Target culture:
lessons in unintended consequences

by Steven Shorrock & Tony Licu, EUROCONTROL

Since we emerged from the depths of winter, many of us are still are afflicted by the 'potholes' that developed in the roads during the cold temperatures. These potholes are dangerous. They change drivers' visual scanning, cause drivers to swerve, and sometimes lead to loss of control, and ultimately to several deaths. Potholes are also very expensive in terms of the damage to vehicles and costs to authorities.

Tony Licu is Head of the Safety Unit within the Network Manager Directorate of EUROCONTROL. He leads the deployment of safety management and human factors programmes of EUROCONTROL. He has extensive ATC operational and engineering background (Masters Degree in avionics).

Steve Shorrock

is a human factors specialist and safety psychologist with a background in research and practice in several safety-critical industries and Government in Europe and Australia. He is currently a Safety Development Project Leader at EUROCONTROL and an Adjunct Senior Lecturer at the School of Aviation, University of New South Wales.

A 2013 survey in England and Wales by the Asphalt Industry Alliance suggested a repair bill for local councils of £113 million just to fill the holes. In an era of austerity, potholes are a real headache for local authorities. To get them fixed British councils have set numerical targets to fix each hole.

Now imagine you are part of a road maintenance team, and you have to fix each pothole in 13 minutes, within 24 hours of the hole being reported. You know from your experience and records that this is well below the time needed to properly fill a hole. But the target has been set and you and the council will be evaluated based on performance against the target. So what would you do? Maintenance teams in the UK found themselves in exactly this situation. What they did was entirely understandable, and predictable: they made temporary fixes. According to Malcolm Dawson, Assistant Director of Stoke-on-Trent City Council's Highways Service, *"Ninety nine per cent of every single job that we did was a temporary job. That meant that the staff on site who were doing the value work knew that this would fail anything between two and four weeks, but we kept sending them out as management to do as many of them as they possible could."* (see video at http://vimeo.com/58107852.)

The target was achieved, but holes reappeared and more costly rework was needed. Several councils have now dropped the numerical repair time targets, aiming instead for permanent, 'right first time' repairs – an approach designed with the front line staff, using a 'systems thinking' approach.

Targetology

What does this have to do with air traffic management? Well, we too live in a world of performance targets. Numerical targets – whether they relate to cost-efficiency, capacity, environment, or safety – do affect behaviour and system performance. That is not in dispute: targets are powerful means of change. The question is, *do they affect performance in the right way?* This

article does not aim to answer this question specifically in the context of ATM. We don't have the data to answer that question. Instead, we examine the experience of other sectors and so encourage reflection about targets in our own sector. We are not talking about 'close-as-you-can-get targets' (such as 'zero accidents'), or 'far-as-you-can-get targets' (such as maximising return on investment), or competitive targets (such as to be the global leader in ATM). We would call these goals. We are talking about numerical targets, which are judged as either met or not met (see Meekings et al, 2011).

And why all this is important for you specifically, as Air Traffic Controllers – the main readers of HindSight magazine? Well, targets in ATM sooner or later affect your daily practice and we think it is important for you to have a glimpse inside the world of targets more generally.

There are several reasons why targets can seem like a good idea, but these are usually built on assumptions (see Seddon, 2003, 2008).

Targets set direction, don't they?
One justification is that targets set direction, so people know what to do, how much, how quickly, etc. Experience shows that numerical targets do indeed set direction; they set people in the direction of meeting the numerical target, not necessarily achieving a desired system state. In her book 'Thinking in systems' (2008), Donella Meadows said, "If the goal is defined badly, if it doesn't measure what it's supposed to measure, if it doesn't reflect

Target culture: lessons in unintended consequences (cont'd)

the real welfare of the system, then the system can't possibly produce a desirable result" (p. 138). She gives the example that if national security is defined in terms of the amount of money spent on the military, the system will produce military spending, and not necessarily national security. Targets can set a system in a direction that no-one actually wants.

Targets motivate people, don't they?

Another justification is that targets motivate people to improve. This assumes that people need an external motivator to do good work (contrary to research in psychology), and ignores the fact that the vast majority of outcomes are governed by the design of the system, not the individuals in the job roles. But targets certainly do motivate people. They motivate people to do anything to be seen to achieve the target, not to achieve the purpose from the end-user's perspective. Targets motivate the wrong sort of behaviour. And if a target is missed or unachievable, then what?

Targets allow comparison, don't they?

In a competitive world, where cost-efficiency is under the spotlight, it is tempting to think that numerical targets provide a means of comparing the performance of different entities. It is true that targets allow comparison, but experience shows it often allows comparing false, manipulated or meaningless data.

This may seem like a cynical set of responses to three of the most common reasons for targets. But the unintended consequences of targets have been well documented in many different types of systems. This isn't new. Economists and social scientists have known for centuries that interventions in complex systems can have unwanted effects, different to the outcome that was intended. Over 300 years ago, the English philosopher John Locke urged the defeat of a sort of target enshrined in a parliamentary bill designed to cut the rate of interest to an arbitrary 4%. Locke argued that people would find ways to circumvent the law, which would ultimately have unintended consequences. In a letter sent to a Member of Parliament entitled 'Some Considerations of the Consequences of the Lowering of Interest

and the Raising the Value of Money' (1691), Locke wrote, "the Skilful, I say, will always so manage it, as to avoid the Prohibition of your Law, and keep out of its Penalty, do what you can. What then will be the unavoidable Consequences of such a Law?" He listed several, concerning the discouragement of lending and difficulty of borrowing, prejudice against widows and orphans with inheritance savings, increased advantage for specialist bankers and brokers, and sending money offshore.

Since then, there have been many examples of unintended consequences of government and industry targets in all sectors. A good case study of the experience of targets lies in British public services. This is not to say that other countries are different – targets in the public sector and business are prominent around the world, with the same effects now being recognised. But since the late 1990s, targets became a central feature of British government policy and thinking, and so it is a useful case study. Performance targets were created at senior levels of government, civil service and councils, and were cascaded down. It is sufficient for this article to look at some real examples from three sectors to see how targets
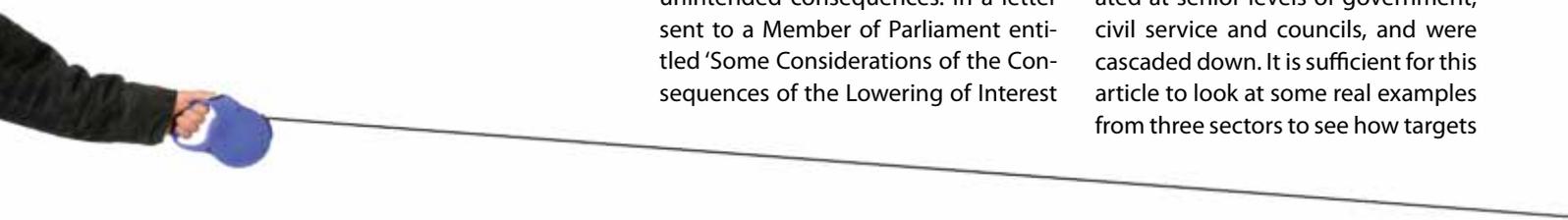
Targets can set a system in a direction that no-one actually wants

can drive system behaviour. As you read on, consider how top-down targets feature in your own national and organisational culture.

Healthcare targets

Healthcare in the UK was subject to a wave of top-down targets concerning waiting times and financial performance. The most well-known was a target of four hours waiting in accident and emergency from arrival to admission, transfer or discharge. Other waiting time targets concerned cancer treatment and ambulances. The targets were driven by needs of patients and budgeting, but ignored quality of care and had destructive effects, which are now being understood.

The disastrous consequences of a target culture in healthcare were tragically illustrated in the Mid-Staffordshire Hospital Trust scandal. It has been estimated, based on a 2009 Healthcare Commission investigation, that hundreds of patients may have died as a result of poor care between 2005 and 2008 at Stafford hospital.

A Public Inquiry report by Robert Francis QC was published on 6 February 2013. The report identified targets, culture and cost cutting as key themes in the failure of the system. According to the report, *"This failure was in part the consequence of allowing a focus on reaching national access targets, achieving financial balance and seeking foundation trust status to be at the cost of delivering acceptable standards of care"* (http://bit.ly/XVfeSa), The targets led to bullying, falsification of records, and poor quality care.

What stands out in the report is how targets affected behaviour at every level. This is best illustrated via the actual words of those who gave evidence. A whistleblower, Staff Nurse Donnelly, said, *"Nurses were expected to break the rules as a matter of course in order to meet target, a prime example of this being the maximum four-hour wait time target for patients in A&E. Rather than "breach" the target, the length of waiting time would regularly be falsified on notes and computer records."*

According to Dr Turner, then a Specialist Registrar in emergency medicine (2002-2006), *"The nurses were threatened on a near daily basis with losing their jobs if they did not get patients out within the 4 hours target … the nurses would move them when they got near to the 4 hours limit and place them in another part of the hospital … without people knowing and without receiving the medication."*

The pressure was not restricted to front-line staff. The Finance Director of South West Staffordshire Primary Care Trust, Susan Fisher, felt *"intimidated… and was put under a lot of pressure to hit the targets."* Even Inspectors were *"made to feel guilty if we are not achieving one inspection a week and all of the focus is on speed, targets and quantity,"* according to Amanda Pollard, Specialist Inspector. She added, *"The culture driven by the leadership of the CQC [Care Quality Commission] is target-driven in order to maintain reputation, but at the expense of quality".*

And consider the position of the Chief Executives. In the words of William Price, Chief Executive of South West Staffordshire Primary Care Trust, (2002-2006), *"As Chief Executives we knew that targets were the priority and if we didn't focus on them we would lose our jobs."* When a CEO is saying this, you know how much power those targets have.

Even the House of Commons agreed. A House of Commons Health Select Committee report on patient safety (June 2009, http://bit.ly/14YW07i) stated that. *"…Government policy has too often given the impression that there are priorities, notably hitting targets (particularly for waiting lists, and Accident and Emergency waiting), achieving financial balance and achieving Foundation Trust status, which are more important than patient safety. This has undoubtedly, in a number of well documented cases, been a contributory factor in making services unsafe."*

Target culture: lessons in unintended consequences (cont'd)

With hindsight, everyone from the front-line to the government agreed: the targets were toxic. They were set at the top without a real understanding of how the system worked. They were disconnected from the staff and the end-users. But at the time, hardly anyone spoke up, else they faced accusations of incompetence or mental illness, physical threats from colleagues, and contractual gagging clauses. The targets helped to create a culture of fear and in doing so they resulted in gaming, falsification and bullying.

There are many other examples. Surgeons stated that they had to carry out more operations to hit targets under pressure from officials. In Scotland, there was a large increase in the practice of patients being marked 'unavailable' for treatment between 2008 and 2011, at a time when waiting time targets were being shortened. Around the UK, ambulance waiting time targets had unintended consequences, and were often not met anyway.

2 Police targets

The police were subject to probably more individual targets than any other sector in previous years. These related to the number of detections per officer, levels of specified offence types over specified periods, fear of crime, visibility of officers to the public, response times and public subjective confidence, among others.

There were many unintended consequences. In one sex-crime squad, the Independent Police Complaints Commission found that officers pressured rape victims to drop claims to hit targets, and that the squad drew up its own policy to encourage victims to retract statements and boost the number of rapes classed as 'no crime', improving the squad's poor detection rates threefold. Deborah Glass,

the Commission's deputy chair, said it was a *"classic case of hitting the target but missing the point… The pressure to meet targets as a measure of success, rather than focussing on the outcome for the victim, resulted in the police losing sight of what policing is about."* (http://bit.ly/13kncMy).

In 2010, the British Home Secretary Theresa May told the Association of Chief Police Officers' conference that she was getting rid of centrally driven statistical performance targets. She said: *"Targets don't fight crime. Targets hinder the fight against crime".* Superintendent Irene Curtis said that performance targets were rooted in the

culture of policing *"(This) has created a generation of people who are great at counting beans but don't always recognise that doing the right thing is the best thing for the public."* (http://bit.ly/12QgP3k).

Even those police forces that hit their targets were not so happy. Surrey Police was assessed as one of the best forces in England and Wales by Her Majesty's Inspectorate of Constabulary and the Home Office via an analysis of Statutory Performance Indicators for 2006-7. But a press release by the Surrey Police in response to the good news stated that, *"The assessment regime creates a number of perverse incen-*
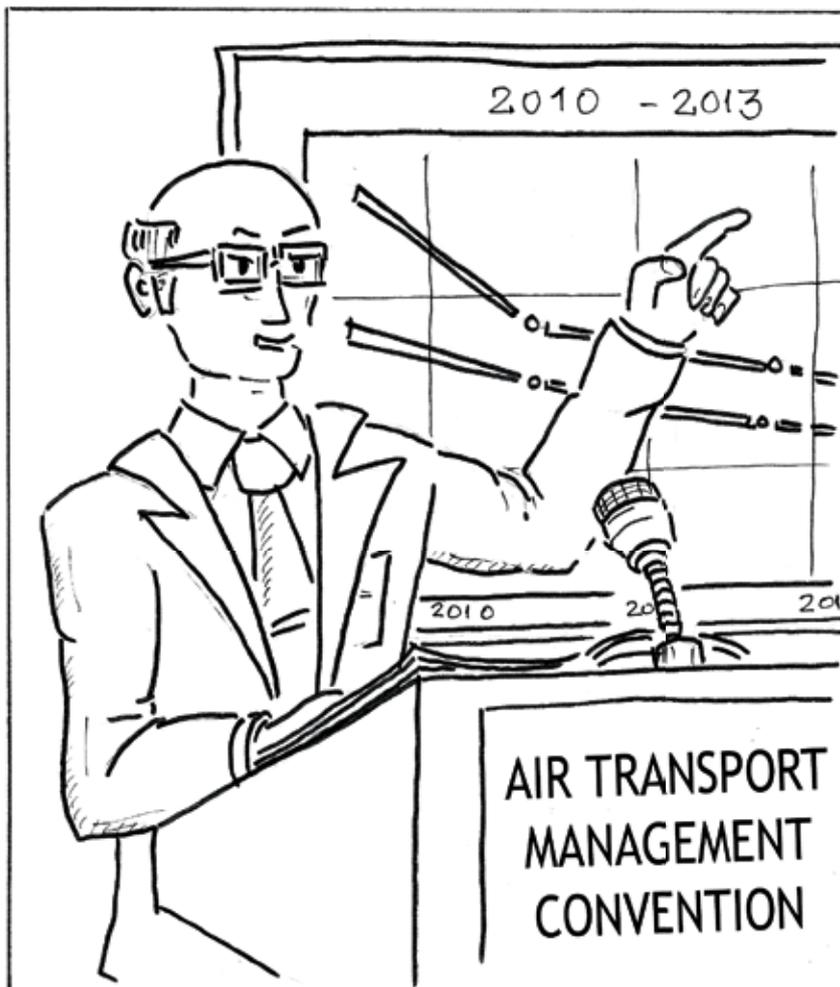
And I am proud to inform you that we have at least reached one of out targets: 100% of aircraft that took off have reached the ground... one way or another...

tives which draw resources away from local priorities." Chief Constable Bob Quick said, *"The assessments were helpful a few years ago but the point of diminishing returns has long since passed. Some of the statutory targets skew activity away from the priorities the Surrey public have identified. We are at risk of claiming statistical success when real operational and resilience issues remain to be addressed."* (http://bit.ly/12QgP3k). The winners felt that leading a 'league table' built on targets did not equate to success.

Education targets

Education may seem to be more predictable than policing and healthcare when viewed as a system, and so if targets could work, you might think they would work here. The UK set statutory, numerical (percentage) targets on (for example): reduction of truancy, 11-year-olds reaching 'Level 4' in both English and maths tests, improvement between the ages 7-11, and pupils attaining five GCSEs at grade A*-C.

This latter target had a number of unintended consequences. Originally, the target did not specify which GCSE subjects were to be included, and so schools could claim success by including easier subjects, and not including English or Maths. As a result of this gaming, the target was revised in 2007 to include maths and English. But still it was then found that schools changed the way they worked to focus on pupils on the cusp of hitting Government targets – five C grades at GCSE. This meant that bright pupils tended to underachieve, while the target provided a perverse incentive to neglect those children with no chance of attaining five GCSE C grades.

Another form of gaming has involved entering students for two different

tests for the same subject (GCSE and International GCSE). Reportedly, *"Hundreds of state schools are entering pupils for two English GCSE-level qualifications at the same time in a bid to boost their grades…with only the better grade counting towards league tables"* (http://bbc.in/Sj3Z6K). The government responded by drawing up reforms to league tables in a bid to reduce the focus on GCSE targets.

The targets on reducing truancy led to allegations of teachers manipulating attendance records by persuading parents of persistent absentees to sign forms saying they intended to educate their children at home. Overall, truancy targets were unsuccessful, and were abolished.

When asked what have been the consequences of targets and league tables in education, teachers have spoken out, saying that they promote shallow learning, teaching to the test, and gaming the system. As one teacher put it, *"I think that the targets culture is ruining education. Teachers and senior staff are now more interested in doing whatever it takes (including cheating) to get their stats up than doing what is best for the students"* (http://bit.ly/MAtkYp). The education targets are now under review.

What makes targets fail again and again?

The target fallacy

The British government's experiment with targets does not suggest that the targets were the wrong ones or that there were too many or not enough. It suggests that targets didn't work, or rather, they didn't work in the way that the target-setters thought that they worked. *Targets were meant to improve performance, but instead they made it worse.* People at all levels agreed, from nurses, police officers and teachers to Chief Executives, Chief Constables and government ministers. So why do targets fail again and again?

■ **Top-down**. Targets are usually set from above, disconnected from the work. As such, they do not account for how the work really works.
■ **Arbitrary**. Targets are usually arbitrary, with no reliable way to set them. They tend to focus on things that seem simple to measure, but are not necessarily meaningful.
■ **Sub-optimising**. Targets focus on activities, functions and departments, but can sub-optimise the whole system. People may ensure that they meet their target, but harm the organisation as a whole, or allow other important but unmeasured aspects of performance to deteriorate.
■ **Resource-intensive**. Targets create a burden of gathering, measuring and monitoring numbers that may be invalid.

Target culture: lessons in unintended consequences (cont'd)

- **Demotivating**. Targets can demotivate staff. Targets may be unrealistic, focus on the wrong things or provide no incentive to improve once the target is missed. What they often do motivate is the wrong sort of behaviour.
- **Unintended consequences**. Targets always have unintended consequences, such as cheating, gaming, blaming, and bullying. They make good people do the wrong things, especially if there are sanctions for not meeting the targets.
- **Ineffective**. Targets are often not met anyway, or else they become outdated, but are still chased.

Systems thinkers agree that there is rarely such a thing as a good target in a complex system. The organisational psychologist and management thinker Professor John Seddon argued that *"The whole notion of targets is flawed. Their use in a hierarchical system engages people's ingenuity in managing the numbers instead of improving their methods"* (Seddon, 2003, p. 78). Goals and measures are important, along with continuous improvement in performance. But once a measure becomes a goal in the form of a numerical target, both the original goal and the measure tend to become distorted. In a complex system, goals and measures need to reflect the real welfare of the system over time.

How this is relevant for you – Can you make a difference?

If you had patience to read up to here you are probably wondering how this could be relevant for an Air Traffic Controller or any other front-line operator in the aviation industry. Can you make a difference? Can you help prevent the kind of problems in aviation that we have seen in other industries? We think you can. Although targets may be cascaded down to you from your management and from regulatory authorities, you need to get involved. Reflect individually and collectively on how targets influence us and the system we work within. Talk with your colleagues and management – especially the supervisors who are the glue between senior management and operations – about targets in ATM, for instance:

- Do your targets echo the organisational goals?
- Are targets compatible with each other?
- Did you or your colleagues have a chance to advise in setting or reviewing your targets?
- Do targets reflect the real context of the daily operations?
- Do targets avoid putting pressure on staff?
- Are targets reviewed, modified, and removed to ensure they remain current?

If the answer to any of these question is 'No', then speak up – raise safety concerns, because this is relevant to your safety culture. Front line staff are not usually responsible for setting performance targets, but are the ones who are most affected.

Ultimately, we need to ensure that the possible unintended consequences of targets in ATM are understood by those who set and monitor targets. Remember that targets are supposed to be there to help us achieve our goals. And the primary goal of Air Traffic Management is to prevent collisions. Are targets helping us to achieve that goal?

Further Reading

- Meadows, D.H. (2008). *Thinking in systems: A primer.* Chelsea Green Publishing Company.

- Meekings, A., Briault, S., Neely, A. (2011). How to avoid the problems of target-setting. *Measuring Business Excellence, 15*(3), 86 – 98. http://bit.ly/yeci8d

- Seddon, J. (2003). *Freedom from command and control: A better way to make the work work.* Vanguard Consulting.

- Seddon, J. (2008). *Systems thinking in the public sector: The failure of the reform regime… and a manifesto for a better way.* Triarchy Press.

- Senge, P.M. (2006). *The Fifth Discipline: The art and practice of the learning organization (Second edition).* Random House.

- Systems Thinking Review (2009). *A systems perspective of targets.* http://vimeo.com/58107852 (article and video).