

Technostress: Current Knowledge and Directions for Future Research

René Riedl, University of Applied Sciences Upper Austria & University of Linz

rene.riedl@jku.at

Human society has significantly benefited from the adoption of information and communication technologies (ICT). Despite this fact, however, ICT use may also have a “dark side.” Human interaction with ICT, but also perceptions, emotions, and thoughts regarding the implementation of enterprise systems and ICT pervasiveness in society in general, may result in considerable stress perceptions—a type of stress referred to as *technostress* (TS). Analysis of the information systems (IS) literature reveals that TS is a topic that has gained significant momentum during the past years.

Ragu-Nathan et al. (2008), for example, studied the influence of TS on job satisfaction, commitment to the organization, and intention to stay. The results of this study show that TS inhibitors (e.g., technical support provision) increase job satisfaction, as well as organizational and continuance commitment. Moreover, the results indicate that demographic variables could significantly affect TS perceptions (e.g., younger users perceive more TS than older ones). In another paper, Tarafdar et al. (2007) investigated the influence of TS on role stress and individual productivity. It was hypothesized that TS would be negatively correlated with individual productivity, role stress would be negatively correlated with individual productivity, and TS would be positively correlated with role stress. Other IS studies revealed further significant insights into the TS phenomenon; see, for example, investigations by Ayyagari et al. (2011) and Tarafdar et al. (2010, 2011).

Despite the significant value of prior IS research on TS, analysis of the corresponding literature reveals a significant research gap: The phenomenon has hardly been addressed from a biological perspective. This is problematic, because biology not only provides objective stress measurements, but also predicts human behavior toward ICT. Moreover, biological measures (e.g., levels of stress hormones such as adrenaline and cortisol) are crucial predictors of human health, making them an important complement to self-reports on stress perceptions (Riedl et al. 2012).

Against this background, and with the goal of developing a “big-picture” view of TS and biology, I recently published an article entitled “On the Biology of Technostress: Literature Review and Research Agenda” (Riedl 2013). This paper reviews the TS research based on biological approaches that has been published in various scientific disciplines (e.g., human-computer interaction, medicine, biological psychology).

In the presentation, I discuss the major findings of this study. For example, regarding the four biological levels of analysis in stress research (see Figure 1), the study found that an imbalance in research intensity exists—while the levels of the autonomic and somatic nervous systems and the endocrinological system have been examined intensively, TS research related to the genetic system and the central nervous system (in particular the brain) hardly exists. Based on this analysis, in the talk I also present important aspects of the research agenda, which was developed with the goal of providing ideas for future research projects.

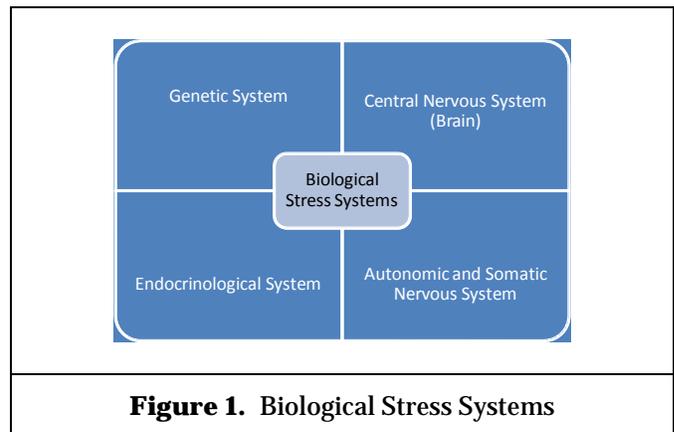


Figure 1. Biological Stress Systems

REFERENCES

- ❖ Ayyagari R., Grover, V., and Purvis, R. 2011. "Technostress: Technological Antecedents and Implications," *MIS Quarterly* (35:4), pp. 831-858.
- ❖ Ragu-Nathan, T. S., Tarafdar, M., Ragu-Nathan B.S., and Tu, Q. 2008. "The Consequences of Technostress for End Users in Organizations: Conceptual Development and Empirical Validation," *Information Systems Research* (19:4), pp. 417-433.
- ❖ Riedl, R. 2013. "On the Biology of Technostress: Literature Review and Research Agenda," *DATA BASE for Advances in Information Systems* (44:1), pp. 18-55.
- ❖ Riedl, R., Kindermann, H., Auinger, A., and Javor, A. 2012. "Technostress from a Neurobiological Perspective: System Breakdown Increases the Stress Hormone Cortisol in Computer Users," *Business & Information Systems Engineering* (4:2), pp. 61-69.
- ❖ Tarafdar, M., Tu, Q., and Ragu-Nathan, T.S. and Ragu-Nathan, B.S. 2007. "The Impact of Technostress on Role Stress and Productivity," *Journal of Management Information Systems* (24:1), pp. 301-328.
- ❖ Tarafdar, M., Tu, Q., and Ragu-Nathan, T.S. 2010. "Impact of Technostress on End-User Satisfaction and Performance," *Journal of Management Information Systems* (27:3), pp. 303-334.
- ❖ Tarafdar, M., Tu, Q. and Ragu-Nathan, T.S. and Ragu-Nathan, B.S. 2011. "Crossing to the Dark Side: Examining Creators, Outcomes, and Inhibitors of Technostress," *Communications of the ACM* (54:9), pp. 113-120.