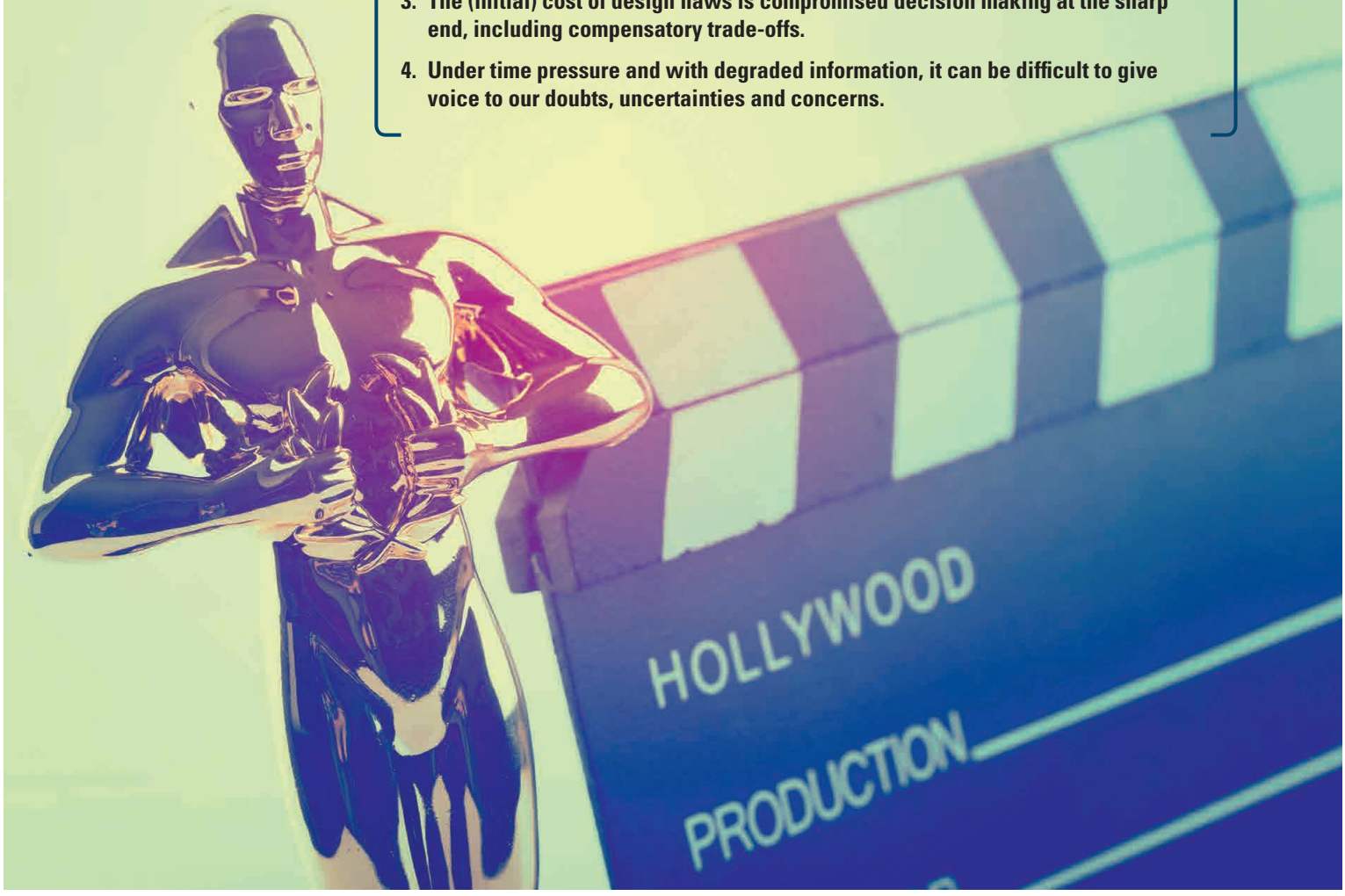
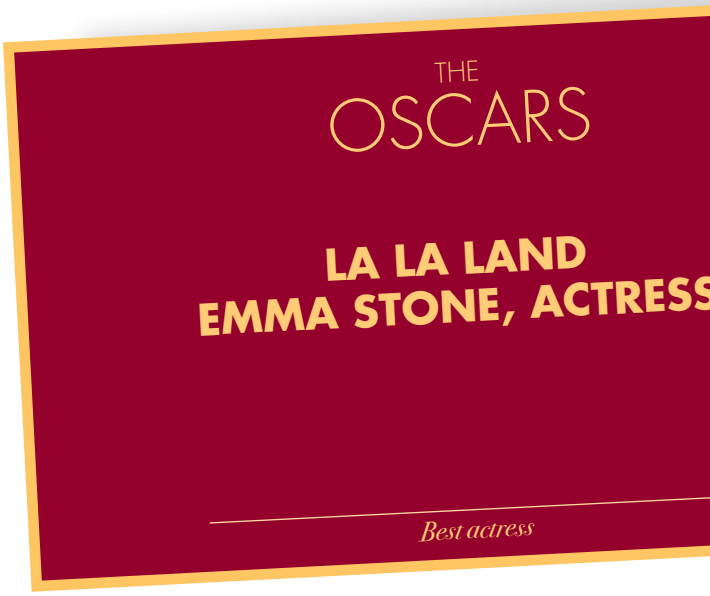
A PLOT TWIST AT THE OSCARS

Even when we imagine that something extraordinary is actually possible, reality can have other ideas. This was the case with finale of The Oscars 2017, when design flaws and operational pressures collided. The ensuing plot twist reveals some truths about design and operation, as **Steven Shorrock** explains.

KEY POINTS

1. **What we casually label as 'gaffes' and 'blunders' are usually deeply rooted in the design of artefacts and in the context of design and operation.**
2. **Gaps between work-as-imagined and work-as-done, and between designers' and users' mental models, can have unintended and unimagined consequences.**
3. **The (initial) cost of design flaws is compromised decision making at the sharp end, including compensatory trade-offs.**
4. **Under time pressure and with degraded information, it can be difficult to give voice to our doubts, uncertainties and concerns.**





"An extraordinary blunder"

It has been described as *"an incredible and almost unbelievable gaffe"* (Radio Times), *"the greatest mistake in Academy Awards history"* (Telegraph), *"an extraordinary blunder…an unprecedented error"* (ITV News), and *"the most awkward, embarrassing Oscar moment of all time: an extraordinary failure"* (Guardian).

It was, of course, the Grand Finale of the Oscars 2017.

Faye Dunaway and Warren Beatty are all set to announce the best picture win. Beatty begins to read out the winner's card. But he looks visibly puzzled, pausing and looking in the envelope to see if there is anything else that he's missed. He begins to read out the winner's card, *"And the Academy Award…"*. He pauses and looks in the envelope again. *"…for Best Picture"*. He looks at Dunaway, who laughs *"You're impossible!"*, and he hands the card to her. Dunaway, perhaps assuming this is all for effect, simply reads out what she sees, and announces, *"La La Land!"*.

The La La Land team exchange embraces and walk to the stage and start to deliver thank-you speeches. But the winner's envelope is, in fact, the envelope for best actress, just given to La La Land's Emma Stone.

Behind Beatty, the Pricewaterhouse-Coopers overseers – Brian Cullinan and Martha Ruiz – are on stage, examining the envelopes. Producer Jordan Horowitz takes command, *"I'm sorry, there's a mistake. Moonlight, you guys won Best Picture"*. Confused claps and cries ensue. *"This is not a joke"*, Horowitz continues. Beatty now has the right card, but Horowitz takes it out of Beatty's hand and holds it up to show the names of the winning producers.

Beatty tries to explain his local rationality, and is interrupted by host Jimmy Kimmel, who betrays an assumption of responsibility: *"Warren what did you do?!"*. Beatty continues, *"I want to tell you what happened. I opened the envelope and it said, 'Emma stone – La La Land'. That's why I took such a long look at Faye and at you. I wasn't trying to be funny"*. Horowitz hands his Oscar to Barry Jenkins, Moonlight's director.

It was *"the first time in living memory that such a major mistake had been made"* (Reuters). The accountancy firm PriceWaterhouse-Coopers apologised and promised an investigation. In a statement, they said, *"The presenters had mistakenly been given the wrong category envelope and when discovered, was immediately corrected. We are currently investigating how this could have happened, and deeply regret that this occurred. We appreciate the grace with which the nominees, the Academy, ABC, and Jimmy Kimmel handled the situation"*.

Design-operation gaps

The design of the envelopes for the awards was new, and far from ideal. The text was gold on a red background: form over function. The previous design was black text on a white background. Once the envelope was opened, there was little to help Beatty and Dunaway spot the problem. At the top of the card was "The OSCARS" logo. In the middle of the card was the name of the movie and the names of the individuals, all in capitals: "LA LA LAND, EMMA STONE, ACTRESS". This would have been a source of confusion for Beatty. The all-important category was in a tiny, feint, italic serif font, below a line at the bottom of the card.

Aviation has taken huge steps to optimise typefaces, symbols and displays. Design consultant and ex-RAF officer Dave Cochrane wrote about the importance of visual communications design in aircraft piloting systems. He wrote that "Typography, and the screen technology it is presented on, has a very powerful influence on how we absorb, retain, and process information". But we should not consider the matter closed. Jean-Luc Vinot and Sylvie Athènes from the University of Toulouse, cited by Cochrane, stated that "the large number of available digital fonts, as well as the published guidelines should not lead us to consider that legibility is no longer an issue of concern". The issue has plagued control centres in the past (e.g., BBC, 2002).

In healthcare, the issue remains an everyday hazard in medicine packaging, where medicine names look alike or sound alike or have very similar labels for different drugs or doses. Many packages and labels require users to force attention onto small details of text, perhaps with the addition of a small area of colour which, on its own, is quite inconspicuous. It is asking a lot of people to make critical – sometimes life-and-death-critical – decisions based on small design features when the potential for confusion is so high. While aviation has schemes such as EUROCONTROL's call sign similarity service to reduce confusion at the blunt end, those on the front line of healthcare have to sort out this design mess at the sharp end.

Several coding methods (e.g., shape, colour, size) can help to make vital distinctions. In human factors/ergonomics, these are used as part of an iterative human-centred design process (e.g., ISO 9241-210:2010 – Ergonomics of human-system interaction – Part 210: Human-centred design for interactive systems) that seeks to understand stakeholders and context, identify user needs, specify design requirements, produce prototypes, and test them.

In the absence of this process, what is amazing is not that such 'extraordinary failures' occur, but that such failures are not much more ordinary. Because such failures occur infrequently, when they do happen they are often (and unhelpfully) branded 'human

error'. When considered more carefully, we can see that they are often, in large part, a problem of design. As Hollnagel (2016) states, "The bottom line is that the artefacts that we use, and in many cases must use, should be designed to fit the activity they are intended for" (p. 57). Understanding people, activities, contexts, and technologies is the bedrock of human factors and ergonomics (HF/E), but differences between design and operational contexts and activities contribute to gaps between how designers intend and imagine that an artefact or technology be perceived, understood and used, and how users actually perceive, understand and use the artefact or technology. In design, work-as-imagined tends to be incorrect and incomplete with reference to work-as-done, especially for very complicated work. In operation, users' mental models (of technology) tend to be incorrect and incomplete, especially for very complicated technology. Even seemingly small gaps may have very large implications for operation, including interaction patterns not-as-designed and compensatory trade-offs and compromises in operation. Figure 1 shows differences between contexts and mental models in design and operation (see also Norman, 1988; Hollnagel, 2016).

> Risk controls change the context and can have unintended consequences, introducing new risks.

Safeguards gone bad

At the Oscars, the design problem multiplied. Two identical sets of the winners' cards were made for 'safety purposes'. These duplicate envelopes were held in the wings in case anything should go wrong with a presenter or an envelope. In this case, the duplicate of the Best Actress award, which had just been announced, was handed to Beatty as he walked out to announce the Best Picture winner.

Safeguards feature in most safety-critical industries, and tend to result from risk assessments and safety investigations. When performed as linear cause-effect analysis processes, these often stop at the risk control. But risk controls change the context and have can unintended consequences, introducing new risks.

In this case, the spare set of envelopes was identical to the main set, like a fallback mode that looks identical to the main display. There were no other means of coding (e.g., colour, pattern) to indicate any difference.

We can see some parallels here in the beginnings of the discipline of human factors and ergonomics. Van Winsen and Dekker (2016) wrote that "A seminal study that set the agenda for the scientific discipline of human factors was by the experimental psychologists, Fitts and Jones (1947), who adapted their laboratory techniques to study the applied problem of 'pilot error' during WWII. The problem they faced was that pilots of one aircraft type frequently retracted the gear instead of the flaps after landing. This incident hardly ever occurred to pilots of other aircraft types. They noticed that the gear and flap controls could easily be confused: the nearly identical levers were located right next to each other in an obscure part of the cockpit" (p. 67).

Decision-making under uncertainty

The prospect of an erroneous announcement was clearly imaginable to Cullinan and Ruiz, who spoke to The Huffington Post about this scenario just a week or so before that fateful night: "We would make sure that the correct person was known very quickly", Cullinan said. "Whether that entails stopping the show, us walking onstage, us signalling to the stage manager — that's really a game-time decision, if something like that were to happen. Again, it's so unlikely."

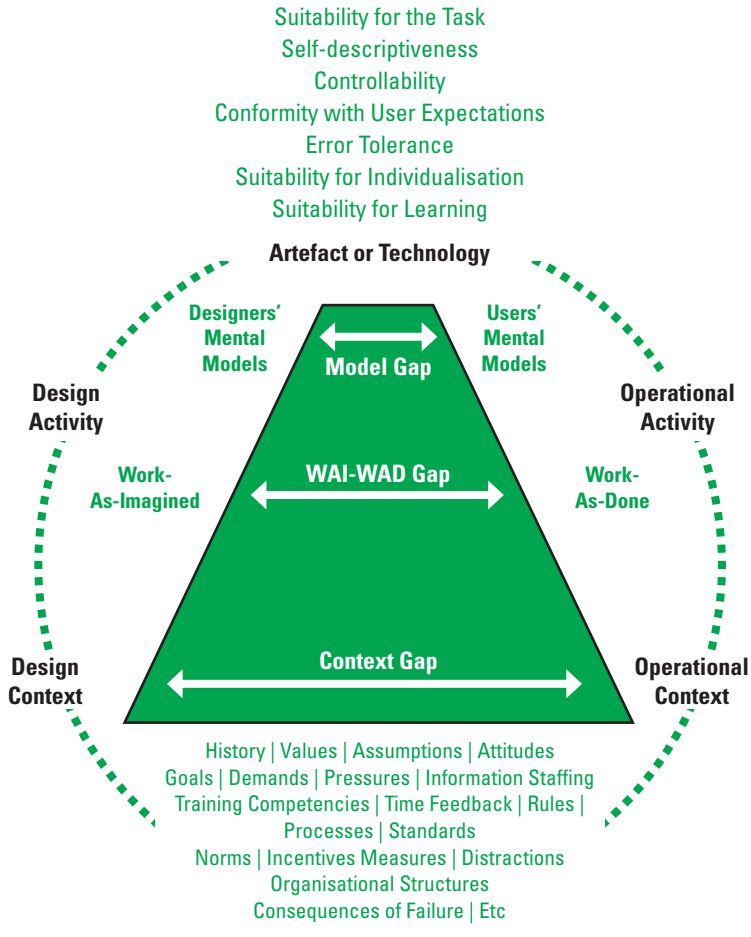
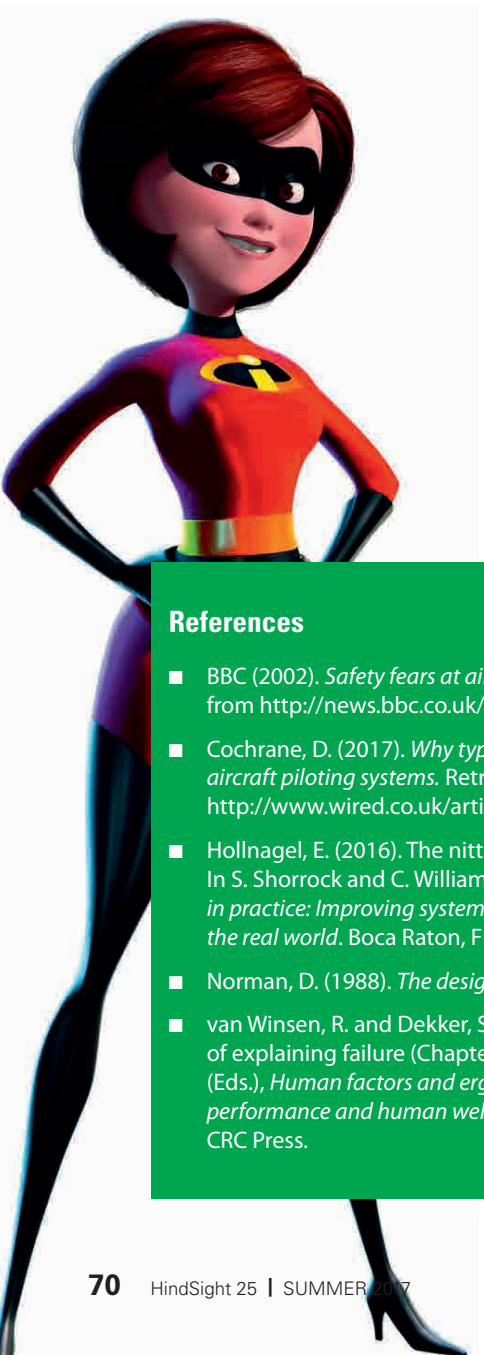


Figure 1: Design-operation gaps with regard to artefacts and technologies[1].

1- Artefact dialogue principles are from ISO 9241-210:2010

Even when we imagine that something extraordinary is possible, reacting when that something does happen is another thing entirely. Many readers will be quite familiar with this, and it is an important reason for simulation. In this case, Beatty (and Dunaway, Cullinan, and Ruiz) were live on the night of the biggest show on earth, with the eyes of tens of millions upon them, recorded for perpetuity for viewing by hundreds of millions more. The announcement would feel like a gold Olympic medal to a few producers. That high-stakes, game-time decision that seemed so unlikely was now the real deal, and it wasn't handled quite as imagined. Imagined responses need to be tested in a simulated environment.

Decision-making under uncertainty is a normal feature of much safety-critical work. The information and situation may be vague, conflicting or unexpected. In some cases, there is a need to signal confusion or uncertainty, perhaps to get a check, or to ask for more time. When someone has a command position – in an operating theatre, cockpit or control room, or at the Oscars – it can be difficult for that person to indicate that they are not sure what is going on. Especially when under time pressure, it can be hard for us to give voice to our uncertainty in this way. This has played out in several aviation accidents and moreover in everyday life. But sometimes, it is necessary to send a message to colleagues along the lines of, "I don't understand what's going on. I need help". This identifies a problematic situation and opens the door to other members of the team to help problem-solve. This kind of intervention is part of training programmes for team resource management, and can help everyone involved – no matter what their formal position – to voice and resolve their doubts, uncertainties and concerns.



For the most part, the human in the system is less like a golden Oscar, and more like Mister Fantastic or Mrs Incredible, using abilities of mind and body to connect parts of systems that only work because people make them work.

It's just an awards show

The events of Oscars 2017 will be emblazoned forever on the minds of participants and aficionados. But it as host Jimmy Kimmel said, "Let's remember, it's just an awards show". For those who have to put up with the same sorts of issues every day, it's much more than that. In aviation and other industries, people help to ensure that things go well despite problematic aspects of the systems and environments in which they work. For the most part, the human in the system is less like a golden Oscar, and more like Mister Fantastic or Mrs Incredible, using abilities of mind and body to connect parts of systems that only work because people make them work. This aspect of human performance in the wild is usually taken for granted. But in the real world, people create safety. And for that, they deserve an Oscar.

This article is adapted from *Human Factors at The Oscars and Just Culture in La La Land*, at www.humanisticsystems.com

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