

Chapter 4

The Use and Abuse of “Culture”



Andrew Hopkins

Abstract *Culture* is a misunderstood and misused idea. In this chapter I advance seven clarifying theses. (1) Culture is a characteristic of a group, not an individual, and talk of culture must always specify the relevant group. (2) Organisations have it within their power to ensure that organisational culture over-rides national cultures. (3) The most useful definition of the culture of a collectivity is its set of collective practices—“the way we do things around here”. (4) In the organisational context, it is usually better to use culture as a description of group behaviour, rather than as an explanation for individual behaviour. (5) Organisational cultures depend on the structures that organisations put in place to achieve desired outcomes. These structures reflect the priorities of top leaders. The priorities of leaders in turn may depend on factors outside the organisation, such as regulatory pressure and public opinion. (6) The distinction between emergent and managerialist views of culture is misleading. (7) The term *safety culture* is so confusing it should be abandoned.

Keywords Culture · Safety culture · Meaning of culture · Sources of culture

The terms culture and safety culture are fashionable in safety circles and in business. Culture is a basic concept with roots in the disciplines of anthropology and sociology, but safety culture is a Johnny-come-lately, having arrived on the scene only in the latter part of the 20th century.

Both ideas are widely misunderstood and misused. Many writers have made this point before me. To mention just one, Hale (2000) wrote an editorial for an issue of *Safety Science* in the year 2000, entitled “Culture’s Confusions”. There is no agreement about the use of these terms, he said, and “confusion reigns”. More than a decade and a half later, nothing has changed.

An earlier version of this chapter appeared in my book: *Quiet Outrage—The Way of a Sociologist*. CCH, Sydney 2016.

A. Hopkins (✉)
Australian National University, Canberra, Australia
e-mail: andrew.hopkins@anu.edu.au

© The Author(s) 2018
C. Gilbert et al. (eds.), *Safety Cultures, Safety Models*,
SpringerBriefs in Safety Management,
https://doi.org/10.1007/978-3-319-95129-4_4

This chapter will not be a comprehensive discussion of these concepts. Instead I have chosen to advance a number of *theses* about culture. This enables me to cover several contentious issues and take a position on each. The discussion of each of is necessarily brief and perhaps overly dogmatic, but my aim is to provide accessible summary statements. Most of the theses concern culture; only the last will deal specifically with safety culture.

Given the nature of this book my focus will be on organisational culture, rather than culture as a more general sociological/anthropological idea, but it cannot be exclusively so, because organisational culture sits with that more general context.

1 Is Culture a Characteristic of Individuals or Groups?

Those seeking culture change within organisations often see the task as changing the values and attitudes of the individuals in that organisation, “winning their hearts and minds”, creating an appropriate “mindset”. There is an implicit assumption here that culture is a characteristic of individuals. However, social scientists insist that culture is a characteristic of groups, not individuals. Organisations may have multiple cultures and cultures may overlap and fragment into subcultures, but always the discussion refers to the characteristics of groups and subgroups, not individuals. Thus, one should never talk about culture without specifying the group, for example national culture, organisational culture, culture of the work group. This simple rule resolves many quandaries. The culture of the work group is not necessarily the culture of the whole organisation, and so on.

The claim that culture is the characteristic of a group, not an individual, has important implications. Consider the following statements made by the safety advisor of one large company.

Safety performance has been achieved through an unwavering commitment and dedication from all levels in the organisation to create a *safety culture* which is genuinely accepted by employees and contractors as one of their *primary core personal values*. (Hopkins, 2000: 74)

The aim, he went on, is to “create a *mindset* that no level of injury (not even first aid) is acceptable”.

The company drew an interesting implication from this. Since safety is about a mindset, the individual must cultivate it 24 h a day. It cannot be exclusively about occupational safety but must include safety in the home. Hence the company’s 24-h safety program. This is how the safety advisor expressed it:

Real commitment to safety can’t be ‘turned on’ at the entrance gate at the start of the day and left behind at the gate on the way home. Safety and well-being of fellow employees is extended beyond the workplace in this company. A true commitment to safe behaviour is developed by promoting safety as a full time (i.e. 24 hour) effort both on and off the job.

All this depends on the idea that culture is a matter of *individual* attitudes. However, if one takes the view that culture is a group property, it may well be the

case that attitudes to safety change as one passes through the factory gate. The company attitude to safety is one thing, but the attitude of a recreational peer group may be quite different, giving rise to much greater risk-taking outside the gate than inside. Think for example of attitudes to risk-taking in some motor cycle groups or hang gliding clubs. In both these contexts the aim is often to operate near the limit, without going over the edge. Sometimes a limit is transgressed, possibly with fatal results. Clearly, the same individual may have quite different attitudes to risk depending on the currently relevant group (Mearns and Yule, 2009). What the company referred to above is seeking to do, without realising it, is change the culture of groups *outside* the workplace. This it is most unlikely to be able to do.

Thesis 1 Culture is a characteristic of a group, not an individual, and talk of culture must always specify the relevant group.

2 National Versus Organisational Cultures

Companies sometimes complain that national cultures over-ride the corporate culture they are trying to create. The re-insurance company, Swiss Re, did a famous study a few years ago in which it identified “regional” differences in the oil, gas and petrochemical industries (Zirngast, 2006). One specific dimension was attitude towards safety, depicted in Table 1.

There are problems with this study, not the least being the rather grab-bag nature of the regions. Nevertheless, this study is sometimes taken as evidence that national cultures tend to over-ride corporate cultures. Indeed, that is the conclusion of the study.

Our observation is that the influence of the country on the operational hazard is stronger than the influence from corporate headquarters. For example, a European [owned] refinery in the USA is currently more like a US refinery than a European refinery. (Zirngast, 2006: 8)

However the study author goes on to say:

Table 1 Swiss-Re study: attitudes to safety by region

Region	USA, Canada, UK, Australia	Europe, Singapore, S-Korea, Japan, Saudi Arabia, Gulf States, Egypt	Russia, Former Soviet Union, Eastern Europe	S-America, Africa, Maghreb, other Middle East, rest of Asia
Attitude to safety	Compliance driven, focus personal safety, fear OSHA, EPA, HSE	Respectful towards workforce, often positive safety culture	Unthoughtful	Company specific, focus personal safety

We are open to the suggestion that the implementation of a corporate identity is possible.

In other words, the authors do not believe that the patterns they observed are inevitable. If global companies are willing to devote the necessary resources, they may be able to implement a uniform corporate style, no matter what the region.

This is supported by an important empirical study that concludes

More proximate influences such as perceived management commitment to safety and the efficacy of safety measures exert more impact on workforce behaviour and subsequent accident rates than fundamental national values. (Mearns and Yule, 2009)

Shell's experience with a Korean shipyard it contracted with to build several vessels, nicely illustrates this whole issue. Shell was concerned that the fatality rate in Korean shipyards was very high, which was potentially attributable to Korean national culture. But it did not fatalistically accept this situation. It decided to supervise its contract closely and to insist that, where fatalities occurred, shipyard managers be dismissed. This policy was implemented and yielded dramatic improvements in safety. This demonstrates that companies are not at the mercy of local cultures and local ways of doing things. As the saying goes, where there's a will, there's a way.

Thesis 2 Organisations have it within their power to ensure that organisational culture over-rides national cultures.

If an organisational sets out to change its culture, how long will this take? I have heard consultants say that it can take five to seven years. The implication of the Korean shipyard story is far less depressing. As soon as there are real consequences for managers, cultures begin to change.

3 A Definition of Culture

There are many definitions of culture. Some attempt to be comprehensive and include so many components that they lack focus. But if we try to extract the essence of these definitions we find interesting differences. Anthropologists tend to focus on collective meanings. In contrast, in the context of organisations, definitions of culture tend to emphasise either values, or practices. The approach used by the company safety advisor mentioned above stressed values. The alternative is to emphasise collective practices: "the way we do things around here". The first thing to note about this latter formulation is the phrase "around here". Although vague, it makes clear that this is the culture of some group, perhaps a work group, or a larger organisational group. Second, the practices are inherently collective, and not just a question of the habits of individuals—the way WE do things. Third, and very importantly, there is a normative element to the expression. It carries the connotation that this is the right, or appropriate, or accepted way to do things. These judgements stem necessarily from shared assumptions, or values, or norms.

The normative element is demonstrated by the reaction of the group to cases of non-compliance. Consider the practice of holding the handrail while descending

stairs. If this is indeed the practice in an organisation, there will be a reaction if you fail to do so, ranging from someone reminding you of the rule, to something as unobtrusive as a raised eyebrow. Such reactions may lead a sense of embarrassment or even shame, and can be very effective enforcement mechanisms. Compare this with a situation at my university campus where there are signs saying “cyclists must dismount”, but nobody does and there are no consequences. In these circumstances, dismounting cannot be said to be part of the culture, no matter what the university authorities may say. In short, an emphasis on practices does not exclude the importance of norms and values. It just is a question of emphasis.

In my view, then, the most useful way to define culture is as the collective practices of the group—the way we do things around here. The simplicity and concreteness of this expression enables us to avoid most of the conceptual turmoil that surrounds the term. Discussions about culture so often lose their way because culture is an abstract term that rapidly clouds our thinking. As soon as the conceptual fog begins to descend we are less likely to lose our way if we retreat to a more solid reference point: “the way we do things around here”.

There is another important reason for preferring this definitional focus when our interest is in changing workplace cultures. Practices can be directly affected by management while values cannot. The organisational anthropologist, Hofstede, puts the point admirably:

Changing collective values of adult people in an intended direction is extremely difficult, if not impossible. Values do change, but not according to someone’s master plan. Collective practices, however, depend on organisational characteristics like structures and systems, and can be influenced in more or less predictable ways by changing these. (quoted in Reason, 1997: 194)

An organisation which focuses its efforts on changing practices is not of course turning its back on value change. Psychology teaches us that human beings feel tension when their behaviour is out of alignment with their values (Kahn, 1984: 115). There is consequently a tendency to bring the two into alignment. If the behaviour is effectively determined by the organisation then the individual’s values will tend to shift accordingly. Thus, if an organisation constrains an individual to behave safely, that individual will begin to value safe behaviour more highly. Focussing on practices, therefore, is not a superficial strategy which leaves the more deep-seated aspects of a culture untouched. Changing practices will in the end change values and assumptions as well. Think, for example, of attitudes to wearing seat belts in cars. When they were first introduced, few people used them. Then they were made compulsory and non-compliers were fined. Accordingly, we changed our behaviour; and over time beliefs themselves changed. Most people now believe it is a good idea to wear seat belts.

Thesis 3 The most useful definition of the culture of a collectivity is its set of collective practices—“the way we do things around here”.

4 Description Versus Explanation

Consider the idea of a culture of casual compliance (not *causal* compliance). Such a culture was said to prevail at the BP Texas City Refinery prior to the explosion in 2005 that killed 15 people (Hopkins, 2008: 10). To say that a group has a culture of casual compliance is to make a *descriptive* statement, namely, that people in the group feel no great need to comply with rules and procedures and may do so only when they find it convenient. On the other hand, the statement can be treated as an *explanation* for individual cases of non-compliant behaviour: they occur because of a general culture of casual compliance.

The term “culture of casual compliance” is useful as a *description* because it collects into one category a set of behaviours and attitudes that might not otherwise be linked together. In turn this invites us to explain the phenomenon, using other concepts such as the incentive systems operating in an organisation, or the lack of supervision, or the poor quality of procedures.

On the other hand, treating culture as itself a *cause* of the behaviour of individuals is of limited value, because it offers no insights into the way we might change the culture. It is particularly unhelpful when analysts treat culture as the *root* cause of a problem since this inhibits further inquiry. Moreover if we identify a culture of casual compliance as the root cause of an accident, there is an inevitable tendency to blame the people concerned, which is almost invariably unhelpful, as well as unfair.

Thesis 4 In the organisational context, it is usually better to use culture as a description of group behaviour, rather than as an explanation for individual behaviour.

5 The Sources of Organisational Culture

Having defined organisational culture as the collective practices of the organisation, we can sensibly ask about the source of such a culture. I have at different times given two different answers: structure and leadership.

Consider first the question of structure. The culture of punctuality that exists in many railway systems is an example of how organisational structure creates culture. This culture of on-time-running often requires trains to arrive at and depart from stations within 3 min of the scheduled time. This sometimes results in trains travelling faster than they should in order to maintain schedules; in other words, the culture of on-time running encourages speeding. This was found to be one of the causes of a rail accident causing multiple fatalities near Sydney in 1999 (Hopkins, 2005). The inquiry revealed that this culture was not just a mindset. It consisted of a set of practices which involved people at all levels. Statistics on on-time-running were presented to the senior management twice a day, after each peak hour. Drivers were subject to detailed performance monitoring, and to various sanctions when they failed to meet schedules. There were large numbers of people whose sole job

was to ensure that trains ran on time, all of which involved a considerable commitment of resources. It was this organisational apparatus that ensured the pre-eminence of the culture of on-time-running.

The petroleum company, BP, provides a second instructive example. The well blowout in the Gulf of Mexico in 2010 nearly destroyed the company, which determined to change its culture to ensure that this could never happen again. It did so by creating a powerful Safety and Operational Risk (S&OR) function that reported to the CEO. Each geographical business unit had an S&OR manager sitting on its management committee. That S&OR manager was not answerable to the head of that business unit, but to a higher level S&OR manager who answered in turn to someone on the executive committee of the whole BP group. That person reported directly to the CEO of the group. This empowered the S&OR representatives at the local business unit level to stand up to the local business unit leader if they thought it necessary, without jeopardising their careers. The resulting culture gave a greater emphasis to operational excellence than previously. This is a particularly clear example of the way in which “structure builds culture”, as an S&OR manager told me, quite unprompted, at interview.

This structural perspective contrasts with a second approach to understanding the source of culture—leadership. Organisational psychologist Edgar Schein puts the point as follows

Leaders create and change cultures, while managers and administrators live within them. (Schein, 1992: 5)

This is a deliberately provocative statement designed to flatter top leaders into action, but his point is clear enough. If the culture of an organisation is secretive, it is because its leadership has encouraged secretive behaviour; if it is bureaucratic, it is because its leaders have encouraged bureaucratic functioning.

How then do leaders create cultures? I turn again to Schein.

[Leaders create cultures by] what they systematically pay attention to. This can mean anything from what they notice and comment on to what they measure, control, reward and in others ways systematically deal with.

It is immediately apparent that identifying leaders as the source of culture is not inconsistent with the structural perspective just discussed. The point is that if something is important to top leaders they will set in place the structures that are necessary to ensure the outcomes they want. Leaders create the structures that will in turn institutionalise a certain kind of organisational culture. On-time-running in the rail system is an excellent example of this process.

We must ask finally why it is that top leaders have set in place the structures that in turn create particular cultures. The answer will often lie outside the organisations concerned. For rail systems, the source of concern for on-time-running is public pressure, expressed through various political channels. Sometimes there is even an external regulator that penalises failure to run on time. In the BP case, preventing another major accident became an over-riding concern because of public outrage, as well as the massive financial consequences of the Gulf of Mexico accident. Most importantly,

the threat of legal action is a powerful incentive to company officers to put in place structures that will focus attention on safety, and the possibility that CEOs or even directors might be prosecuted has become increasingly real in many jurisdictions.

This external perspective is valuable in counteracting the simplistic view that it all depends on the personal beliefs of the CEO. I have often heard corporate safety managers say that their company is lucky to have a CEO with a passionate personal commitment to safety. Why it is that so many CEOs of global companies today have a passionate commitment to safety, while their counterparts a couple of generations ago apparently had no such commitment? It is hardly likely that the CEOs of today are morally more evolved than those of the past. It is far more plausible that the external environment is now less forgiving of workplace accidents, especially where there are multiple fatalities.

Thesis 5 Organisational cultures depend on the structures that organisations put in place to achieve important outcomes. These structures reflect the priorities of top leaders. The priorities of leaders in turn may depend on factors outside the organisation, such as regulatory pressure and public opinion.

6 Emergent Versus Managerialist Culture

One of the many problematic distinctions in discussions of organisational culture is that between the emergent and managerialist perspectives (Glendon & Stanton, 2000; Haukelid, 2008; Silbey, 2009). These two perspectives are said to have dominated the literature. I touch on this here, ever so briefly, because it has led to so much confusion.

The first perspective, which has its roots in sociology and anthropology, is that the culture of a group is emergent, that is, it emerges from the group in a spontaneous way. On the other hand, the managerialist view, originating in management theory, is that culture is a device that management can use to coerce and control. The first is a bottom up view of culture, while the second is a top down view. These are presented as competing perspectives. The emergent view is sometimes described as an interpretive approach, while the managerialist view is sometimes described as functionalist (Glendon & Stanton, 2000).

This distinction is problematic, however, because it confuses two things: the nature of culture and the origins of culture. We can see this by going back to basics. Culture is the way we do things around here. This presupposes neither an emergent nor a managerialist view. The *origin* of the ways we do things around here is another matter. These ways may well have emerged relatively spontaneously in the group in question, or they may have been engineered by leadership in the manner discussed above. This is surely an empirical question to be determined by investigation. Indeed aspects of the culture may have emerged spontaneously from the group while others have been engineered. If workers at a work site routinely wear hard hats but routinely fail to wear harnesses when working at heights, despite rules requiring them to do so, we can be fairly sure the former practice has been engineered while the latter has emerged from within the group. We don't need to choose

at the outset between emergent and managerialist accounts of culture, nor even to adopt some middle position. Rather we can simply ask questions like: what are the limits on leaders’ abilities to shape the culture of a work group? The distinction between emergent and managerialist conceptions of culture generates a conceptual fog in which many souls have lost their way.

Thesis 6 The distinction between emergent and managerialist views of culture is misleading.

7 Safety Culture

Finally, safety culture is a term that has led to endless confusion. According to the first and still widely quoted definition of the term, it is an organisational culture in which “safety is an *over-riding* priority” (quoted in Reason, 1997: 194, my emphasis). On the basis of this definition one would have to say that *very few* organisations have a safety culture. As Reason says,

like a state of grace a safety culture is something that is striven for but rarely attained.

FonCSI, the Foundation responsible for this book, implicitly adopts this position in its very name—Foundation for an Industrial Safety Culture. Here, “safety culture” is being used to describe an aspirational goal, not a characteristic that all organisations have.

On the other hand most users of the term assume that *all* organisations have a safety culture, be it good, bad or indifferent. This is just one of the numerous inconsistencies and confusions that surround the term, since if we accept the definition given above, it makes no sense to speak of a “bad safety culture”.

Another source of confusion is that, notwithstanding endless attempt to distinguish between safety culture and safety climate, these two terms are often used interchangeably. (Zohar, 2010, is one writer who uses the safety climate with complete consistency.)

Here is how one recent review summed up the whole situation.

[Despite all that has been written,] safety culture remains a confusing and ambiguous concept in both the literature and in industry, and there is little evidence of a relationship between safety culture and safety performance. ...

Workplace safety may be better served by shifting from a focus on changing ‘safety culture’ to changing organisational and management practices that have an immediate and direct impact on risk control in the workplace. (SIA, 2014: 8)

This echoes my earlier comments about organisational practices. Notice too that it directs attention to organisational practices without explicitly defining this as the culture of the organisation. In so doing it sensibly sidesteps any definitional debate and goes straight to the heart of the matter.

The question I briefly address here is *why* the term “safety culture” leads to so much confusion. A major reason (there are others) is that the term itself is linguistically

problematic. Consider the following compound terms: safety culture, organisational culture, workplace culture, peer-group culture, aviation culture. Safety culture is the odd one out in this list. For all the others, the qualifier—organisational, workplace, etc.—specifies the *group* which is the bearer of the culture. The term says nothing about the *content* of the culture—that remains unspecified. There is thus relatively little scope for confusion. In contrast, with the term “safety culture” the qualifier “safety” does not specify a group. It refers to a quality. (A similar point is made by Schein, n.d.). This is a source of confusion. Does it mean that the culture in question exhibits the quality of safety? If we were to coin the term “punctuality culture” it would have to mean a culture that emphasises punctuality. By analogy, the most natural meaning of safety culture is a culture that emphasises safety. As I have said, this is contrary to the way the term is often used. Safety culture’s slide away from its “natural” meaning is facilitated by the fact that safety is a noun, not an adjective. The term “safe culture” would allow no such slippage. It would have to mean a culture that emphasises safety. Clearly, we are now hopelessly entangled in words. And the fault lies not in our thinking; it is the very term “safety culture” that has tied us in knots.

Moreover, this may be a peculiarly English language phenomenon. Neither French nor Spanish have a literal equivalent for “safety culture”; they speak instead of a “culture of safety” (*une culture de sécurité, una cultura de seguridad*), the linguistic implications of which are different. This phrase must surely mean a culture that emphasises safety—a culture that exhibits the quality of safety. If the whole debate about safety culture had occurred exclusively in French or Spanish, I suspect that the primary meaning, indeed the only meaning of *une culture de sécurité* or *una cultura de seguridad* would be a culture that emphasises safety.

I was not dogmatic about safety culture when I first wrote about the concept more than a decade ago. But I did quite deliberately title my book at the time *Safety, Culture and Risk*, not *Safety Culture and Risk*. Today, if I had my way, I would banish “safety culture” from the English language.

Thesis 7 The term safety culture is so confusing it should be abandoned.

Finally, if “safety culture” is abandoned, what terms might be used instead?

If we are talking about a culture in which safety is paramount, then several terms come to mind—a safe culture, a generative culture (Hudson, Parker, & Lawrie, 2006), or even a culture of safety. We can also get away completely from the word culture and talk about mindful organisations (Weick, Sutcliffe, & Obstfeld, 1999), or operational discipline (Angiullo, 2009), or operational excellence (Digeronimo & Koonce, 2016).

On the other hand, if the starting point is that all organisations have a safety culture, then a question like “how good is an organisation’s safety culture” can be replaced by “what priority does the organisation give to safety?”. Interestingly, in this example, “safety culture” has been effectively replaced by “safety”. Or we could ask about risk management practices—a far more down to earth term. Note the word used is practices, not procedures. It is the way we actually do things around here, not the way we are supposed to do things that is of interest.

So all is not lost. There are still plenty of terms available to convey one’s intended meaning, whatever it may be.

References

- Angiullo, R. (2009). Operational discipline. In A. Hopkins (Ed.), *Learning from high reliability organisations*. Sydney: CCH.
- Digeronimo, M., & Koonce, B. (2016). *Extreme operational excellence: Applying the US nuclear submarine culture to your organisation*. Colorado: Outskirts Press.
- Glendon, A., & Stanton, N. (2000). Perspectives on safety culture. *Safety Science*, 34, 193–214.
- Hale, A. (2000). Culture’s confusions. *Safety Science*, 34(1), 1–14.
- Haukelid, K. (2008). Theories of (safety) culture revisited—An anthropological approach. *Safety Science*, 46, 413–426.
- Hopkins, A. (2000). *Lessons from longford*. Sydney: CCH.
- Hopkins, A. (2005). *Safety, culture and risk*. Sydney: CCH.
- Hopkins, A. (2008). *Failure to learn: The Texas City refinery disaster*. Sydney: CCH.
- Hudson, P., Parker, D., & Lawrie, M. (2006). A framework for understanding the development of organisational safety culture. *Safety Science*, 44(6), 551–562.
- Kahn, A. (1984). *Social psychology*. Dubuque: W.C. Brown.
- Mearns, K., & Yule, S. (2009). The role of national culture in determining safety performance: Challenges for the global oil and gas industry. *Safety Science*, 47(6), 777–785.
- Reason, J. (1997). *Managing the risks of organisational accidents*. Aldershot, UK: Ashgate.
- Schein, E. (1992). *Organisational culture and leadership* (2nd ed.). San Francisco: Jossey-Bass.
- Schein, E., (n.d.). The culture factor in safety culture. In: G. Grote & J. Carroll (Eds.), *Safety management in context—Cross-industry learning for theory and practice*. Zurich: Swiss Re.
- SIA (Safety Institute of Australia). (2014). *The OHS body of knowledge*. Chapter 10, Organisational Culture, Abstract http://www.ohsbok.org.au/wp-content/uploads/2013/12/10_2-Organisational-Culture.pdf?d06074.
- Silbey, S. (2009). Taming prometheus: Talk about safety and culture. *Annual Review of Sociology*, 35, 341–369.
- Weick, K., Sutcliffe, K., & Obstfeld, D. (1999). Organising for high reliability: Processes of collective mindfulness. *Research in Organisational Behaviour*, 21, 81–123.
- Zirngast, E. (2006). *Selective U/W in oil-petro segment*. Unpublished paper.
- Zohar, D. (2010). Thirty years of safety climate research: Reflections and future directions. *Accident Analysis and Prevention*, 42, 1517–1522.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter’s Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter’s Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

