group which is prominent in Europe and which has a diversified business portfolio. The group activity covers all segments of the telecommunications sector, ranging from fixed telephones, mobile telephones, multimedia, data, and business solutions. Relicom was the industry leader in landline phones at the time. The company offered its customers a wide range of services and solutions which covered more than just the normal fixed network services, such as data communications, broadcasting, video conferencing, and broadband solutions. AirTelco was the market leader of the mobile segment, whose main goal was technological innovation and customer orientation. As a result, AirTelco was pioneering in its offering of innovative products and services. In terms of customer orientation, AirTelco maintained an ongoing diversification of solutions, which were tailored to the individual needs of customers.

The consolidation of these companies was accomplished through the development of new products in rapidly growing areas, such as mobile, voice, and data, for example. Addition-

¹ Space limitations forbid us from discussing the methodological details. We were, however, purists in terms of using Walsham's interpretive case study research design.

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