USER PSYCHOLOGICAL APPRAISAL OF ENTERPRISE WEB 2.0-DEPLOYMENT

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Abstract: Effective exploitation of emerging Web-based social information and communication tools has become the new mandate in contemporary enterprise IT-strategy. However, current assessments and recommendations are generally biased in favouring normative considerations from a technical and business angle; and deficient in their emphasis of the implementation- over the adoption-perspective on technology deployment. The current paper propagates the enhancement of Enterprise Web 2.0-research, discourse, and practice by placing it into the focal point of a multi-disciplinary scientific approach comprising services, design, and, importantly, user science. User psychological insight serves as basis for contending essential human adoption barriers and arising dissonances between technical and human use-related promises of Web 2.0; both of which need to be recognized and productively dealt with in the organizational context of Enterprise Web 2.0.

1 INTRODUCTION

In the wake of the industrial "going online"-era a new competitive arena has arisen with regard to leveraging the value of emerging social information and communication technologies (also: social software) for advantageous and creative business conduct. Web 2.0, and with it Enterprise 2.0, have in the last 5 years become the associated buzz terms and guiding paradigms to capture modern enterprise IT strategy and development. This awareness is already widely developed with large enterprises (e.g., Lamont, 2007), however, it is safe to predict that the new wave of the Web will reach all of use (McCormack, 2002).

In spite of the many identified success factors (e.g., Carter), there is a genuine risk in the context of fast-pace base capability and mobility development of social ICTs, that Enterprise Web 2.0-opportunities remain ill-exploited. The most compelling threat in the author's judgement pertains to two mutually related concerns. The first entails a discrepancy between business- and computing-related visions of technology *implementation* on the one hand versus the socio-psychological reality of *adoption and use* on the other hand. And the second, more general concern relates to an implicit divergence between technical and human assessments and promises of the future of the Web, including its industrial and business implications. What is needed to support successful and sustainable enterprise Web 2.0-innovation is (1) the establishment of an appropriate academic evaluative frame, (2) an understanding of the essential human barriers regarding effective adoption and use of novel tools and practices, and (3) the carving out of core conflicts, i.e., dissonances, between technical and human use-related promises of Web 2.0.

The current position paper briefly addresses these aspects, however, without reiterating in detail the properties of Web 2.0 and Enterprise 2.0 regarding their various components and business argumentations (see e.g., McCormack, 2002; Carter, 2007). The implicit focus is on organizational adoption by workers and employees themselves, as this is assessed to be the prerequisite of any Enterprise Web 2.0 endeavour.

2 ACADEMIC EVALUATIVE FRAME FOR ENTERPRISE WEB 2.0 ADOPTION

The matters implicated by Enterprise Web 2.0 naturally relate to a variety of traditional fields and concepts, involving the disciplines of information systems, computer science and software engineering, business science and economics, human and social sciences, as well as arts and others. Condensed to

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essential perspectives the study and implementation of Enterprise 2.0 necessitates the alliance of three key scientific approaches. These are services science, design science, and, importantly, user science (see Figure 1).

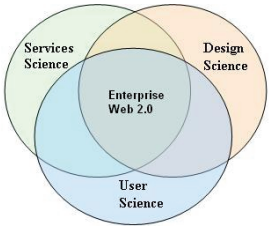

Figure 1: Multidisciplinary Approach to Enterprise Web 2.0 Research.

At the interjunctions of these scientific fields we can define on a more fine-grained level a variety of research areas that are concerned with information system development (ISD), group work and collaborative technologies (including CSCW, CVE, computer-mediated communication etc.), business models, management and leadership, and industrial and organizational functioning with focuses on change and development, and finally, user psychology (including Human-Computer Interaction [HCI], ergonomics, human factors, usability etc.).

The main current appeal concerns the valuation of user scientific concepts, methods, and intervention knowledge in order to effectively understand and manage enterprise Web 2.0-deployment. With technological inventions as driver, organizational learning and enterprise IT-management models as enabler, the propagated focus roots in the conception of humans as the actual executers and consummators of progress and innovation.

In order to understand the idiosyncratic contents and paths of technology use adoption, normative scientific approaches are deficient. An empiricist, stochastic user scientific approach is needed. Hereto the user psychological approach (Saariluoma, 2004) is proposed as appropriate research frame, which simultaneously reasserts the need to enhance the applied scientific impact of psychology in the areas of services businesses and design (Landauer, 1987; Moran, 1981; Münsterberg, 1913).

3 USER PSYCHOLOGICAL ADOPTION HURDLES

Micro-level (individual) adoption and effective use is the natural prerequisite of organizational spreading and enterprise level technology exploitation. This perspective is believed to fit the credentials of Enterprise Web 2.0 all the more as the therein involved technologies and practices emphasize the core principles of user involvement and participation.

Adoption of any new technology use-related behaviour is always a dynamic user need and experience-driven socio-psychological process. Under- and ill-use are its direct antipodes. By focusing on these antipodes, and thereby complementary to the majority perspective that concentrates on the attractive side of technology, it is the distinct intention of this paper to highlight distracting adoption factors. In fact, it is contended that not just instead, but in spite of available positive values of new technologies, their adoption can be hampered by several use antagonists. Below is a list of the six core hurdles that need to be overcome in the course of any successful service or tool adoption process. They are absence or lack of: (1) *awareness / knowledge*; (2) *understanding / comprehension*; (3) *interest / motivation / belief*; (4) *need / use fit*; (5) *capability / opportunity / resources*; (6) *prior success / satisfaction*.

In short, considering for instance a particular application software tool, potential users must be aware of the availability of the new tools and they must have a primary conception of what the tool is for and how it is used (irrespective of how apt this conception is), from which they develop further attitudinal beliefs about value of the product. Next, in order to translate adoption attitudes into use intention and actions, the utility and interaction requisites must fit the users' intrinsic or extrinsic (e.g., corporate decree) needs and customs or generate according ones and users must be equipped with the necessary opportunity, resources, and capacity to acquire, explore, and apply the tools. Finally, users will evaluate the triggered experiences and effects of interacting with the tool, including past ones that a user deems to see related to the current tool and its use, and accordingly recalibrate their tool conception and attitudes toward it. This is a very important point relating to positive and negative use transfer effects (Helfenstein, 2005).

Traditionally, a user's willingness to adopt any new technology is seen as connected to user's judgment of their potential benefits (Ajzen & Fishbein, 1980; Davis, Bagozzi & Warshaw, 1989). Here, the frequent neglecting of two critical issues related to user needs and motives is contemplated. First, tools and practices that are placed in the focus of user adoption are commonly not unique or original, neither with respect to users' learning and

use biographies, nor with respect to purpose-equivalent alternative means to satisfy the same needs. And secondly, the accustomed user practices often provide a series of competing (factual or imagined) spin-off benefits: Taking care of banking deeds at the counter in town instead of in the Internet may provide an elderly with a reason to leave the own four walls. It is very frequently exactly these alternative sources for behavioural justification that unveil themselves as real stumbling blocks when introduced to novel practices.

Finally, the most basic of all reasons for not discontinuing a use habit is our innate reluctance toward change (e.g., Toffler, 1970), the innate antagonist to the human exploration instinct and a long debated phenomenon also in organizational settings (e.g. Leavitt & Whisler, 1958).

Considering enterprise adoption of Web 2.0-tools it is quite intuitive that organizational context (business nature, size, heterogeneity etc.) and IT deployment management play essential roles in promoting or inhibiting adoption and use. Creating and sustaining a "highly receptive culture" (McAfee, 2006) is seen as crucial to best support Enterprise Web 2.0-technology adoption in on organizational context. Therefore, executives should be concerned with minimizing the above mentioned adoption hurdles through a set of governance measures and the nurturing of a constructive use breeding environment. In doing so, they further should be aware of impending dissonances between technology- and human-oriented assessments of Enterprise Web 2.0.

4 DISSONANCES BETWEEN TECHNICAL AND HUMAN USE-RELATED PROMISES OF WEB 2.0

Based on the user psychological contemplations and in reviewing a wide range of literature, surveys, and case studies[1] on the state and prospects of Enterprise Web 2.0 development, a set of general dissonances between technical[2] and human/social use-related promises were distilled, which potentially burden effective Web 2.0 technology deployment and adoption. They pertain to the mutually overlaying issues of *utility*, *design and innovation paradigm, deployment and control,* and *outcome expectation.*

Utility Dissonance. While technological solutions become more quick to develop and sophisticated, they inevitably get also increasingly numerous and heterogeneous. This suggests that in future we suffer no longer from a lack of technology or use skills, but from the mass as well as partial redundancies and incongruities of systems and related user experiences. This utility trade-off addresses a lack of transfer between interaction settings as well as deficient system unity and use consistency, all of which jeopardizes rather then assures ease-of-use and value of the available tools in people's every-day interaction.

Because businesses are fundamentally people-based, the ability to capitalize on technological innovation will depend directly on the employment of standards and platforms that ensure a ready and smooth use management of new tools available.

Design Approach/Innovation Dissonance. Web-tools are all-too-often developed mainly for a technically inventive and commercial end; less to encourage organizational work innovation in a feasible way. This disparity between a technology- and a use-driven design paradigm reflects a critical shortage of action-oriented research efforts, resulting in naïve conceptions of intuitivity in design.

In order to overcome this gap, innovation must be distinguished from invention, and appreciated as socially constructive process of adoption and use, closely tied to incumbent user work practices and experiences on the individual and organizational level of business operations. Further, a soothing counterforce to the disruptive impact of IT inventions is needed; one that accentuates conformities and emphasizes deep-seated user conceptions.

Deployment and Control Dissonance. The participative and democratic mandate of Web 2.0 makes firm top-down introduction and implementation obsolete and raises the vital question of how private user involvement and expertise among employees can be turned to advantage in the organizational context (i.e., bottom-up deployment).

A key question is therefore how to successfully combine formal and informal technology roll-out by effectively atuning change leadership and IT-governance measures. On the other hand, increased

[1] Nearly two dozens case studies from openly accessible Web-resources were included.

[2] The notion of technical promises does not refer to the technical layer of Web 2.0 in terms of programming and software engineering but only to the nominal utility of Web 2.0-technologies (applications and services) involved.

egalitarianism and user emancipation in IT-deployment also put to the test traditional organizational and business process structures as well control expectations of managing officers; frequently surfacing in security concerns of Enterprise Web 2.0. Indeed, successful business alignment and integration of IT may just mean to substitute dogmatic information structures with organic ones (e.g., so called "unstructured" tools).

Outcome Expectation Dissonance. Dealing with over-laden expectations by concentrating on rudimentary application needs and goals is essential both on the individual user as well as on the enterprise (business) level. Not everything is greener on the other side of the Web 2.0-fence. Blogs, for instance, risk even to broadcast the already evident problem of local link and bookmark-management into a wider web-user arena.

Compelling web-applications or services are further scarce – an obvious side-effect of the current Web 2.0-development boom that lifts quantity over quality. Skimming through hundreds of Firefox extensions, for instance, one can find only a handful that would truly converge existing services into an integrated browsing experience.

The conjecture is warranted, that much of the industrial promises associated with novel web-usage does not reflect the superiority of emerging tools as such, but merely (a) the inapt and therefore inferior internet technologies used extensively in business today (e.g., e-mail, Intranets; Davenport, 2005), and (b) their potential when aligned successfully with business processes and servicing nature.

5 CONCLUSIONS

Although contemplations about technology adoption are not exclusive to the case of Enterprise Web 2.0, they are very timely, of clear economic value, and of unique relevance in the context of the participative technology use and development paradigms. Research and discussions on the matter needs therefore to be re-stimulated and enriched with insights and arguments stemming from a user scientific approach.

In order to understand the socio-psychological dynamics of the adoption process the paper proposed a model comprising six, interdependent adoption hurdles or barriers that need to be overcome. This hurdle-conception, although appearing simply antagonistic to the adoption benefit view serves a complementary theoretical purpose. It further incorporates technology use transfer issues that are especially vital in the context of the current second wave of Web-effects.

Finally, various arguments about broad conflicts between technical and human use-oriented promises of (enterprise) Web 2.0-adotpion were ordered into four dissonances (utility dissonance, design approach dissonance, deployment dissonance, and expectation dissonance).

It is the insight into this climate of dissonances, which is claimed to constitute the ground for comprehending user challenges and managerial significance concerning enterprise Web 2.0-adoption.

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