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CULTURE OF INFORMING: A CASE OF CONSULTING COMPANY

BOB TRAVICA¹

ABSTRACT: *This study examines culture of informing (infoculture, for short) by investigating a case of a consulting company. The company's infoculture is described in conjunction with its organizational culture by using a new interpretive method. The study advances theorizing on infoculture and research methodology.*

Key words: *information culture, organizational culture; consulting company*

JEL Classification: M14

1 INTRODUCTION

The relationship between information systems (IS) or information technologies (IT) and organization viewed as culture increasingly attracts attention of IS researchers (e.g., Kaarst-Brown & Robey, 1999; Kappos & Rivard, 2008; Leidner & Kayworth, 2008; Orlikowski, 1994, 1996; Straub et al., 2002; Travica, 1998). A cultural approach rooted more directly in the IS perspective is an emerging venue. This approach is named in different ways, such as “information culture” (Davenport and Prusak’s, 1997) and “IT user culture” (Walsh et al., 2010), common to this approach is focusing the cultural approach onto certain cultural aspects that authors find more relevant for understanding issues surrounding management and use of IS. The goal of the study presented in this article is to advance theorizing and methodology within this emerging venue. Deployed is an “infoculture” approach (short of “culture of informing” or “informing culture”), which was introduced by Travica (2003, 2005) with the intention of integrating IS theory and organization theory.¹

In infoculture research thus far, several methods have been tried out. One method involves determining a kind of organizational culture and using it as a frame for interpretation of infocultural dimensions (Travica, 2005a, 2008). Another is the W+H method that applies the who, what, when/why, and how questions to explore cultural beliefs and behaviors surrounding the user identity and purpose, management/use, and change of organizational data, knowledge and IT/IS (Travica, 2010). This method was used with no connection to specific aspects of organizational culture. The study presented in this article is aiming at combining the method of organizational culture framing with the W+H method (slightly modified). The intention is to examine how an infoculture interpreted through the W+H lenses relates with organizational culture and helps in understanding

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an organization. A conceptual and methodological advancement in infoculture research has motivated the study.

The following discussion will address the theoretical framework and methodology, introduce the case organization, analyze aspects of its organizational culture and infoculture, and draw conclusions.

2 THE CONCEPTUAL AND METHODOLOGICAL BACKGROUND

2.1 Infoculture Concept

Central to this discussion is a concept of *culture of informing* (*informing culture*, *infoculture*). Drawing on the information systems and organization/management literatures discussed further below and the author's previous work (Travica 2003, 2005), the following expanded definition of infoculture will be used in the discussion: Infoculture refers to stable *beliefs* (deep-set assumptions, values, and norms), *behaviors* (work practices and self-maintenance rituals), and *artifacts* (intellectual and material), which are related to organizational *informing agents* and shared among organization members.

The term “informing agents” refers to knowledge, data, meaning (information), information technologies (IT; electronic and pre-electronic), and information systems (IS). The term is supposed to convey the idea that the referred entities inform organization at various levels—cognitive, action, and institutional.¹ (Other properties of informing agents are more discussed in the next section.) Another assumption behind the definition above is that infoculture is a part of organizational culture. Mutual influents between the two are implied. It is also assumed that IT and IS relate as part and whole, as posited in the discipline of IS analysis (e.g., in a supply chain system, an instance of IT is application software for determining optimal delivery).

Relationships between knowledge, data, and meaning (information) are depicted in the informing model in Figure 1. The model suggest that knowledge in human mind is agency that interprets data (human-created symbols, such as letters, numbers, pictures, sounds) to create meaning. In contrast to frequent conceptualizations, this semiotic approach presumes that data have no meaning on their own, and that information results from an informing process in which knowledge and data interact. Therefore, information is internal to cognition as is knowledge, while data are usually external. For example, to be meaningful (become information), the term “balance sheet” requires knowledge of Latin alphabet, English language, and of balance sheet. Without these knowledge segments, “balance sheet” is merely a piece of data organized in a two word phrase. Same goes for the content of balance sheet: numerical figures remain data unless they are brought into relation with the applicable knowledge of finance.

While differing from common conceptualizations of information² and meaning as external entities vaguely differentiated from data (Travica, 2011), the informing process

depicted in Figure 1 explains cognitive informing in general as well as cultural informing in particular. For example, invoking standard professional knowledge of a financial figure in order to understand some financial data is an instance of general (or professional) informing. In contrast, invoking insiders' knowledge of a financial figure (with particular nuances, "ifs" and the like), which is assumed by members of an organization, is cultural informing. The same data interpreted by different parts of knowledge result in different meanings (different information). The model can, therefore, explain (a) why incumbents of a culture arrive to shared meanings, and (b) the reasons for cross-cultural variation in the meaning/information. (Note that an association between meaning/information and knowledge can be drawn to explain knowledge change, but this extension is not relevant for the current discussion.)

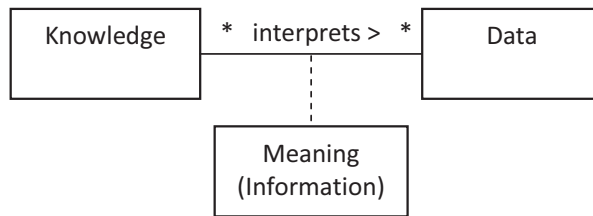


Figure 1. *Process of Cognitive Informing*

(Note: the model uses a UML class diagram notation, where a star means "many instances")

2.2 Soft and Hard Aspects of Infoculture

The concept of infoculture includes both soft (immaterial, cognitive) and hard (material) segments, and assigns them equal importance. The soft segment refers primarily to beliefs (as stated in the infoculture definition above). For example, a *data management assumption* could be that details of business operations should be recorded formally, accurately and promptly. This assumption translates into corresponding *values* that are communicated through training of new employees and reinforced via management supervision. One such value could instruct that employees should deploy standard means of recording transactions. A corresponding *norm* may define the standard means (say, paper forms, or a computer-based database system, along with procedures applicable to either of these). Another part of the soft infoculture refers to intellectual artifacts, such as stories and language.

The hard segment of infoculture refers to *informing behaviors* and *material artifacts*. Examples of *informing behaviors* are data management (collection, storing, organizing, updating, etc.), data interpretation resulting in meaning, communication practices, and knowledge activities (learning, sharing, codifying, thinking processes as in problem solving, etc.). The behavioral approach has support in study of organizational culture (Handy, 1993; Jaques, 1952), although the mainstream thinking gives primacy to the beliefs segment (e.g., Deal & Kennedy, 1982, 1999; Hatch, 1997; Hofstede, 1980; Schein, 1992).

Material dimensions refer primarily to capabilities, limitations and other aspects of IS or IT that interact with accustomed work practices. It is not the sheer material appearance of IS artifacts that is of interest here. Rather, the focus is on enacted material features that channel work behaviors. In a case of higher automation, this channeling is actually the work behavior (task, process) in its own right. Instances of other material dimensions beyond IS are all the artifacts affecting data or knowledge management, such as the organization of office desks, office layout, and characteristics of corporate libraries and training facilities.

To understand material dimensions of culture, one may look at study of macro-societal culture in the disciplines of anthropology and ethnology. For example, particular production practices (behaviors) characterize different cultures. Tools for production (technology) are also considered a differentiating criterion.³ By analogy, organizational cultures differ in both production practices and pertinent technologies. From the perspective of infoculture, therefore, *material dimensions* of IS (capabilities, limitations and other salient characteristics) can be viewed as a criterion for differentiating between organizations.⁴

The behavioral and technological primacy of the material infoculture is particularly salient in periods of change. When new IS and pertinent work practices are introduced, these may be incongruent with old beliefs. Still, with management continual reinforcement, the new material infoculture can modify old beliefs. For example, a new balanced scorecard (BSC) IS may initially impinge on an accustomed way of assessing organizational performance. Functions of the BSC system can more or less gradually penetrate performance tracking and promote BSC principles into infocultural assumptions. And particular dimensions of a BSC system can make a difference between infocultures. For example, a BSC system can be designed as an executive dashboard or as an open access dashboard rested on an intranet (the case presented in this article) – with very different infocultural implications.

2.3 Theoretical Grounding of Infoculture

The concept of infoculture has grounding in previous research. For example, Davenport and Prusak (1997) used the term “information culture” to refer to “a pattern of behaviors and attitudes that express an organization’s orientation toward information” (p. 84). They cited a preference for facts or rumors as an example of the cultural attitudes, and preferences for types of communication channel as an example of cultural behaviors. The authors distinguished between information culture pertaining to the group and organizational level and “information behavior” at the individual level, such as “searching for and using information” (pp. 84, 87). The concept of infoculture deployed in this article accepts Davenport and Prusak’s (1997) notion of behavioral content of “information culture,” while expanding the concept to incorporate IT/IS aspects.

Bressand and Distler (1995) used the term “infoculture” to refer to social network members’ “shared objectives and mutual expectations, rules that govern changes of rules,

and background knowledge taken for granted and enacted daily.” Infoculture is expressed via narratives, war stories and social relations, and its role is to set constraints to knowledge and information, and thereby to set the basis for learning, sense making, and shared understanding of specific situations (cited in Ciborra and Patriotta, 1996, p. 122). The concept of infoculture endorses the elements of the authors “infoculture,” while expanding beyond the social network milieu to the level of organizational unit and organization. Inclusion of knowledge in cultural approaches has been endorsed by other researchers as well. Van Maanen and Barley (1985) defined culture by knowledge that is shared in a group and that informs activities of the members. Boisot (1987) classified organization designs into bureaucracy, clan, fiefdom, and market, based on knowledge codification and diffusion. As stated above, knowledge is accounted for in the concept of infoculture.

Another stream of conceptualizations of IS-related culture concentrates more on IT (at least colloquially, as some authors neither differentiate explicitly between IT and IS nor declare if “data” is implied in the concept of IT or IS). In discussing “IS cultures,” Leidner (2010) proposed that information and communication technology (ICT) could inadvertently or intentionally influence organizational culture. The infoculture approach shares this premise. Furthermore, Leidner and Kayworth (2006) proposed a model of relationships between group values, values embedded in a specific IT, and IT-related values. The last concept is akin to IT culture, the first to organizational culture, and the second concept indicates the influence of organizational culture on IT (e.g., a mission of an IS and its limitations). The infoculture approach would characterize the last two items as infocultural in character.

Some of the IT/IS-focused approaches have delivered taxonomies. For example, Walsh and colleagues (2010) proposed nine-item taxonomy of IT user cultural profiles based on users’ IT-related needs, motivation and self-determination. Kaarst-Brown and Robey (1999) proposed five-item taxonomy of IT culture based on organizational members’ perceptions of their relationship with IT. These taxonomies parallel in part the W+H inquiry, especially in answering the question, who are we in relation to informing agents?

Previous research on infoculture delivered the cases that inform about a variety of infoculture aspects. Some of these are a custom of critically viewing new IS, a belief that the speed of IS development surpasses managers-user’s capabilities of coping with it, dualism of paper and electronic technology, aversion toward computer, valuing computer as an enabler of organizational change, digital divide between the blue collar and office workers, and divisions in infoculture (e.g., clan insiders vs. outsiders, system developers vs. business users, and voluntary vs. mandatory users) (Travica, 2005a, 2008, 2010).

2.4 Taxonomies of Organizational Culture

Another part of the literature relevant for the present study is about taxonomies of organizational culture. This literature centers on the issue of essential organizational

phenomenon that determines the character of organizational culture. Only the cultural models focused on team project are discussed. This literature (a) guides in understanding of organizational culture of team-based organizations, and (b) can contribute to study of team-centered infoculture. In particular, Handy's (1993) *matrix* type of organizational culture provides relevant ideas in the part pertaining to teams. Handy built on Galbraith's (1973) matrix organization, which portrayed teams as key carriers of production centered around projects, which are marked by uncertainty reigns and a struggle for making sense in the midst of the flow of events. Project teams are a response to variability in production processes, which cannot be covered by predefined rules. An implication of this conceptualization for infoculture is that methods of managing documentation and of using IT/IS are supposed to take the form of project objectives. Trompenaars and Hampden-Turner's (1998) proposed a similar kind of organizational culture calling it *guided missile*. They defined some cognitive characteristics directly applicable to infoculture, such as thinking that is problem-centered, professional, practical and cross disciplinary, and constructive and task-related criticism.

Knowledge is important in organizations deploying teams in innovative projects. Reflecting on Japanese manufacturing companies, Nonaka and Takeuchi (1995) discussed teams as part of their concept of *hypertext organization*. This organization depends on knowledge creation that happens through interaction between development teams, organizational knowledge base, and management. Prompted by management, teams generate new knowledge, which gets represented in the corporate knowledge base when team members return to their old work positions. Knowledge creation involves sharing of tacit knowledge through teamwork. Moreover, in a study of the American public accounting industry, Travica (1999) found that teams carried out the core production and enjoyed broad autonomy in planning, organizing daily work, and managing budget. Although practices of using IT for work-related communication were well established, knowledge exchanges among team members and between them and outsiders transpired in a face-to-face mode rather than via communication systems.

2.5 Advancing Methodology for Study of Infoculture

The case research on infoculture has used grounded theory and some other interpretivist approaches (Travica, 2005a, 2008, 2010). The W+H method, which is of interest in this study, deploys these questions: What is the purpose of informing agents? Who are we in relation to informing agents? When/Why should informing agents change? How are or should be informing agents managed or used? These questions draw on the organizational culture literature and chart a conceptual space of infoculture in a particular manner. In addition, this sort of questioning has been proposed as methodologically valid in qualitative investigation of culture. Specifically, Patton (2002) suggested that investigation of culture is about understanding behavioral patterns and beliefs that constitute standards for deciding what is, what can be, how one feels about it, what to do about it, and how to go about doing it.

In the W+H-inquiry of infoculture, the who-question inquires about the identity organization members in relation to informing agents. This question draws on organizational culture beliefs regarding organizational identity. Schein (1992) conceived these in terms of the shared assumptions addressing the problems of external and internal adaptation. Extending this logic, the infocultural approach inquires about the identity of groups in an organization (occupational and others) in relation to informing agents. For example, investigation in a utilities company revealed that business users of IS resembled “a reluctant passenger” that was driven to destinations and with a speed imposed by technologists (Travica, 2010).

The what-question of infoculture inquires about the purpose of informing agents. The question is akin to the beliefs of organizational culture that have to do with purposes of an organization. These are usually manifested in core values, vision/mission statements, and stories (Morgan, 1986; Schein, 1992). However, the infocultural approach inquires about the purpose of informing agents rather than the purpose of an entire organization. For example, users in business departments of the utilities company believed that IS were an informational tool for getting answers to business questions promptly and with least effort (Travica, 2010).

The how-question focuses on the manner in which informing agents accomplish their purpose in terms of management and use. This question aims at informing behaviors and IS artifacts seen as the instrument to the purposeful end. The how-question introduces an infocultural slant to the standard cultural interest in the character of relationships among organization members or the stable behaviors characterizing an organization. These have been conceived as competitive vs. cooperative, individualistic vs. collectivistic, hierarchical vs. meritocratic, rewarding vs. punishing, over-powering vs. empowering, etc. (cf. Deal & Kennedy, 1982; Handy, 1993; Hofstede, 1980; Hofstede & Hofstede, 2005; Schein, 1992). The how-questions has both a descriptive (as-is) and normative (to-be) dimension.

Lastly, The when- or why-question draws on cultural beliefs regarding change in informing agents (progress vs. status quo) and related understanding of time (e.g., past-present-future focus, speed of time, and time unit) (Hofstede & Hofstede, 2005; Schein, 1992; Trompenaars & Hampden-Turner, 1998). The infocultural approach places the change of IS in the center of inquiry. For example, marketers in a telecommunications company believed that IS should have changed whenever it was beneficial for individual professionals (Travica, 2010). The corresponding behavior is that these professionals tended to abandon an IS even if this meant wasting the license investment.

3. STUDY METHODOLOGY

Goals of this study are: (1) to advance study of infoculture both methodologically and conceptually, and (2) to develop a case demonstrating the role of infoculture in a successful company. The methodological advance involves using the W+H infoculture lenses in

combination with organizational culture inquiry. These goals frame the research problem in terms of identifying by the means of W+H method the infoculture of a successful company. These research questions follow from the goals and the research problem:

- (1) What is the organizational culture of the case company?
- (2) What is the infoculture of the case company interpreted via the W+H method?

The study has used a case methodology (Yin, 2003) and a qualitative inquiry (Baskerville & Myers, 2004; Klein & Myers, 1999). Investigated was a consulting company code-named Integral Consulting (IC). Located in Canada, IC employed 76 members at the time of investigation. The sample studied numbered 15 employees.

Data collection methods included interviewing the IC members and analyzing the company's documentation. Interviewing ranged from semi-structured to structured format. The interviewees occupied various roles, and some of them were interviewed several times. Both the important interview data and initial inferences were validated for accuracy by the interviewees. Data collection spanned over three months in 2009.

In analyzing research data, the Ethnograph software for qualitative data analysis was used. The goals of coding were to identify values, beliefs and artifacts that indicated organizational culture and infoculture. An organizational culture code would be assigned to a statement or document content that indicated a stable belief (assumption, value, or norm) or a stable behavior (an accustomed work practice or routine, or a systematically performed activity aiming at reinforcing a cultural belief). An infocultural code would be assigned to a statement or document content that indicated a cultural belief or behavior that could be associated with using or managing data, knowledge, meaning, and a particular IS. In the final analysis, an infocultural code had to be associated with an organizational culture code in order to be considered a relevant finding. Lastly, infocultural codes were organized by using the W+H questions discussed above:

- (1) Who are we in relation to informing agents?
- (2) What is the purpose of informing agents?
- (3) How are/should be informing agents managed/used?
- (4) When/Why should informing agents change?

4. ORGANIZATION STUDIED

IC was established in 1989 in a western province of Canada. It has specialized in the areas of IS and management consulting. Most of the employees have the background in computer science and others in management. Bridging these two consulting markets is still rare among small companies in Canada as well as in the rest of North America. IC has earned public recognition for both its consulting services and quality of employee relations.

IC has been an employee-owned company, where the company stocks have been in possession of the employees who chose to purchase it. Outsiders have been barred from owning the shares.

The organizational structure of IC is flat. There is just one level of management populated by an executive team that oversees operations and another team overseeing sales. In internal communications, no hierarchy-related titles are used.

Production at IC is carried out by project teams that also reject traditional hierarchy placing the project manager on top. In recruiting new members, IC carefully scans the candidates for a cultural fit. The company has been allocating significant resources to sustain its extraordinary organizational design. As a number of interviews characterized it, IC has been a place where the members “can feel as if they are paid for having fun” although they do perform a demanding professional work. In recent years, IC has experienced growth in the number of employees and the volume of operations.

5. ORGANIZATIONAL CULTURE AND INFORMING CULTURE AT IC

5.1 Peer Teams

Teams and teamwork constitute the basic organizational principle at IC. The project team is the basic production unit as well as the context in which an IC member feels comfortable and able to express professional skills. A project team engages two to five members, selected on the basis of competencies that match needs of a particular project. Competencies cover the technical, critical thinking, and interpersonal areas. A combination of competencies underpins the basis for team member roles, such as application developer, project manager, technical architect, application architect, business analyst, and consultant. However, roles are flexible, and it is common to exchange ideas across roles.

IC teams are not hierarchical. For example, technical architect and application architect may have the same say in decision making as project manager, who in other firms usually has executive power. The interviewed IC members have commonly pointed out that an entire team usually makes all important decisions. These values and practices characterize the IC project team as the team of peers. The operations team (sitting at the only level of management IC has) names a new project team through a decision process that takes into account project requirements as well as the employee’s career goals, expertise, and wishes. Prospective members are rated and differences in ratings are reconciled in open discussion. The affected members can question the assignment.

Reflecting on their team experience, the interviewees have painted a picture of a collegial, supportive, and pleasant setting. The team members enjoy each other’s company and collaborating in a shared office. Interestingly, teamwork in a distributed mode is used just when it is absolutely necessary. It is considered less desirable because it separates teammates and pushes them into the individual mode of work. In contrast, col-

located work implies face-to-face communication and personal contact—work aspects that IC members prefer for the speed they bring into discussing the specialist issues and resolving hurdles in system development. Computer mediated communication complements face-to-face communication; the former is indispensable for documenting decisions reached in the software development process. One interviewee explained it as follows:

We've got a unit there and so the developers and the technical architect are all in one space, which is high bandwidth communication. When something comes up, you hear what's going on and you go: OK, I've got something to add to that... It is better to have face to face communication for sure, but we still use Communicator, our instant messaging tool, and email because you need to keep track of decisions made; you don't want to lose that.

These communication vales and practices belong to the domain of infoculture. This categorization is consistent with the concept of infoculture and the previous literature (Davenport and Prusak, 1997). Specifically, the communication modes answer the how-question of infoculture, explaining that teamwork is facilitated primarily through face to face communication. Analysis has revealed other infoculture categories correspond to the how-question of infoculture: storytelling, a print channel, and electronic publishing. Each is discussed below.

IC members nurture narratives that praise and teach teamwork. For example, one thought leader often tells stories about the aircraft crew operating of a gigantic, military cargo aircraft. A former air force operative himself, this thought leader compares an IC project to a flight of the aircraft. He explains that the crew is able to accomplish complicated missions in most precarious situations owing to self-discipline of every member, shared leadership, team-based problem solving, and frank performance evaluation. An IC project invites the same values if it is to be successfully executed.

Narratives praising teamwork are also communicated via cartoons published regularly in the company's newsletter. One story describes voluntary teaming of programmers who decided to work overtime in order to respond to a client's urgent request. Narratives about teams are also communicated via an electronic publication disseminated weekly via the company's intranet. One issue explains the cultural practice of assigning the limited office space to team members on the basis of task needs rather than hierarchy (cf. Handy, 1993). Sometimes the entire team has to work together and the space for all members is allocated. At other times, it is not unusual that a programmer gets an office, while a project manager can use just open cubicles available in the IC building. The rationale for such an allocation rests on project needs: the programmer needs a separate space when the project requires frequent and confidential telephone communication with a client.

Organizationally defined as team-player, the IC member is also characterized by technical expertise. Advanced technical skills make this professional technically savvy. From

the perspective of the who-question of infoculture, therefore, this professional is an authoritative IT expert and team player. The deployment of IT in company's IS is determined by his expertise in conjunction with the requirements of the company's business needs and culture.

The "hard" aspects of IC's team infoculture involve practices rested on capabilities of specialized IS. Project work involves a project management system (PMS) for managing project documentation (requests, diagrams, status reports, financial documents, and tasks' status). PMS is accessible via the company's intranet thus allowing for sharing of documents. In addition, PMS is a vehicle for software configuration management, without which team-driven development of software would end up in chaos. PMS was built by IC members and caters to the specifics of their system development process. It evolves with the professionals' needs.

Another team supportive behavior is a process of evaluating project work. It involves a simple IS that runs on the intranet (an electronic form, a form repository, and dataflow channels). The process is initiated by a project member's filling the online form with an assessment of work performance of everybody on the team. The evaluation is qualitative, and includes the areas of a possible improvement. These reports are later used for several purposes, including the calculation of end-of-year bonuses.

Overall, the IC organization matches the characteristics of the project focused and team-based organization (Galbraith, 1973; Handy, 1993; Nonaka and Takeuchi, 1995; Travica, 1999). Being non-hierarchical and collegial, this peer team culture resembles a cooperative and collectivistic cultural context, with a smaller power distance (Hofstede, 1980). The committed team player, the IC member is in infoculture parlance an authoritative IT expert playing in team fashion. In project work, this professional puts team assumptions ahead of individual motives. Where an outsider could see chaos due to ambiguously defined project roles, this team playing expert sees the opportunities for creative team achievement. IC's infoculture further facilitates teamwork via the channels for communicating team-praising narratives as well as dedicated IS for project work and evaluation.

Table 1. *Team-Focused Organizational and Informing Culture at IC*

Key Org. Culture Belief/Behavior	Related Org. Culture Belief/Behavior	Infoculture Belief, Behavior, Artifact
Peer Teams	Task-driven office assignment Collectivism, Cooperation, Small Power Distance	<i>Who:</i> Authoritative IT expert playing in team fashion <i>What:</i> Facilitating teamwork <i>How:</i> Face-to-face communication, Team-praising narratives and their channels, Project management and evaluation processes and systems

5.2 Trustfulness and Trustworthiness

Trust shared among IC employees ensures that employees' evaluations of performance are valid. Indeed, trust is part of the cultural core in this company. One of three founders of IC explained that many companies use various institutions of control in order to protect themselves from deviant behavior. Usually, however, just a tiny minority makes troubles. Is it really necessary to build and maintain elaborate structures for controlling a tiny minority of deviants, wondered the founder? His answer has always been negative and it is built into foundations of IC.

Instead of relying on hierarchy and rules, IC counts on peer pressure to keep deviant behaviors in check. The corollary is that trust is the basis of the social contract between the employee and the firm. In the time of unstable markets, shifting business allegiances and heightened self-awareness on both the employer and employee side, maintaining this trust bond resembles an atavism, which looks surprisingly novel.

Being at the core of organizational culture, trust permeates relationships between the employees. It materializes through other cultural dimensions (see Table 2). One is the aversion toward politicking. Backstabbing and turf-building behaviors are not desirable at IC. Criticizing others behind their back and ruthless self-aggrandizing are undesirable. Rather, an IC member is expected to show respect for others in all relationships. Following these values, IC members tend to be courteous and collegial in communication. Since the content and language of communication used belong to the domain of infoculture, this is an indication of how infoculture supports organizational culture. At IC, this content is self-controlled so that potentially offensive utterances are filtered out. What happens when the filtering fails?

An IC member who feels offended has a channel available for complaints. There is a process running on the company's intranet, which an employee can initiate any time and from any location. A complainer starts the process by filling a simple online form. A team of peers with a changing membership receives a complaint, sends an acknowledgment back to the complainer, and examines the problem. The team's job is finished when the conflict is resolved. This automated complaint process shows how IC's infoculture purports the culture of trust.

The culture of trust includes the assumption that all employees are trustworthy. This assumption has resulted in practices of democratic informing. IC members enjoy unrestricted access to all the documentation and records related to the company's operations and strategies. This behavioral aspect of infoculture is reinforced by appropriate IS, such as several internally-grown dashboards. (Both the unrestricted access and the systems will be discussed more in the section on open communication.)

In summary, trust assumptions and behaviors make a cultural pillar at IC. Related behaviors refer to avoiding politicking and demonstrating respect for others. IC's infoculture demonstrates its congruence by featuring a trustful and trustworthy member. He/

she is well-informed, competent communicator, intrinsically motivated to keep communications courteous. This IC member enjoys unrestricted access to the company's documentation.

Table 2. *Trust-Focused Organizational and Informing Culture at IC*

Key Org. Culture Belief/Behavior	Related Org. Culture Belief/Behavior	Infoculture Belief, Behavior, Artifact
Trust	Aversion to politicking, Respect for others in all relationships	<i>Who:</i> Trustful and trustworthy member who is a good and well-informed communicator <i>What:</i> Facilitating trustful relationships <i>How:</i> Self-filtering communications of offensive content, Automated complaint process, Democratic informing practices and complementary IS

5.3 Open Communication and Shared Leadership

Open communication, as already discussed, is a salient aspect IC's culture. The communication domain is shared between organizational culture and infoculture. Infoculture applies in informing aspects of communication, as the latter carries data, mediates in meaning creation, and underpins knowledge creation and sharing. The role of informing agents in the company studied is to enable high-bandwidth and efficient communication. Several system solutions listed in Table 3 are used toward these ends. For instance, all reports on project and sales operations are accessible to all employees via the intranet. A balanced scorecard used for tracking monthly performance is also accessible via the intranet. There are several dashboards, and they inform on finances, client relationships, offerings, sales, project delivery, human resources, building management, and so on. For example, the dashboard for client relationship management presents sales forecasts and weekly sales reports, and the human resources dashboard shows the assignment of employees to particular projects.

Each dashboard relates goals based on the internal balanced scorecard methodology to the achievement of the goals. A dashboard user can determine the state of a project in terms of planned and accomplished billable hours and budget. Any employee can access any dashboard at any time. This emphasis on open communication is complemented by systems for tracking the current location and availability of employees and for searching relevant business documentation.

The process drivers at IC are trusted and empowered to manage data created in the operational processes. For example, an employee performing in a role of the sales process enters the relevant data directly into the sales system. One destination of the data is the sales dashboard. Similarly, the billing process starts with each employee's recording of billable hours directly in a project management system. Data from this system feed into the project delivery dashboard. Then, the head of the human resource function uses these data for creating utilization reports, showing every employee along with their billing fig-

ures. These aspects also demonstrate the emphasis IC puts on process-based organizing. In addition, operational processes at IC are largely automated and their systems are used directly by the end-users without administrative intermediaries.

Using IS in the self-service mode certainly saves money that otherwise would inflate administrative costs. However, self-service has a deeper significance. On the one level, this is a manifestation of infoculture featuring the competent communication actor enjoying open access to company data. On the other level, the self-service practice reinforces the culture of open communication and trust. These two aspects present a paradigmatic example of the relationship between infoculture and organizational culture.

Trust is an aspect of organizational culture that can be understood narrowly in terms of relying on written statements of others (Rotter, 1967) or, more broadly, as relying generally on colleagues (e.g., on their verbal promises, decisions, and work results). Trust implies communication as it necessitates a trustworthy communication content as antecedent. Since the actor of IC infoculture is a trustworthy professional, it follows that infoculture influences the trust aspect of organizational culture. On its part, organizational culture can exert influence back on the infoculture. The former may legitimize some communication channels as trustworthy and attribute less credit to others. For example, verbal communication may be less trustworthy than the written (the norm of putting some content “in writing” and in a non-changeable format). In the IC case, electronic records, fixed or editable, are generally considered trustworthy. To conclude, the juncture of communication and trust aspects reveals the complementary and mutuality influencing relationship between infoculture and organizational culture.

Table 3. *IC's Organizational and Information Culture*

Key Org. Culture Belief/Behavior	Related Org. Culture Belief/Behavior	Infoculture Belief, Behavior, Artifact
Open Communication		<p><i>Who:</i> Competent communicator with unabated data access privileges</p> <p><i>What:</i> Enabling high-bandwidth and efficient communication</p> <p><i>How:</i> Scorecard, Dashboards, self-service IS for operations, tracking and search systems</p>
Shared Leadership	Self-actualization	<p><i>Who:</i> Self-motivated thought leader</p> <p><i>What:</i> Enabling thought leadership</p> <p><i>How:</i> Innovation management process & system, Presentations, Blogs, White papers.</p>

Congruent with open communication is another cultural aspect that will be called “leadership sharing.” This aspect naturally fits with the team culture and the flat organizational structure. The people working at IC maintain that everyone can exercise creativity and leadership in various realms of the organization. One needs not to ask for permission. As an interviewee put it:

I think that everyone at IC has the freedom to exercise as much creativity, to take as much ownership, and to guide different parts of the organization as they wish. We can bite off as much as we wish. I don't ask anyone for permission.

The culture of shared leadership opens up the space for with self-actualization, another important cultural characteristic of IC (see Table 3). Organization members like to think that the company is their “oyster.” As one could open an oyster and discover a whole world under the shell, IC has been perceived as a place inviting the employees to be creative and express their professional aspirations. The place is open for self-driven shaping of the career path and development. The human relations expert explained that the IC organization culture was able to overcome limitations of traditional organizations that undervalued people's abilities. She cited her own experience as the case in point:

I was looking for a place where I could submit my ideas and feel like they were being heard, where I could work autonomously and feel that the company was about more than earning a profit.

At IC, shared leadership and self-actualization are exercised significantly in the knowledge domain. Since knowledge activities belong to the concept of infoculture used in this study, this juncture is where infoculture reveals itself. An IC member who keeps learning and improving his/her expertise and wants to share the new knowledge and expert opinions has plenty of opportunities to do so. The member may want to become what at IC is called “thought leader.” Thought leaders usually cover particular information technologies, standards and frameworks. Some are more interested in management solutions, such as process and lean organizing (more discussion below).

Taking the perspective of infoculture, “thought leader” appropriately labels an analytic category that answers the who-question of infoculture. The thought leader marks a crucial path of realizing the culture of shared leadership and self-actualization. Intrinsically motivated, this subject enjoys support of other aspects of infoculture, such as various processes and systems. For example, thought leaders can deliver talks at regular and ad-hoc knowledge exchange events taking place in the company. Also, they deliver talks to external audiences. Some thought leaders run internal or external blogs, or publish electronically white papers (see Table 3).

For those who wish to lead innovation in internal workings of the company, there are an innovation management process and supporting system. The process starts when an innovator describes his/her idea in the innovation system. Then, an innovation team examines the proposal, and informs the innovator when the decision will be made. If the idea is accepted, the innovator is expected to drive the implementation process. The company supplies funding as needed. In the case of rejection, the evaluation team writes a justification for such a decision and advises on the re-submission period. Subsequently, the innovator may decide to revise the proposal and resubmit it, or to give up the idea. In any event, the process must have a clear end point (consistent with the process approach to organizing at IC – more discussion in the section on lean methodology).

In summary, the cultural trait of open communication is enhanced by particular aspects of infoculture. This infoculture enables high-bandwidth, efficient communication and is carried out by a competent communicator with unabated access to company data. The infoculture accomplishes its purpose by the means of various IS—a scorecard, dashboards, self-service systems for operations, and systems for employee tracking and documentation search. The culture of shared leadership and self-actualization is carried by a self-motivated thought leader on the infoculture side. Informing agents enable thought leadership via dedicated processes and systems.

5.4 Client and Knowledge Focus

Another pillar of IC's culture is the focus on clients. In a consulting engagement, an IC team is expected to deliver the best quality for their clients. This implies creating superb software and effective management advice. The company aims at a repeat customer and longer term engagements in which both sides can win. While many companies favor customer service as a guiding cultural assumption, a peculiar moment in the IC case is that this credo is associated with employee satisfaction. It is assumed that the best value for client results from the work done by a satisfied software developer. This is how one thought leader at IC explained it:

Programming problems can be solved in the code of variable length. If our developers can solve a programming problem in three lines of code rather than 30, that's in everybody's best interest. It is so because every line of code costs money to create and to maintain.

The IC members concur that a satisfied, repeat customer does not favor cost minimization at any rate. Rather, this customer is capable of understanding that IC also needs to make a profit or it may be out of business by the time its services are needed again.

From the perspective of infoculture, it is a reliable IS and management consultant that delivers the best quality to the client. The reliable expert is capable of finding effective solutions to organizational and systems problems even when venturing into novel territories. In the history of IC, several problem areas have been covered, such as banking, manufacturing, service, registration process, and hiring process.

The client focus implies that the company needs to keep close to the customer. This assumption is practiced consistently in each project. The practice crucially depends on an electronic interface IC establishes between itself and a client—a part of corresponding infoculture. This interface comes in form of test servers and Websites that IC maintains throughout an engagement project. The customer can get online access to project documentation and the parts of the systems under development. The director of IT, who also plays few other roles at IC, explained it this way:

I think the biggest thing is to educate them as to exactly what is going to happen and then keep them informed. Clients really hate it when they get unexpected news particularly when the news is usually that it's going to cost them more money which is often the case in IT consulting.

By allowing the client to track the progress of work on the system infrastructure, IC maintains trusting relations with the client. This is another cultural value the company nurtures (see Table 4). Therefore, clients' trust depends in part on the electronic interface. This relationship is another example of how infoculture feeds organizational culture.

Still another infocultural practice supporting the closeness to client is the standard practice of engaging clients in problem solving. (This is also a part of lean methodology discussed below.) The members of IC hold in high esteem analytical capabilities of customers and regularly invite their participation in projects. This practice is usually welcomed by clients. Sometimes, a client would even allocate a multi-occupational team of experts to work alongside IC consultants. Since problem solving depends on the deployment of informing agents (knowledge, data, IS), it belongs in the infoculture rubric. In other words, the keeping close to client (a cultural assumption) is realized via the practice of involving client in problem solving (infocultural behavior).

Table 4. *Client and Knowledge Focus*

Key Org. Culture Belief/Behavior	Related Org. Culture Belief/Behavior	Infoculture Belief, Behavior, Artifact
Client Focus	Best quality, Keeping close to client, Clients' trust	<i>Who:</i> Reliable IS and management consultant <i>What:</i> Maintain high-bandwidth client interface <i>How:</i> Informing customers via dedicated IS on project progress, Involving client in problem solving
Knowledge Focus	Continuous improvement	<i>Who:</i> Knowledge worker <i>What:</i> Facilitating knowledge activities <i>How:</i> Self-education, knowledge presentation via blogs and wikis, Paired Programming, Preserving project via content mapping IS <i>When:</i> When opportune

Congruent with the client focus is a focus on knowledge, which is nurtured at IC (Table 4). The category of knowledge focus captures a good deal of beliefs and practices that in the cultural vocabulary of IC are called "continuous improvement." A good professional is considered to be the one who keeps improving professional knowledge. A dedication to learning is assumed, since most of the learning must transpire outside billable work hours. One of the questions the study asked was about themes and topics the respondents felt passionate about. All the respondents provided examples of knowledge acquisition in the technical areas, while some also advanced their knowledge of organization and management. In the parlance of infoculture, the IC member is knowledge worker. This layer complements the picture of reliable consultant, while emphasizing the depth of consulting expertise.

The knowledge focus makes IC a knowledge culture. Nonaka and Takeuchi (1995) argue that in companies where knowledge has a prominent role the new team-generated

knowledge gets integrated into the corporate knowledge base once team members return to their old work positions. In the case of IC, team members do not return to old positions but rather join new teams. The knowledge integration is likely to happen through cooperating in a new project.

One contributory practice is paired or extreme programming. It is used when a project demands new knowledge that many of the team members do not have. One interviewee described it as follows:

In this project we're using lots of new technologies that we as a company have never used before. We have some people who are experienced in these, and now we have to educate the whole team as fast as possible. So we've found the pair programming to be the fastest way to get that knowledge passed across. In the first pass, the experienced guys come and sit down next to you, and they show you the ropes on how to do something in this new technology.

As already discussed above, knowledge is also shared via regular and ad-hoc presentations, blogs, and wikis. Informal, face-to-face exchanges of knowledge should not be underestimated, as the culture of trust and open communication is amenable to it. These practices represent the ways in which this knowledge culture gets support of infoculture. However, it appears that more support may be needed. The blog and wiki channels have met obstacles, such as time constraints and writing style requirements. In addition, a more permanent and broader sharing of new knowledge would involve documenting it in knowledge work systems. At the time of the study, IC did not deploy such systems.

A home-grown content mapping system may assist the knowledge worker in learning from the company's past projects. The user can run a search based on keywords and identify projects that yielded relevant experience. For example, if one wishes to learn about challenges pertinent to partner engagement, the search would result in finding relevant lessons learned in previous projects. Every employee can access this system via the company's intranet.

In summary, the organizational culture of IC boasts a strong focus on clients. The complementary infoculture features a reliable consultant in the areas of IS and management. To provide the best value for the customer, IC professionals strive to maintain a close, trustful relationship with clients and engage them in problem solving. The infoculture contribution is indispensable since the IC-client interface is based on custom systems that keep the client involved and informed throughout a project. The client focus relies on IC's commitment to knowledge acquisition and sharing. A fully cultured IC professional is expected to continuously improve professional knowledge and be a knowledge worker intrinsically motivated to learn and to educate colleagues. Sharing knowledge is facilitated by a paired programming work and several systems. System support in this area needs to expand.

5.5 Lean Approach

The last finding is about a lean approach applied to production, product and other organizational domains. Both the cultural and infocultural stances help in understanding IC's lean production. For example, the efficient programming IC favors refers to culture, while streamlining the size of project documentation refers to infoculture. At IC, the lean approach did not develop overnight. Rather, it evolved through efforts of many organization members, combined with learning from Toyota's experiences. Challenges and opportunities arising in particular projects played a catalyst role.

A distinctive character of IC's lean approach is that it applies to both production and product. IC favors lean production processes, while making lean systems and management solutions for its clients. The standard lean principles of maximizing efficiency and reducing waste are the main guidance in IC lean approach (Imai, 1986; Womack, 2003). Applied to the product, lean thinking of IC professionals can detect waste in many domains, including a slow execution of software functions, inefficient IS operations, and cumbersome business processes.

Although production of custom software is part of IC's business, the company does not engage a customer with a premeditated intention to sell its software. The IS part of a solution must first be conceived in terms of the lean principles of organizing and management. In problem solving, IC consultants first try to identify a gap between goals and reality. The consultants look broadly, not just at the IS domain. Their interest, therefore, reaches out to organizational governance, reward methods, remunerations, and management incentives. After identifying the gap, the consultants concentrate on determining a root cause to the gap. Informing-related aspects are the frequent root causes, such as the data structures, entry, transfers, conversion and retrieval.

Upon identifying a root cause, attention switches to specifying an IS solution. At that point, the lean guidance is turned back into the IC Company: IS development has to follow the assumptions of waste elimination and cost reduction. For example, the size of project documentation is kept at an optimal level. There are several mandatory documents, while others are left to the discretion of a project team. The internal lean methodology also involves a metrics for software quality. One thought leader argued that the compliance with functional requirements should be an implied standard. The true measure of a system's quality should be its performance, reliability, and other requirements that are non-functional in character. Admitting that this principle may still appear a deviation from conventional wisdom, the respondent has argued that the principle is consistent with lean.

Another interesting software design and development principle refers to postponing final technical details until the last responsible moment in order to provide the user with flexibility. For example, instead of deploying default parameters and forcing software to execute always in the same way, IC design allows for entering certain parameters at run

time. In system design, IC architects use the same principle for selecting technologies to be built into a particular IS.

IC's lean production approach engages the customer in problem solving. This is where lean production processes meet the client focus discussed above. A seasoned consultant at IC suggested that organizations could be unaware of the problem solving capabilities of their employees. Why employees usually refrain from problem solving is not because they are cannot do it but rather because they are not invited to do it. One can notice that this assumption suits the cultural aspect of maintaining trusting relations between clients and the company. In one of important projects, IC applied lean manufacturing methods to improve the efficiency of key organizational processes and quality management. A multi-occupational team on the customer side worked alongside consultants to identify problems, root causes, solutions, and measures of success and the expected value from the project. The problem solving stretched into the organizational governance. The invented solutions were complex, involving process change, IS innovation, and employees' empowerment.

Table 5. *Lean Approach*

Key Org. Culture Belief/Behavior	Infoculture Belief, Behavior, Artifact
Lean Approach to organizing and product	<i>Who:</i> Rational analyst <i>How:</i> Lean thinking, electronic processes <i>When:</i> When opportune

The discussion above leads to infocultural characterizing of the IC professional as rational analyst (Table 5). The lean thinking in problem solving leading to lean products responds to the what-question of infoculture. Furthermore, a part of lean approach is process thinking. The previous discussion already indicated that IC is organized via different processes. The lean problem solving described in this section follows process logic. In previous sections, it was shown how process thinking applies in the areas of project work, sales, innovation, and grievance. These business processes are made stable via cultural indoctrination into lean thinking rather than formal rules and regulations, which is another way of saying that IC's culture surfaces through these processes.

IC strives to apply a process perspective in its lean solutions for the clients. So for example, a business process must have a clear end. Getting this point across to the client could be challenging. As director of IT explained it, although the development of a solution should not be the end-point of consultant's engagement, organizations may overlook the ensuing steps. In his words:

You get the resistance and people won't use it [the solution] the way you wanted them. We offer the change management part. We have business consultants who have done that before and understand those problems. Clients don't often see that as it's going to be a problem, and so quite often they're not willing to pay for that service. So that's a bit of a hard sell for us sometimes.

As for internal processes at IC, a distinguishing stamp is that they are largely automated. Dedicated IS are used to enable IC to function as a process-based enterprise. To illustrate, consider again the sales planning segment of the sales process that was tackled several times in the previous discussion. It starts with identifying a sales opportunity. An IC member fills an online template, specifying a customer prospect and other details. Meetings, decisions and other subsequent steps in the process are then recorded electronically by multiple users in a self-service fashion. Once completed, a sales plan is posted online. The sales planning system contains all sales opportunities and provides relevant details (e.g., sales forecast, win/loss ratio, and closing cycle). Therefore, the strategic deployment of the sales planning system for process organizing can be viewed as the contribution of infoculture to the process culture at IC.

In summary, IC's lean approach to production, products and organizing in general is carried out by a rational analyst and enabled by lean problem solving and thinking and by dedicated IS that give electronic character to organizational processes.

5.6 Challenges to Organizational Culture and Infoculture

IC has recently doubled the number of employees and expanded operations internationally. This rapid growth has challenged the company's capability to retain its unique organizational design while continuing down the growth path. How to retain the flat structure and the collegial, cooperative team culture, trust, open communication and shared leadership when employees increasingly work in a distributed mode? Lean production, as practiced at IC, also favors direct interaction as the most efficient way of operating.

With the geographical dispersion of operations and employees, IC's infoculture also faces challenges. To remain trustful and trustworthy communicator, thought leader, and knowledge disseminator, the IC member needs to be able to work in the distributed mode, without conveniences of direct interaction and face-to-face communication. The company's IS also need an adjustment for the distributed work context. This is particularly true for the systems for documenting knowledge. In comparison with Nonaka and Takeuchi's (1995) triad needed for effective knowledge management (knowledge development teams, organizational knowledge base, and management), the last two aspects appear less than optimally developed to meet the challenges of growth. It appears that relevant strategizing at IC has been supplanted by rather opportunistic relying on the individual and team initiative. In most instances, IS developed out of a need at hand, opportunistically rather than as a result of strategizing. Put another way, the answer to the infocultural question of when (or why) to change IT/IS is, "when it is opportune."

Opportunistic conduct may indeed be an assumption buried deeply in IC's organizational culture. In its history, the company has faced dilemmas respecting business vision. The company started as a vendor of an off-the-shelf software product, and then it moved toward custom software and management consulting. Bundling these two areas of consulting has been a challenge in itself since the customers are used to dealing with

two types of consultants residing in the two respective markets. On the average, most of IC's annual revenues have accrued from the software market. Still, the company has been trying to increase the revenue from management consulting whenever opportune. Another opportunistic aspect is that IC has not buried the product business strategy for ever. The company has recently acquired a small software vendor that brought in an innovative software product. This move has revived the vision dilemma.

A lack of strategizing in response to growth challenges could have other sources as well. In relation to IS resources, an IC member stands as the IT expert and knowledge worker. This agent boasts self-confidence with respect to solving problems as they emerge. The esprit de corps emanating from the team culture enforces the self-confidence. Enter the standpoint of rational thinker that carries out the lean methodology. This thinker rejects unnecessary planning that is devoid of tangible objectives and benefits. Problems should look for solutions, rather than solutions for problems. Therefore, the rational, lean thinker might not be all ready for dealing proactively with challenges associated with the company's growth. The corollary of this argument is that the infocultural profile of the IC professional may need an adjustment if IC is to continue growing.

In summary, juxtaposing organizational culture and infoculture to growth requirements IC faces reveals a hiatus between these two. A need for cultural change lurks from the hiatus.

6. CONCLUSION

This section summarizes the findings for each research question, and identifies the study's limitations and directions for future research. The discussion in preceding sections answered the research questions that guided the study of IC. The first research question inquired about organizational culture in the organization studied. Aspects of the IC culture have been discussed and summarized in the tables above. In overall characterization, the IC culture matches the team project characteristics identified in the literature. Since IC creates custom system and management solutions, variation in the problem area is such that only flexible teamwork can match it (Handy, 1993; Galbraith, 1973). IC teams enjoy broad autonomy (Travica, 1999) and main exchanges of individual knowledge transpire in the course of project work (Nonaka and Takeuchi, 1995). IC's team culture is also collectivistic (Hofstede, 1980) and cooperative. In addition to the team focus, the study discovered particular cultural aspects of trust, open communication, shared leadership, client focus, knowledge focus, and lean approach to organizing and products.

The second research question aimed at identifying the IC infoculture via the W+H method. In answering the who-question of infoculture (Who are we in relation to IT/IS?), the IC professional has emerged as authoritative IT expert acting in team fashion, trustful and trustworthy member, well-informed and competent communicator with unabated data access privileges, intrinsically motivated thought leader, reliable consultant, knowl-

edge worker, and rational analyst. These findings match select traits (but not all) within some categories of IT users developed by Walsh and colleagues (2010). The IC professional resembles *disciplined IT user* in being competent, well trained, and extrinsically motivated to improve their self-efficacy with aid of IT. This professional also resembles *studious IT user* in being intrinsically motivated to go deeper and deeper in the pursuit of understanding IT.

The study furthermore identified several purposes of the beliefs and behaviors respective data, knowledge, and IT/IS (the what-question of infoculture). Thus, this infoculture does facilitate teamwork and trustful relationships, enable high-bandwidth and efficient communication and thought leadership, and maintain a high-bandwidth interface with clients. How are these purposes accomplished, asked the how-question of infoculture. An impressive list of distinguishing practices, often enabled by capabilities of home-grown IS has been discovered: print and electronic channels for disseminating team-praising narratives, peer-based project management and evaluation, self-filtering applied to communication content, automated complaint process, democratic informing practices and complementary IS, a scorecard, dashboards, self-service IS for operations, tracking and search systems, innovation management process and system, presentations, blogs and wikis for knowledge sharing, keeping client informed on project progress, involving client in problem solving, self-education and knowledge presentation, paired programming, content mapping IS for preserving project knowledge, lean problem solving thinking, and many electronic processes.

It is to be noted that the case company is unique in a capability of building IS to fit its processes rather than having to use off-the-shelf IS products. In other words, system solutions express with more veracity the company's culture, or its infoculture is more unique than it is in many companies without home-grown IS. This uniqueness is interesting for advancing theorizing on infoculture, but it limits generalizability of the findings. It is furthermore interesting to note a lack of findings in the normative rubric, the to-be management and uses of informing agents. Facing growth challenges, IC needs to strategize and modify its culture staked on the collocated project teams. Identifying this gap demonstrates merits of the W+H method.

When or why should informing agents change? The answer to this last question of infoculture is: when it is opportune. This finding emerged in two crucial areas—knowledge management and lean approach. IC depends on accumulating new knowledge in the domains of technology and management. The company relies on individual learning, thus resembling a culture that combines teamwork with individual initiative (Trompenaars & Hampden-Turner, 1998). But the sharing activities have been tuned to the collocated context and IS for sharing knowledge asynchronously yet needed to mature. Strategic planning in this area is underdeveloped. Similarly, the lean approach developed opportunistically, due to market conditions and individual initiatives of a handful of thought leaders. Such a historical trajectory resembles an emergent strategy (Mintzberg, 2007). However, in the case of a small company sensitive to market turbulences, a more effective management would involve more strategic planning, or aiming at a “planned strategy”

(ibid.). A hiatus between IC's organizational culture/infoculture and growth requirements gives rise to this conclusion.

Comparing findings on the two research questions, it follows that the study discovered a close support of IC's infoculture to the company's organizational culture. This congruence matches the definitional assumption that infoculture is part of organizational culture. One should note, however, that the case organization is specific with regard to its strong organizational culture and a homogenous professional profile of employees. These characteristics make IC a particular kind of organization, thereby indicating a limitation of the study's generalizability. In larger organizations with differentiated departments and various professional profiles, lesser congruence may be likely (Travica, 2010; Walsh et al., 2010). It can be concluded that infoculture unveils one part of organizational culture that is increasingly important given the proliferation of IS, data and the increasing importance of knowledge in organizations.

This study has captured infoculture of a small Canadian consulting company in a fixed historical moment. Limited by these sampling and timing properties, the findings still advance theorizing on infoculture. Interesting aspects of it have been identified and the W+H method was additionally validated. The study also expanded the conceptualization of infoculture in its definition and in conceiving informing agents. Future research should expand sampling to organizations in other industries and of various sizes and complexity. The W+H method should further be used in the data collection stage of research and not only for data analysis.

7. NOTES

1) In general, the term "informing" is preferable to "information" because it is broader, implying "information" (in its various conceptualizations), a process approach, and other distinguishing characteristics discussed at several places in this article (see also Note 2 below).

2) The contemporarily omnipresent term "information" has a peculiar history. Its conceptualizations span from a label for a particular content (e.g., the content sought by military espionage or police investigation, or an official announcement by some authority), through the name for a measure of negative entropy in the channel transmitting telephone signals (Shannon and Weaver, 1949), to the reference for *any* content recorded or communicated. Today's pervasive use of "information" in everyday life and in social science does not correlate with our understanding of it (Knox, 2009; Machlup, 1983; Kettinger & Li, 2010; Travica, 2011). Some academics in the fields embracing "information" as the fundamental concept assume that clear defining of information is not necessary. The assumption is as intriguing as building a house without foundations.

3) In fact, the originally Latin word "culture" refers to cultivation of plants, as in "agriculture." For example, farming practices are part of material culture. Another and related

part is technology. Farming (or any other production practice) is performed by different tools in different cultures (today as in the past). Besides product technologies, cultures are differentiated on technologies of housing, transportation, preparing and consuming food, wardrobe, etc. Indeed, things signifying a culture boil down to technologies and certain arts (which also depend on their technologies).

4) Cultures differ significantly on what the incumbents do and not only on what they believe. Put another way, no culture, including infoculture, is reducible to beliefs; and there is no justification for attributing greater importance to the soft than the hard cultural segment. First, behaviors and associated technologies may be carried out irrespective of beliefs (say, due to social pressure). Second, people may be unaware of beliefs or these can be long forgotten, while old practices and technologies perpetuate (via imitation, tradition). Third, people's actual behavior and technologies carrying their work and life are as important as their beliefs in understanding a living culture, reality as is.

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