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## Technology Monitor

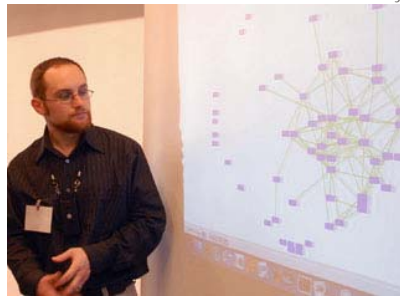
### Micromanagement

# Every move you make

Aug 20th 2008

From Economist.com

## Tiny sensors can track you for your own good—or, at least, your company's



MIT Media Laboratory

GOT rhythm? If so, you are likely to be more productive than your arrhythmic colleagues. That was one conclusion drawn from a study carried out recently by Benjamin Waber and Sandy Pentland of the Massachusetts Institute of Technology. Moreover, it did not apply only when the subject of the study was typing away furiously. It also held when he was sitting, wandering, fidgeting or chatting with his colleagues. Those who did so with measured regularity were more productive than those whose activity levels, though the same

on average, flitted from high to low to somewhere in between.

Mr Waber and Dr Pentland made this discovery using high-tech identity badges that capture a wearer's movements and interactions second-by-second. Each badge is fitted with a set of motion-sensors, a microphone, a microprocessor and a radio transceiver that allow it to sense and broadcast back to base a person's location, the direction he is moving in if walking, the movements of his body if he is stationary, and the timbre and inflection of his voice if he is talking—together, of course, with the length of the conversation and the identity of the other party if he, too, is a badge-wearer. This information, when combined with data on productivity, can illuminate which habits of work are most effective and illustrate which social networks within a company are of value.

Mr Waber and Dr Pentland conducted two experiments, one in an American information-technology firm, the other in a German bank. In both they fitted groups of employees with their badges for a month.

At the information-technology firm, the two researchers were able to take advantage of the fact that they could log the beginning and end of every pertinent task (since these were happening on computers), together with the amount of time an employee spent following up on a task after it was notionally finished. These data could then be correlated with the participants' movements and their interactions with their colleagues. It was this that revealed the importance of rhythm in the workplace.

It also suggested that the more people someone knew in the office, and the more he interacted with them, the more productive he was. That may sound obvious, but such interactions did not have to be work-related. Apparently irrelevant social chit-chat was equally effective. The effect was also, in the jargon, "non-linear". In other words a small increase in social cohesiveness led to a huge jump in productivity.

Using the badges to see who interacted with whom, and what workers were doing when they were most efficient, the firm's managers were able to identify the most important social cogs in the office machine and to bring them together with others they thought would benefit from the introduction. Information from the badges also helped employees identify what they were doing when they were most- and least-productive.

At the bank, Mr Waber and Dr Pentland followed four teams—customer service, support, development and sales—to see if they were interacting in the most useful way. When they looked at the pattern of communication among the teams, they found that customer service rarely intermingled with the others, whereas development and sales spent so much time interacting that they were nearly an integrated whole. Support, meanwhile, seemed to be spending far too much time encouraging communication between the other groups to do its own job properly. As a result, the bank's managers split it up and dispersed its members among the other teams. Doing this, they hoped, would provide more consistent support to all who needed it, thus increasing everyone's efficiency.

An interesting experiment, then. But how widely this approach can work in practice is unclear. Many people may object to having their behaviour scrutinised so closely and Mr Waber and Dr Pentland are, indeed, sensitive to privacy. They believe that the risk of rejection can be minimised by using the badges only for short periods of time, so that they do not become part of a routine monitoring system. It will also help, they believe, if everyone is treated equally, so that the boss's actions, foibles and shortcomings are as transparent as those of his minions. Now that really would be a revolution in management science.

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