THE TRAIN NOW ARRIVING...

John Tiffin **looks at communications and security on the railways**

All communications have two orders of meaning. The first is the obvious denotative meaning that everyone agrees on. A red signal means stop. The sign that tells you the name of a station means that is the name of the station you are at and the announcement that the train now arriving at platform three is from Manchester means just that.

However, people always attribute some second order of connotative meaning from their individual experience, feelings and the context they are in. A red signal might induce in a driver a worry about schedule, 'St Pancras' used to signify all that was dusty and out of date in railways and now stands for all that is romantic and continental in travel. Everyone waiting for the announcement that 'the train now arriving...' has their own expectations and emotions.

People communicate within both these orders of meaning, though they may prioritise one above the other. Advertising that seeks to persuade people that travel by rail is exciting and glamorous targets the second order. The terms on a ticket that state exactly what the traveller will get for their money targets the first. Engineers and programmers seek clarity in the first order of meaning – ambiguity in signalling systems and automated turnstiles is not desirable. However, the people in public relations and marketing spin communications to play on attitudes that affect second order meaning.

Now here's where things are starting to change. We are moving into an era where the conjunction of telecommunications and computers called ICT is improving to the point where it has the potential to replace human communications in railways that prioritise first order meanings. Moreover, ICT will continue to improve, so that those functions that depend on first order meaning in communications such as driving, traffic control and infrastructure maintenance will become the preserve of ICT systems that incorporate artificial intelligence.

The sensors attached to the mechanical and electrical functions on a train will link, so that the train will be responsive to the totality of its internal status. Trains will also be aware of their external environment and the totality of the railway network they are part of. Trains will talk to trains and to central control and to the stations and the platforms they use. Trains will announce their own arrival and come to a halt within a centimetre

www.railimages.co.uk

of where they are supposed to, so that waiting passengers can board directly through the door nearest their seat, provided of course that the tag on their ticket signalled they had paid for it and had adequate security status.

For this to happen, railways, like aviation and shipping, will steadily shift from signalling systems that depend on sound and light to accommodate human sensory apparatus, to systems that use radio.

But ICT does not communicate at the second order of meaning. A red light to a computer means stop and only that. The meaning that a train's safe arrival has for the people who wait is utterly lost on computers. There is no way ICT, as we know it, could bring about the transformation of meaning that the marketing people have wrought in the way we now think of St Pancras.

So, people are good at advertising and glamourising railways and ICT is beginning to be good at running railways on time. However, there are some areas of railway communications that call for a balance of both orders of meaning in communications and one of these is becoming a particular concern of our time. Terrorism is a special form of communication. The bomb is the message. First order meaning is in the amount of death and destruction it delivers. Second order meaning is in the fear and the fury that follows and rolls on to build the ambience of terror.

Security systems use communications to counteract terrorism. Stations and trains are under camera surveillance and passengers are warned not to leave their baggage unattended. This is first order stuff and so can draw on ICT capability. Visual recognition systems can detect when baggage has been left unattended. Computer-based x-ray examinations of baggage can point out suspect items. Scanners can see through clothes and search for faces for those that are on databases of suspects. Sensors can detect traces of explosives and high body temperatures. Machine-readable tickets can be linked to some sort of bio-identification.

The trouble is that terrorism is an act of communication between humans and so involves both orders of meaning. ICT systems do not address the second order of meaning in terrorists and those they seek to terrorise – and herein there is danger. Endless security checks, announcements, warnings, cameras, sniffer dogs and impassive security staff trained to regard every passenger as a potential terrorist can, taken together, create the atmosphere of a police state and a negative attitude toward security.

Think of the second order meaning that the gunning down of an innocent, unsuspecting passenger on the London Underground has had on travellers and how this affects the way they relate to the police in an emergency. It was the passengers who attacked the terrorists in the fourth plane in the 9/11 attack so that it failed to reach its target. Passengers have more vested interest in the security of the train they board than anyone else. As security on railways is intensified it needs to tap into this.

High speed trains are soft targets. They can be so easily accessed from so many points that the expense of airport type security measures would make rail travel prohibitive. What could, however, make a difference would be the development of communications directed at the second order of meaning that sought to bring passengers on-side with security and enable them to cope with an emergency and its aftermath.

However, targeting second order meaning is never as simple and straightforward as communicating meaning at the first order. It requires research and may need to be part of a wider public campaign that begins in schools, but it could give security a million extra eyes.

John Tiffin is Professor Emeritus of communications studies at Victoria University of Wellington in New Zealand. He is co-author, with Professor Christopher Kissling, of Transport Communications: Understanding Global Networks Enabling Transport Services *London and Philadelphia, Kogan Page 2007. He can be contacted at www.johntiffin.net*