

# Unlearning in health care

R Rushmer, H T O Davies

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Learning in health care is essential if healthcare organisations are to tackle a challenging quality of care agenda. Yet while we know a reasonable amount about the nature of learning, how learning occurs, the forms it can take, and the routines that encourage it to happen within organisations, we know very little about the nature and processes of unlearning. We review the literature addressing issues pivotal to unlearning (what it is, why it is important, and why it is often neglected), and go further to explore the conditions under which unlearning is likely to be encouraged. There is a difference between routine unlearning (and subsequent re-learning) and deep unlearning—unlearning that requires a substantive break with previous modes of understanding, doing, and being. We argue that routine unlearning merely requires the establishment of new habits, whereas deep unlearning is a sudden, potentially painful, confrontation of the inadequacy in our substantive view of the world and our capacity to cope with that world competently.

Frequently, what is already known by practitioners becomes fossilised as the status quo, to which new knowledge, practices, and learning are simply bolted on. New learning adds to, rather than replaces, old practices. Practices become embedded, stuck, ritualised, unexamined, and never removed<sup>20 21</sup>; Practitioners find that there becomes more and more to do as new learning accumulates. A major challenge, therefore, in the areas of healthcare quality, patient safety, and medical error, is "...getting people to stop doing things as well as getting new practices started".<sup>22</sup> To be successful, therefore, individual and organisational learning needs to be balanced with unlearning.<sup>20 21 23</sup>

Relatively little discussion in the healthcare literature has addressed these important processes of unlearning, either at individual or organisational levels. This paper seeks to redress that balance. The contribution of this paper is to suggest that the unlearning process is not a simple, singular, or unproblematic outcome of the learning process. We speculate that unlearning is a distinct process; usually not spontaneous; has a varying nature; and should form a pivotal part of the management of professional practice where risk minimisation is critical.

## LEARNING

We know a great deal about learning from various disciplinary perspectives, but most prominently from psychology.<sup>24</sup> We can learn by association (classical conditioning),<sup>25</sup> by consequences (operant conditioning),<sup>26</sup> and through intellectual thought (cognitive learning theories, for example insight, modelling, and latent learning).<sup>27–29</sup> We can learn new behaviours, manual skills, self-awareness, and interpersonal skills.<sup>30</sup> In addition, we know many of the factors that facilitate learning (approximation, reinforcement, feedback, chunking, motivation, and clear goals) and some of those that hinder effective learning (for example ill defined goals and lack of feedback).<sup>24</sup> We also know much about the routines and systems that foster learning in organisations, for example single, double, and triple loop learning.<sup>5</sup> Some of these processes are explained briefly in table 1. Less well known, but growing in importance, are ideas of unlearning.

## UNLEARNING

### Routine unlearning

It can be tempting to see unlearning as a simple matter, one that will automatically occur when the factors that sustain the original learning are removed. Indeed, the unlearning curve is sometimes referred to as the forgetting curve.<sup>38</sup> This suggests that past learning will merely fade away

The requirements of rapid change within healthcare settings have arguably had three main effects: a rise in the amount of information that flows past practitioners;<sup>1</sup> the increasing recognition of the practitioner as a knowledge worker;<sup>2</sup> and a propensity for practitioners to experience reform fatigue (tiredness and apathy caused by constant reforms).<sup>3</sup> One way forward has been to consider the ideas of the learning organisation, especially the central notion that people can learn to learn and be primed and ready to adapt to any changing situation.<sup>4–6</sup> The approach is not without its critics,<sup>7 8</sup> who claim the approach is idealist and vague, yet the ideas embedded within this literature are gaining currency in health care, with efforts being made to show how they apply in a variety of service settings.<sup>9–18</sup>

This emphasis on learning in health care (exemplified, indeed, by this supplement to *QSHC*) begs an important question, however—are we missing part of the equation? Perhaps one of the reasons why learning can be so difficult, and success so uncertain and far from assured, is that

"...Climbing the learning curve is only half the process... the other half is the unlearning curve."<sup>19</sup>

See end of article for authors' affiliations

Correspondence to:  
R Rushmer, CPPM, School  
of Management, The  
Gateway Building, North  
Haugh, University of St  
Andrews, St Andrews, Fife  
KY16 9AL, Scotland, UK;  
[rkr@st-andrews.ac.uk](mailto:rkr@st-andrews.ac.uk)

**Table 1** Theories of how individuals and organisations learn

Term	Brief description
<b>Individuals</b> <sup>31</sup>	
Classical conditioning <sup>32</sup> (learning by association)	Learning that takes place when two events are experienced together in space and time and become associated with each other
Operant conditioning <sup>33-34</sup> (the carrot and the stick)	A learning process in which behaviours are followed by reinforcing or punishing consequences
Cognitive learning <sup>34-36</sup> (learning by understanding and thinking)	<ul style="list-style-type: none"> <li>• Modelling: learning that occurs through the observation and imitation of the behaviours and experiences of others</li> <li>• Insight: learning through the “aha!” phenomena</li> <li>• Latent learning: where we soak up capacity, but this only becomes apparent when used at a later time</li> </ul>
Learning curve <sup>37</sup> (how we learn through time)	A line graph where performance is plotted against time during the learning process to study the process that learning new skills takes
Unlearning curve	Previously plotted as above mapping performance as it declines (or is established) variously speculated as a forgetting curve; an extinction curve; or a transfer of learning curve. We suggest that the unlearning process is not a simple, unitary, or unproblematic outcome of the learning process. We speculate that it is a distinct process, usually not spontaneous but appearing in various forms and a pivotal part of the management of professional practice where risk minimisation is critical.
<b>Organisations</b> <sup>5-6</sup>	
Single loop learning (the feedback loop)	Identification of problems in the present system, taking corrective action and returning performance to normal
Double loop learning (changing the system)	In the light of persistent problems taking steps to change the whole system to tackle the causes of problems
Triple loop learning (learning to learn)	Proactive attempts to identify what facilitates learning per se, and then to apply these generalised principles to help learning in other times and places

over time, and that further learning serves simply to refine, finesse, or replace what had previously been learnt.

With simple behavioural habits, it is indeed possible to see this passive replacement process in operation as a glide down the unlearning curve. For example, if a mandatory health form is altered, practitioners may stare at the new form, puzzling over where the familiar boxes and headings have gone. In completing the form they may falter or enter information wrongly through an erroneous habitual response. However, as they continue, familiarity and confidence are gained with the new layout. As they learn they also unlearn, old ways of doing things recede, prior expectations fade, discomfort is reduced, and forgetting takes place. New learning replaces old routine unlearning.

### Wiping: accelerated and directed unlearning

Routine unlearning may provide a useful augmentation of notions of learning at a simple behavioural level. However, social and cognitive learning is less straightforward than a ritualised, habitual response. Social and cognitive learning refers to the intellectual processes of thinking, expecting, believing, and perceiving—and how these processes work together to bring about and maintain our understanding of the world in which we live. It is established by processes that include insight, modelling, and latent learning (processes where we do not even have to learn directly ourselves, but learn from what happens to others and their outcomes in the past). This learning occurs at higher cognitive levels. In health care, professionals do not simply respond passively to their working environment—they reason, believe, and estimate; and they act to try things out.

This more complex understanding suggests that simply waiting for unlearning to happen as a by product of learning may be misguided. Social learning (beliefs, values, attitudes, assumptions, and interpersonal skills) is likely to be sustained through several complex and interdependent processes. To unlearn complex learning we might therefore need to be pushed or pulled down the unlearning curve. To be pushed into unlearning is to be subject to focused, directive instruction to stop doing certain things (for example, a directive to stop prescribing certain selective serotonin reuptake inhibitors (SSRIs) to people under 18). To be pulled down into unlearning is to be persuaded by the pull of strong evidence that cannot be ignored (for example, the

effectiveness of low dose aspirin before, during, and after heart attacks). Both are deliberate and directed attempts at wiping out past learning; one using force, the other appealing to persuasion based on convincing evidence.

### Deep unlearning: shock and rupture

Sometimes processes of unlearning can be less deliberate, planned, and directed: unlearning can take place in fundamentally unpredictable, uncontrolled, and sometimes shocking ways. Such deep unlearning instils a new way of being and understanding that reflects a radical break with the past. This can be triggered by a sudden action, comment, or event; a single moment in which our lives are changed forever. This can be experienced when we are suddenly confronted with a major and substantial gap between what we see or hear and how we believed the world to be. It can be a throwaway comment (which we will never forget), a realisation of a serious mistake made (we learn most from our mistakes) or a tragic event (an avoidable death perhaps). It is almost invariably described in terms of pain and transformation; there is little time for reflection or adjustment, only a sharp split with the past.

Arguably, what differentiates deep unlearning from routine unlearning and deliberate wiping is the speed at which it happens, the unlearning curve is not traversed, the curve becomes a cliff face and the unlearner drops. No longer gliding in a controlled way down a smooth curve, the unlearner falls fast, far, and hard. The person that lands at the bottom is never the same as the person that began the descent. It seems to be a combination of this rapid uncontrolled, unexpected descent that propels the unlearner further down the unlearning curve to reach a position where deeply held, perhaps previously unacknowledged, assumptions and beliefs<sup>39</sup> are opened to doubt and thus change (unlearning). These aspects thrown open to change are not just beliefs about the world, but aspects of our very selves. The process shocks, hurts, and threatens; it challenges ingrained cognitions and behaviours, and it triggers grieving.<sup>40</sup>

### WHY UNLEARNING IS NECESSARY

Healthcare practitioners and the organisations in which they are embedded face complex challenging environments often in a state of flux or turbulence bordering on chaos. In this

context unlearning may become an urgent necessity for a wide variety of (interlocking) reasons:

- Recent decades have seen an explosive growth in knowledge and understanding about health and health care, with concomitantly increasing demands on practitioners' knowledge and skill sets, reinforced by legal, professional, and regulatory requirements. Some of the things that healthcare professionals know may be incomplete, dangerously flawed, or simply incorrect.
- Much of the literature assumes that we can learn and learn ad infinitum, and that accumulation of new knowledge is unproblematic. It is almost as if the assumption is that we learn onto a clean slate,<sup>41</sup> or a blank sheet of paper.<sup>42</sup> Yet we know that new material learnt can replace or contaminate what is presently known (retroactive interference), or what is presently known can make learning new material much more difficult (proactive interference).<sup>43</sup> Unlearning may be necessary to clear the way for new (more appropriate) learning in healthcare practice.<sup>44</sup>
- Once embedded in organisational systems, ways of doing things can fossilise, making innovative change (at practitioner level) less likely to succeed because it does not fit in with the system that is there to support practice. The rigidity and antiquity of some health systems may constrain practice development.<sup>20 21 38</sup> For example, clinical protocols may enhance patient safety, but once in place may not permit local discretion and necessary timely change.
- Being able to unlearn is a skill in itself, which may increase flexibility and willingness to change proactively.<sup>6</sup>
- Unlearning as a process can surface aspects of things we take for granted but are not aware that we know, opening up us and our organisations to potentially deeper and more useful understanding.<sup>39</sup>
- Adverse events (such as mistakes, errors, or system failings) might make it politically astute for the healthcare organisation to be seen publicly to unlearn old ways, deliberately and with commitment.
- Care needs to be taken in deciding what needs to be unlearned. Extrapolating lessons from errors may result in the wrong lessons being learned (for example what does a near miss tell us—does it demonstrate vulnerability or does it illustrate resistance to failure?) (Personal communication, B Wears, 2004).

For all of these reasons, unlearning may be an essential but currently undervalued characteristic of responsive and reflexive practitioners, a vital skill to set alongside the more commonly addressed learning capabilities. None of this is to suggest that such unlearning is easily accomplished.

### WHY INDIVIDUALS FIND UNLEARNING DIFFICULT

We have already alluded to complex social and cognitive learning, which is the bedrock of day to day clinical practice. Such learning may be extremely difficult to unpack and undo, as a wide variety of factors contribute to individuals resisting attempts to alter what they do and how they do it:<sup>45</sup>

- **Habit and security**—habitualised routines demand less conscious attention from those carrying them out. Repeated often, they become increasingly easy; they also become known and trusted, familiar, safe, secure, and comforting. They slot together to become our comfort zone.
- **Fear of the unknown**—related to the above is an unwillingness to step away from the known into what is unfamiliar, possibly uncontrolled, and untested. This could be a powerful block to unlearning in healthcare settings, where patient safety tends to dictate a risk averse approach and healthcare organisations are likely to want to stick to what is tried and tested.
- **Stereotypes, mental models, and mind sets**—when a practitioner gains significant experience and expertise, concomitant cognitive tools include mental shortcuts about people, places, and things (stereotypes<sup>46</sup>); how the world is and what is possible and what is not possible (mental models<sup>47</sup>); and grooves and patterns of thinking about how things should be seen and what outcomes are likely (mind sets). These shortcuts in our ways of seeing and understanding the world (clinical acumen) can be extremely powerful and pleasing ways of categorising and dealing with new situations by treating them like the things that we have encountered before (yet, wrongly over generalised, these become the raw ingredient of prejudice and bigotry). Unlearning these mental shortcuts involves significant loss (for example, of self-efficacy) and can be disorientating. Changing professional roles illustrate this with nurses now performing many tasks previously reserved for medics. Open mindedness as to what is possible is a vital ingredient of successful unlearning.
- **Lack of awareness**—we may not be aware of the need to unlearn. If our ideas about the world allow us to function adequately on a daily basis,<sup>48</sup> then we receive no direct feedback that tells us we need to unlearn. The oft used retort: "If it ain't broke don't fix it" may be testament to this phenomenon. When knowing involves complex cognitive processes like intellectual thoughts, perceptions, beliefs, and values (and the mix between these) then powerful psychological processes protect our present worldview. Ego or cognitive defence and perceptual set<sup>49</sup> are concepts used to describe how people dismiss (or simply fail to notice) information that conflicts with their view of the world. Cognitive dissonance suggests people bring attitudes and behaviour into line to prevent psychological upset.<sup>50</sup> This suggests that healthcare organisations may not realise there is a problem until an adverse event occurs.

Taken collectively then, these factors suggest that as human beings we are strongly disposed to building a schematic understanding of the world,<sup>51</sup> what it is like, and how it works. Such understanding is built upon past experiences and is culturally informed and reinforced. We are reluctant to alter this worldview even in the light of experience and evidence to the contrary. In this way unlearning is challenging for the individual because of "the loss of prior ways of seeing reality—the loss of fundamental assumptions which until now had brought certainty and security".<sup>52</sup>

### WHY ORGANISATIONS FIND UNLEARNING DIFFICULT

It is not just individuals who struggle to unlearn; organisations do too. Organisations are inanimate entities, but they do have ways of capturing, recording, and reproducing what they know: "Most people agree that [while] organisations themselves cannot learn...individual learning migrates to the organisational level in social interaction of some form."<sup>53</sup> In this way, organisations can be said to have memories: "By organization memory we are referring to the various structures within an organisation that hold knowledge in one form or another, such as databases and other information stores, work processes, procedures, and product or service architecture."<sup>54</sup>

Over time, these systems often gain a form of independence and near permanence. When entering an organisation, we find ourselves subject to these systems without being able to influence them to any great extent. Like human memories, organisational memories too are resistant to unlearning. Stability, predictability, and certainty are valued organisational characteristics.<sup>55 56</sup> Yet an organisation that is very tightly defined in terms of roles, tasks, and boundaries, and binds its people to these rules, can be said to have become overdetermined,<sup>45</sup> establishing a rigidity that is difficult to unlearn (structural inertia<sup>57</sup>). Knowledge at the organisational level can become stuck, for example in business processes, formal reporting structures, performance management systems, and resource allocation processes.<sup>54</sup>

As individuals have mind sets, so too do organisations; the dominant logic.<sup>38</sup> The dominant logic is the sum total of the prevailing preconceptions about the business the organisation is in, its environment, and its institutional history. This can be thought of as the cultural understanding of what the organisation is about, where it comes from and what it stands for. Much like cognitive defence, the dominant logic acts as a filter to screen out data that does not conform, reducing the perceived need to unlearn and change.

Even when confronted with (and accepting) a need for change, organisations may have only a narrow focus for that change. Rather than undergo massive upheaval and risk undoing all parts of its business at one time, people in organisations prefer to alter only a small part of what it does. Yet this is unlikely to be successful because each little part is linked into the whole and fossilised into position. One small pocket of change still has to get things done by going through the procedures and regulations that still apply in the wider organisation. Unlearning sometimes needs to ripple out through all parts of the organisation, requiring reorganisation of the old and system wide transformation. Such major transformations, of course, pose significant difficulties.

Organisational unlearning is made particularly difficult because of the ways in which information flows from front line staff up the organisation hierarchy. In most hierarchical organisations, important decisions about how things are to be done (planning, resource allocation, strategic direction) can be taken by people working at a distance from the point of service delivery. There are good reasons for thinking that the information that informs their decisions—that which passes upwards through the hierarchy—is not always fully accurate. Line reports tend to pass on only information that paints front line staff and their work in a favourable light, and ignore or play down negative information through fear of undesirable repercussions.<sup>58</sup> The message that passes up the organisation is that things are fine. Data presented to central decision makers thus tend to be confirmatory, negating the need to unlearn any of the present organisational activities. Even where senior decision makers retain roles as active practitioners (for example, as in medicine), the following process may distort the information they receive.

In hierarchical organisations (and certainly within many healthcare professions) if the senior clinical leader prefers methods of practice that are outdated, then to challenge these openly is difficult. What is more, the dominant logic (or, in other terms, the prevailing culture (shared values, beliefs and norms))<sup>39</sup> imposes considerable inertial drag on unlearning processes. Therefore, individual unlearning (through training perhaps, or personal revelation) does not guarantee unlearning in the wider work group. The individual has to be allowed to operate in the new ways, and group norms and role expectations are powerful constraints transmitted by colleagues.<sup>59</sup> Peer pressure to conform will limit expressions of unlearning and its systemic expansion.

It is not just group norms that may be threatened by unlearning certain ways of doing things—other tangible benefits that follow the present order of things may also be challenged, for example resource allocation, decision making authority, and allocation to preferred roles. These represent political, deliberately constructed reasons why organisations fail to change. Attempts to unlearn can be sabotaged by those who would lose out.<sup>60</sup> Established members of staff, for example, may find it more difficult to unlearn set patterns than newcomers who are not yet socialised into the dominant logic.<sup>40</sup> Sometimes the broader system itself has powerful players who see themselves as guardians of the standards, identifying those who call for unlearning as troublemakers.<sup>61</sup>

In summary, organisations (like the individuals within them) are connected to the familiar and create forces and processes that represent substantial hurdles to unlearning. Information about the need to unlearn is unlikely to be noticed or passed on and, even if it is, it is unlikely to be heard or regarded sufficiently seriously. In addition, a range of impediments exists that hamper the relinquishment of past practice through organisational unlearning.

## ACHIEVING UNLEARNING

Without doubt, the process of unlearning—by individuals and by organisations—represents hard intellectual and emotional work.<sup>44</sup> Much of the literature focuses on the qualities that would be needed by those undertaking unlearning, and by those assisting them in this process, for example receptivity and openness to vulnerability; a willingness to listen and consider new ideas; and a capacity to explore feelings and reflect and act in new ways.<sup>62</sup> In many ways the qualities listed here could as easily be posited as qualities needed for learning rather than unlearning, and we need to explore this further if we are to understand what makes unlearning distinctive.

A quick interrogation of the list reveals much. Openness to vulnerability—why? Because one might have to admit that one's present behaviour, practice, or knowledge is wrong, out of date, and perhaps even dangerous (for example, the well documented debate that excessive oxygen given to premature babies keeps them alive, but is a factor in blinding them (retinopathy of prematurity; ROP)).<sup>63</sup> Receptivity and willingness to listen—why? Because someone else in the organisation might know better, and they may be younger, more junior, or even disliked. In the case of ROP, established and experienced staff felt it unwise to unlearn:

*"The nurses were convinced that we were going to kill the babies in the low oxygen group, and indeed, at night some of the older nurses would turn the oxygen on for a baby who was not receiving oxygen, then turn it off when they would go off duty in the morning."*<sup>64</sup>

This hints at a wide list of ethical questions around unlearning, to be noted, but not explored in this paper. For our purposes it generates another list of qualities and emotions needed for unlearning, to add to the above: a high tolerance for feeling inadequate, embarrassed, or humiliated; an acceptance of potential loss of status and credibility; and a willingness to be brave and shoulder personal risk. Very quickly, we see how powerful and threatening unlearning could be in organisations if not handled sensitively. Unlearning changes not just our behaviours, but ourselves, "opening (us) to the threat of undoing our psyche and our identity".<sup>65</sup> Unlearners may experience powerful negative emotions, such as blame, shame, guilt, fear, and rage. These emotions may cause harm if not worked through.<sup>62</sup> Unlearners may also experience something akin to mourning,



and start a grieving cycle.<sup>62</sup> Working through this could be helped by an exploration of feelings, with reflection followed by taking action to change in a positive direction.<sup>62</sup> In this way, unlearning can equally be viewed as the opportunity for a very positive experience—it can be seen as “an innovative response to the challenge of difference”.<sup>65</sup> Learning to unlearn reveals surprises beyond the immediate instance of unlearning—it is a transformatory process that brings revelation.

Unlearning need not be merely a personal transformation and solo experience, but is strengthened if undertaken in conversations with others within secure yet challenging (social) environments that support openness, creativity, and vulnerability.<sup>40 66 67</sup> The security or otherwise of these environments (their cultures) arises from their membership: engaged and informed practitioners who trust each other, show appreciation, and demonstrate positive regard for each others’ efforts and experience; and communities who are willing to learn together and to open themselves up to the personal risks and vulnerability involved. Others go further and argue that unlearning flourishes within communities of learning,<sup>44 68 69</sup> and communities of practice.<sup>70</sup> Sensitive dialogue across professional groups involved in delivering care across a care pathway could discuss the need to jettison unhelpful aspects of present provision and agree to make it happen. Collective unlearning could take unlearning wider into the system, breaking barriers of group inertia and peer group pressure to build new clinical norms and a critical mass capable of exerting force on the system to change its prescribed routines.

The literature provides an instructive example of unlearning a piece of well established clinical wisdom<sup>44</sup>—in this case, the prevailing but subsequently discredited view that small babies should be laid to sleep prone. The account documents the disbelief, angst, guilt, and uncertainty of unlearning professional knowledge that was so deeply rooted. The author argues strongly in favour of a community of practitioners unlearning together, and highlights the positive (yet unexpected and diffuse) outcomes borne from this. Altered cognition alone is seen to be insufficient to bring about unlearning: practitioners need to be convinced of the importance of the unlearning and its impact on practice.<sup>69</sup> They need to develop discernment in what the unlearning presents to them as good practice and carefully consider what needs to be unlearned.<sup>44</sup> Discernment builds on receptivity (to new ideas), recognition, and acceptance of how things and people work and fit together, and grieving (letting go of old ways).<sup>52</sup>

## CONCLUDING REMARKS

Unlearning cannot be said to be a natural consequence of additional learning. What we already know (explicitly and tacitly) and what we are trying to assimilate, interact, and cross contaminate in non-linear and unpredictable ways. This alone suggests the need for more explicit attention to be paid to processes of unlearning.

The words learning and unlearning are verbs; they are about active processes of doing; they are about trajectories of travel. In the foregoing discussions we have suggested that how the unlearning curve is traversed (the process that is undertaken) profoundly affects the extent of unlearning that can take place, and the implications of that change. We differentiated between three levels of unlearning:

- **fading or routine unlearning**—past learning simply fades or is forgotten in fairly unproblematic ways
- **wiping or directed unlearning**—deliberate and strong attempts require the unlearning of present ways

- **Deep unlearning**—a sudden, unexpected, and potentially painful event ruptures part of our way of being or deeply held understanding of the world.

The main differences between these three modes of unlearning are the speed at which the unlearning curve is travelled and the extent to which that journey is deliberately initiated and guided. Learning may fade (routine unlearning); be wiped (for example, through training, mentoring, or reflection on personal experience); or destroyed in the aftermath of traumatic events (deep unlearning). Organisations too embark upon regimes of unlearning, where they agree to be pushed and pulled down the unlearning curve in a deliberate direction, perhaps undergoing restructuring, relocation, or implementing new performance management or reward systems in order to wipe out old routines and reorganise organisational systems. They may also be subject to catastrophic events and forced into deep unlearning—as, for example, at hospitals that have been at the centre of public scandals.

Our discussions of unlearning have highlighted the difficult, messy, and sometimes painful nature of the process. In considering how the process is accomplished we have emphasised the importance of collective unlearning. Taken together, these discussions suggest a need for far greater attention to be paid to issues of unlearning than hitherto. Undertaking wise conversations that articulate specifically what needs to be unlearned and stopped could identify and get agreement on removing precisely those things that are no longer helpful: creating a cleared space—a reflective pause—before the rush to build in new learning.

## Authors’ affiliations

R Rushmer, H T O Davies, CPPM, School of Management, The Gateway Building, North Haugh, University of St Andrews, St Andrews, Fife, Scotland

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R Rushmer and H T O Davies

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