

## Association for Information Systems AIS Electronic Library (AISeL)

---

All Sprouts Content

Sprouts

---

2-1-2010

# Challenging the Busterspeed: Technological Artifacts and Working Practices in a Sanitary Organization

Attila Bruni

University of Trento, [attila.bruni@soc.unitn.it](mailto:attila.bruni@soc.unitn.it)

Follow this and additional works at: [http://aisel.aisnet.org/sprouts\\_all](http://aisel.aisnet.org/sprouts_all)

---

### Recommended Citation

Bruni, Attila, "Challenging the Busterspeed: Technological Artifacts and Working Practices in a Sanitary Organization" (2010). *All Sprouts Content*. 338.

[http://aisel.aisnet.org/sprouts\\_all/338](http://aisel.aisnet.org/sprouts_all/338)

This material is brought to you by the Sprouts at AIS Electronic Library (AISeL). It has been accepted for inclusion in All Sprouts Content by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact [elibrary@aisnet.org](mailto:elibrary@aisnet.org).

## Challenging the Busterspeed: Technological Artifacts and Working Practices in a Sanitary Organization

Attila Bruni  
University of Trento, Italy

### Abstract

In organization studies, technology has often been viewed as a helping (if not 'resolving') factor, especially from those who identify humans as non-reliable actors. Technologies have often been invoked for their potential in automatizing and standardizing activities, reducing the possibilities of casual errors and enabling a closer control of individual action. The diffusion of information and communication technologies in the sanitary sector, in particular, has led to the construction of a certain number of technologies for the support of medical decision making that standardize medical practice in a 'correct' sequence of actions, improving individual and organizational accountability. At the same time, even if these technologies seem to have improved the quality and safety of healthcare, it remains unexplored whether and how these technologies facilitate interaction and collaboration within the actors involved and what they imply in terms of coordination in everyday work. Referring to the introduction (in an Italian hospital) of a new technology for the automatic delivery of pharmacological therapy (the Busterspeed), the paper aims to unlock the process that took to the introduction of this new technological system, showing how its adoption can be seen as the result of heterogeneous organizational processes, involving a plurality of actors and requiring a reconfiguration of collective work. Coherently with a framework that looks at organizations as open-ended processes and at technology as social practice, the paper highlights the reciprocal influence between everyday organizational practices and work instruments, and their constant relation to (and translation in) other technologies, practices and actors.

**Keywords:** Working practices; Technology-in-use; Organizational processes.

**Permanent URL:** <http://sprouts.aisnet.org/10-16>

**Copyright:** [Creative Commons Attribution-Noncommercial-No Derivative Works License](https://creativecommons.org/licenses/by-nc-nd/4.0/)

**Reference:** Bruni, A. (2010). "Challenging the Busterspeed: Technological Artifacts and Working Practices in a Sanitary Organization," Proceedings > Proceedings of ALPIS . *Sprouts: Working Papers on Information Systems*, 10(16). <http://sprouts.aisnet.org/10-16>

## CHALLENGING THE BUSTERSPEED: TECHNOLOGICAL ARTEFACTS AND WORKING PRACTICES IN A SANITARY ORGANIZATION

Attila Bruni (attila.bruni@soc.unitn.it)  
Dept. of Sociology and Social Research  
University of Trento - Italy

In organization studies, technology has often been viewed as a helping (if not 'resolving') factor, especially from those who identify humans as non-reliable actors. Technologies have often been invoked for their potential in automatizing and standardizing activities, reducing the possibilities of casual errors and enabling a closer control of individual action.

The diffusion of information and communication technologies in the sanitary sector, in particular, has led to the construction of a certain number of technologies for the support of medical decision making that rationalize (Berg, 1997) and standardize (Timmermans and Berg, 2003) medical practice in a 'correct' sequence of actions. At the same time, even if these technologies seem to have improved the quality and safety of healthcare, it remains unexplored whether and how these technologies facilitate interaction and collaboration within the actors involved (Heath and Luff, 2000) and what they imply in terms of everyday organizational practices (Bruni, 2005).

Referring to a focused ethnography (Knoblauch, 2005) of the introduction (in an Italian hospital) of a new technological system for the automatic delivery of pharmacological therapy, the paper aims to unlock the process that took to the introduction of this new technological system, showing how its adoption can be seen as the result of heterogeneous organizational processes, involving a plurality of actors and requiring a reconfiguration of collective work.

The system is the so called Busterspeed®, a pharmaceutical automatized cabinet using a mechanical arm for the handling of the medicines (inside of it). This cabinet is also equipped with a touch-screen monitor that allows the user to do both drawing and loading operations. The identification of the pharmaceutical packages comes out through the automatic reading of the bar codes (by a sophisticated camera) and it is ran by a software which records all the patients' pharmaceutical prescriptions. The software generates automatically the periodical and urgent requests of replenishment of the medicines to the Pharmacy of the hospital and distributes them according to the daily therapeutic needs.

In 2005 the system was installed in a 45 beds department of Medicine. For a certain period, the medical and nursing personnel were trained on the field (by the technicians of the company that

provides the system) while it was agreed the immediate availability in the ward of the same technicians, so to intervene in case of technical problems. At this stage, the system provided the use of a computer, connected on line to the cabinet and a printer. The different doctors had to use the terminal alternatively, one by one, in order to insert the prescriptions following the daily examinations of the patients. As soon as the prescriptions were inserted, a therapy schedule of the day was printed and the doctor signed the prescription. Only afterwards, the charge nurse could start running the medical supplies and the nursing staff had access to the preparation and administering of the therapies only after receiving the therapeutic program printed and signed by a doctor.

Practically speaking, the system required a substantial change of the organization of the doctors and nurses daily job, giving birth to unexpected troubles. First of all, the new system resulted in a time consuming activity (partly due to the limited usability of the system, given the only position available). Second, nurses (whose job was already affected by the therapy administering schedule) received the prescriptions usually late and there were other delays, often caused by printed prescriptions which were not signed, forcing nurses to go looking for the doctors as to get their confirmation signs. A further problem was linked to the (huge) quantity of prints produced for every patient (a new one for each change of therapy).

In other words, the main and most apparent result of the introduction of the computerized cabinet was the forming of two opposite groups of doctors, one opposing and the other favoring this new system. The former immediately started opposing the system, simply not using it. Paradoxically, this behaviour was balanced by the group of doctors who believed in the new system and who spent time to insert the prescriptions of the opposing colleagues too.

Despite the constant presence of technicians in the department (assisting the medical personnel and modifying the system according to the feedback received), the relevant discomforts produced by the Busterspeed soon led to interrupt the experiment, and forced the sponsoring group to reconsider the whole project. The cabinet continued to be in the Unit, though its use was limited to the storage and order of medicines to the Pharmacy of the Hospital.

Thus, we can see how the adoption of the new technology sets out some unexpected problems. Some of them are 'simply' technical (and they can easily be solved by technicians), but the most important ones have an organizational character. They are related to the daily work of clinicians, their habits, but, as in other studies (Mort et al., 2003), also to the difficulties of integrating a standardized (and standardizing) technology in an organizational setting characterized by extremely variable situations and time pressure. As in the most classical science and technology studies (Pinch et al., 1987) this give raise to the constitution of two (contrasting) groups and it is important to notice how a passive opposition (the non-use of the machinery) is more effective that

an active support (as for the doctors that spent time to insert the prescriptions of the opposing colleagues too).

Coherently with a framework that looks at organizations as open-ended processes (Law, 1994) and at technology as social practice (Suchman et al., 1999), the study presented highlights the reciprocal influence between everyday organizational practices and work instruments, and their constant relation to (and translation in) other technologies, practices and actors.

## **REFERENCES**

- Berg, M. (1997), *Rationalizing Medical Work*. Cambridge MA: MIT Press.
- Bruni, A. (2005), "Shadowing Software and Clinical Records: On the Ethnography of Non-Humans and Heterogeneous Contexts", *Organization*, vol. 12, n. 3, pp. 357-378.
- Heath, C., Luff, P. (2000), *Technology in Action*. Cambridge: Cambridge University Press.
- Knoblauch, H. (2005), Focused Ethnography. Forum: Qualitative Social Research [On-line Journal], 6(3), <http://www.qualitative-research.net/fqs-texte/3-05/05-3-44-e.htm>.
- Law, J. (1994), *Organizing Modernity*, Oxford: Blackwell.
- Mort, M., May, C., Williams, T. (2003), Remote Doctors and Absent Patients: Acting at a Distance in Telemedicine, *Science, Technology & Human Values* 28: 274-295.
- Pinch, T., Bijker, W., Hughes, T. (1987), *The Social Construction of Technological Systems*. Cambridge MA: MIT Press.
- Suchman, L., Blomberg, J., Orr, J.E., Trigg, R. (1999) Reconstructing Technology as Social Practice. *American Behavioral Scientist* 43: 392-408.
- Timmermans, S., Berg, M. (2003), *The Gold Standard: The Challenge of Evidence-based Medicine and Standardization in Health Care*. Philadelphia, PA: Temple University Press.

*Editors:*

Michel Avital, University of Amsterdam  
Kevin Crowston, Syracuse University

*Advisory Board:*

Kalle Lyytinen, Case Western Reserve University  
Roger Clarke, Australian National University  
Sue Conger, University of Dallas  
Marco De Marco, Università Cattolica di Milano  
Guy Fitzgerald, Brunel University  
Rudy Hirschheim, Louisiana State University  
Blake Ives, University of Houston  
Sirkka Jarvenpaa, University of Texas at Austin  
John King, University of Michigan  
Rik Maes, University of Amsterdam  
Dan Robey, Georgia State University  
Frantz Rowe, University of Nantes  
Detmar Straub, Georgia State University  
Richard T. Watson, University of Georgia  
Ron Weber, Monash University  
Kwok Kee Wei, City University of Hong Kong

*Sponsors:*

Association for Information Systems (AIS)  
AIM  
itAIS  
Addis Ababa University, Ethiopia  
American University, USA  
Case Western Reserve University, USA  
City University of Hong Kong, China  
Copenhagen Business School, Denmark  
Hanken School of Economics, Finland  
Helsinki School of Economics, Finland  
Indiana University, USA  
Katholieke Universiteit Leuven, Belgium  
Lancaster University, UK  
Leeds Metropolitan University, UK  
National University of Ireland Galway, Ireland  
New York University, USA  
Pennsylvania State University, USA  
Pepperdine University, USA  
Syracuse University, USA  
University of Amsterdam, Netherlands  
University of Dallas, USA  
University of Georgia, USA  
University of Groningen, Netherlands  
University of Limerick, Ireland  
University of Oslo, Norway  
University of San Francisco, USA  
University of Washington, USA  
Victoria University of Wellington, New Zealand  
Viktoria Institute, Sweden

*Editorial Board:*

Margunn Aanestad, University of Oslo  
Steven Alter, University of San Francisco  
Egon Berghout, University of Groningen  
Bo-Christer Bjork, Hanken School of Economics  
Tony Bryant, Leeds Metropolitan University  
Erran Carmel, American University  
Kieran Conboy, National U. of Ireland Galway  
Jan Damsgaard, Copenhagen Business School  
Robert Davison, City University of Hong Kong  
Guido Dedene, Katholieke Universiteit Leuven  
Alan Dennis, Indiana University  
Brian Fitzgerald, University of Limerick  
Ole Hanseth, University of Oslo  
Ola Henfridsson, Viktoria Institute  
Sid Huff, Victoria University of Wellington  
Ard Huizing, University of Amsterdam  
Lucas Introna, Lancaster University  
Panos Ipeirotis, New York University  
Robert Mason, University of Washington  
John Mooney, Pepperdine University  
Steve Sawyer, Pennsylvania State University  
Virpi Tuunainen, Helsinki School of Economics  
Francesco Virili, Università degli Studi di Cassino

*Managing Editor:*

Bas Smit, University of Amsterdam

*Office:*

Sprouts  
University of Amsterdam  
Roetersstraat 11, Room E 2.74  
1018 WB Amsterdam, Netherlands  
Email: admin@sprouts.aisnet.org