

Chapter 10

The Interface of Safety and Security; The Workplace



George Boustras

Abstract 9/11 had a great impact on the development and occurrence of high publicity security-related incidents. One of the biggest impacts was that to public health, due to an increase in psychosocial issues. Cybersecurity incidents and processes of radicalization (either due to religious, political, or economic reasons) can have a direct result on the workplace as well as at the organizational level, which in turn can affect the worker. The aim of this chapter is to explain the main factors linking safety and security, creating a new area for workplace health and safety, that of the “interface of safety and security”.

Keywords Safety in the workplace · Security · Safety culture · Security culture

10.1 Introduction

Many high-impact security-related issues have occurred since the turn of the millennium, both large-scale events such as the Paris, Brussels, Nice, London, and Madrid attacks or with a smaller scale such as various knife attacks in Israel and lone wolves. As a category of events, rare episodes of the early noughties (e.g., 9/11, 7/7 in London, Attocha in Madrid) are becoming increasingly “usual”. Episodes of violence related to radicalization, cyberattacks, increased fear of a CBRN (e.g., dirty bomb) attack creates a complex security environment also for workplaces. Radicalization [1], which is an emerging issue for workplace health and safety, illustrates the difficulty of Western societies to explain a mechanism that brings to the surface previously unknown forms of societal unrest. Cybercrime as well, which is a product of the large-scale development of information technology, can result in new and unforeseen interactions between previously unrelated places of work. The reliance of modern societies and occupational environments on digital systems illustrates the

G. Boustras (✉)
CERIDES - Excellence in Innovation and Technology, European University Cyprus,
Nicosia, Cyprus
e-mail: G.Boustras@euc.ac.cy

© The Author(s) 2020
C. Bieder and K. Pettersen Gould (eds.), *The Coupling of Safety
and Security*, SpringerBriefs in Safety Management,
https://doi.org/10.1007/978-3-030-47229-0_10

potential impact of such attacks [2]. Both radicalization and cyberattacks have in common that they are driven by the human factor.

Moreover, the combined efforts at Critical Infrastructure Protection is a “test bed” to prove the interconnection between these new forms of security threats. These emerging risks have an impact on infrastructure as well as the occupational environment and the employee [3]. At the same time, safety-related issues have been highly affected by the still ongoing economic slowdown [4] and its byproducts (increased occupational psychosocial issues) [5]. Safety in the occupational environment, safety systems and competent authorities are victims of austerity measures, associated with the financial crisis. Financial uncertainty, increased security-related media hysteria result to yet more psychosocial issues.

As Beck [6] discusses the impact of new, globalized risks for individuals in society, it is obvious from the above that a new set of social conditions (cybersecurity threats, radicalization, economic crisis, etc.) that affect the workplace and the employee have been created. These are both a new set of conditions that bring safety and security tighter together and create a more complex and dynamic environment than before. This is a new narrative for workplace safety, constructing a causal link where security-related episodes impact safety, both at the occupational and societal levels. In other words, a new type of risk should be taken into account. A new type of risk that—by default—inherits a large element of uncertainty. In addition, this uncertainty is inherent due to its dependence on human behavior.

The aim of this chapter is to illustrate the hypothesis that safety and security, although they can be seen from different perspectives, have a common interface in the workplace. This chapter takes an exploratory approach to underline and describe this interface. Due to the fact that the author comes from a safety background, forms and schemes related to safety are used. Existing safety science (stereotypes, metaphors, perceptions, theories, publications) still revolve around the basic narrative that stems from the industrial revolution that started in Western societies. Safety focuses on hazards, whereas security focuses on threats. Yet, more new risks and threats and more complex risks and threats are introduced. In this context, it becomes obvious that safety is becoming increasingly dependent on security and is affected by it. *A new scientific domain emerges in the interface between security and safety.*

10.2 Changes to the Physical Environment of Work

Security incidents have dramatic short- and long-term effects on the workplace. Physical injuries and life loss have a direct and immediate impact on day-to-day operations of the organization. Psychosocial issues can have a short, as well as a long-term impact on the organization. Post-traumatic Stress Disorder (PTSD), depression, and other stress-related diseases affect the workplace in an organizational manner as well as leading to financial implications. Stress-related diseases in the workplace have a direct cost to the social insurance system.

It is reported that, further to the collapse of the Twin Towers in New York (2001), a toxic cloud—made of various particles, among them asbestos—covered the wider vicinity [7]. Effects on the over 40,000 first responders and relief workers included short and long-term effects; it has been reported that at least four first responders' deaths are linked to upper respiratory problems, and hundreds of fire-fighters have retired due to health effects [7].

At an organizational level, the effects are significant. Security incidents can be large scale (e.g., 9/11, 7/7, etc.) or small scale (possible security breach in the organization's premises). Risk assessment is reformed to include security aspects as well, especially those linked directly to safety issues. An example of that is the (possible) development of a security policy and/or the establishment of a security recording mechanism (manual or automatic, manned or electronic) in order to avoid (or in response to) an attempted arson attack. Low-risk firms (e.g., office environments) increasingly attempt to consolidate the duties of security and safety officers.

As discussed above, a number of important terrorist attacks have occurred in the last few years such as attacks on the World Trade Center, the London transport system, Paris, Brussels airport and transport system. In addition to the effects described above, attacks on the workplace have further effects. While a security incident is a malevolent—usually preplanned—action, studies have reported that security incidents in the workplace have an impact on the way employees perceive trust toward their employer. The main achievement of the employee, that of the responsibility of the owner/manager to provide a safe and healthy workplace is put in doubt. It is crucial, therefore, to highlight the importance of the integration of security in organizational health and safety planning. The role of the leadership before, during, and after a crisis is crucial for an organization to respond, as well as be in a position to come back to a functional state.

Terrorists tend to choose emblematic employers and workplaces in order to achieve media coverage, also for ideological reasons. The literature suggests that personal preparedness is still at a low level, even in countries that have already faced emblematic security incidents and terrorist attacks [8]. Results suggest that less than half of the population have followed preparatory actions [9]. Security incidents in the workplace tend to create immediate issues with long-lasting effects, yet at the same time, society creates a “mechanism” where these events are eliminated not long after their occurrence. In other words, the emergence of the need for the establishment of a “security culture” similar to the alleged establishment of a “safety culture” at an individual, organizational, and national level becomes important. Based on this argument, one might argue that both security and safety cultures meet as they are targeted firstly to the individual. This is supported by Guldenmund [10] “most empirical studies of safety culture have focused on individual attitudes, perceptions and patterns of behaviours with regard to safety”, Mearns and Yule [11] “Having safety as a central value would be the defining moment for any organization embarking on the development of a positive safety culture, irrespective of the national context it is working in”, and the analysis of Smith [12] describing the switch of security (after the end of the Cold War) from the national level to the community and individual.

10.3 Cyber-Related Issues in Relation to Safety in the Workplace

Cyberattacks occur more and more often. Cyberattacks can have a significant impact on the workplace and the welfare of the employee. A possible attack on the workplace may mean loss of sensitive data that may lead to a temporary or permanent closure of the firm. High-risk operations may be affected by cyberattacks with the possibility of operational or physical damage. News titles after the 2016 Brussels attacks reported preparatory work for a possible terrorist operation in one (or more) of the nuclear installations in Belgium.

Cyberattacks can also cause serious damage at the societal level. Particular emphasis should be paid on the relationship between cybersecurity in the workplace and the safety and reliability of Critical Infrastructures. Energy Critical Infrastructure is the main supporting pillar of National and International economic activity. Possible interruptions can cause serious damage to the wider workplace [13]. Domino effects from possible interruptions to Critical Infrastructure can cause serious financial damage, among others. “Hundreds of shops across south-east London and north Kent were forced to close and commuters spoke of ‘incredibly frightening’ conditions on the roads as traffic lights failed” [14]. Modern infrastructures operate as a “system of systems” with many interactions, interconnections, and interdependencies among these systems. Thus, damage occurred due to cyberattacks in the workplace of one infrastructure system can cascade and result in failures and cascading effects onto all related and dependent infrastructures eventually impacting the broader economy and society [15]. Such interconnections and interdependencies can be digital, physical, geographical, or logical [16].

10.4 Radicalization Effects on Safety in the Workplace

An emerging risk about workplace safety and security is that of radicalization. Radicalization is a process where individuals are subjected to extremist material with a direct effect on their social behavior, perceptions about society and justice. Various mechanisms such as personal grievance/revenge, existing or developing psychological issues explain the emergence of radicalized individuals to terrorists [17]. Despite media reports that the perpetrators of the majority of the latest terrorist incidents were “homegrown, radicalized youth”, there is no literature highlighting the relationship between radicalization and the occupational environment. This chapter will attempt to underline the various parameters affecting everyday life in the workplace, in relation to radicalization; it will attempt to explain the common factors leading to the occurrence of occupational safety issues. The relationship between human behavior and safety in the workplace is straightforward [18]. Rational or irrational behaviors lead to accident occurrence. Human behavior in turn comprises a number of attributes.

Reports from captured terrorists mention various reasons that (allegedly) led them to become radicalized. Among the causal factors mentioned are various forms of discrimination (mainly dealing with religious or political issues) and bullying (because of the discrimination). Discrimination in the workplace has a long history associated with it. Huang and Kleiner [19] mention that *“In the 1960s and 1970s, blacks and women fought for their rights. In the 1980s and 1990s, it was gays and lesbians. Now it has turned into employers and employees and the battlefield is religion in the workplace”*. Religious discrimination [20] in the workplace can have a formal and informal way of occurrence. Religious jokes, exclusion due to religious issues, discounting of religious beliefs can create an environment where personal grievance and willingness to take revenge are cultured. Irrespective of the intensity of the comments or behaviors in the workplace, perceived discrimination [21] can have various effects. Whether discrimination is wide or covert, what matters most is how the employee will perceive it. The results of perceived exclusion can be felt in the workplace and the society. Exclusion and discrimination (as it will be analyzed in another part of this chapter) is a common factor leading to (among others) workplace issues. Verkuyten [22] emphasizes the role of discrimination as a leading factor to radicalization. Popular press describes terrorists as “normal” people until a certain age (prior to their actions) with informal, precarious, or formal types of employment. Bullying/discrimination due to (religious) discrimination has dual effects to the workplace (absenteeism, with obvious social and economic impacts) as well as to the victim (psychosocial issues).

10.5 Financial Crisis Influence on the Increase of Psychosocial Issues

The economic crisis that started in 2008 with the collapse of Lehman Brothers left an impact on specific parts of the Western World. Southern European countries suffered the majority of the impacts of the crisis [4]. For some countries, the economic crisis became a social crisis as well.

This chapter argues that the effects of the financial crisis can be a connecting factor between safety and security. Undoubtedly, the financial crisis has had an impact on the job market [23] and public health [24]. Changes in the job market meant an increase in unemployment, temporary and undeclared work. Lower wages, insecurity, informal working hours paint a dramatic picture with clear impacts on health and safety of employees. A direct impact is that of the increase of psychosocial issues in the workplace [25, 26]. Psychosocial issues in the workplace have direct effects on the organization and the workforce. Anxiety, bullying, mobbing, depression lead—among others—to an increase in occupational injuries. Insecurity, desperation lead to various forms of extreme behaviors, creating the background for potential attacks and aggression, which in turn leads to social exclusion. At this point, it should be noted that there are similarities with the process leading to

radicalization, as described above. Historical analysis shows that financial crises cause political disruption and political radicalization [27]. The economic crisis has been the driving force behind the rise of extremist political parties in Europe, which marketed anti-globalization, anti-immigration, anti-foreigner rhetorics [28]. *Social exclusion surfaces as the connecting factor between potentials leading to safety- and security-related incidents.*

10.6 Conclusions

The aim of this chapter was to describe factors that are redefining safety in the workplace; the interface of safety and security. The chapter has presented arguments that showed how specific factors and cases (cybersecurity, critical infrastructure protection, radicalization, etc.) can be the “connecting dots” between security and safety. Still, without the empirical analysis necessary to establish causal connections, the factors explored indicate how the two (safety and security) increasingly meet at the level of the individual worker, with both causal connections to and ramifications for the organization. In this perspective, many workplace risks must be viewed as highly dependent on human behavior and an outcome of various psychological processes (e.g., developmental, cognitive). For example, psychosocial issues relate to security incidents (and relevant media hysteria), agitating workers and creating prolonged feelings of fear and anxiety. Also, as discussed in the chapter, political radicalization and the financial crisis have been shown to have social exclusion as a common route that can lead to security incidents. Consequently, we must consider how to approach the participation of workers in safety and security, as workers previously are viewed as part of safety efforts. Among other, formal ways of worker participation in the development of safety policies, through the legally binding establishment of health and safety committees, could be replicated toward the establishment of a security culture in the workplace. Training, risk assessment, adoption of policies should be typical for both safety and security cultures. However, a fundamental difference between the two (safety and security) lies in the fact that with safety, there is a legal requirement to the owner/manager—in other words, responsibility is personalized. With security, this is not the case as the State authorities provide the backbone. This again has consequences for strategic priorities and the development of incentives.

References

1. S.A. Høyland, Exploring and modeling the societal safety and societal security concepts—a systematic review, empirical study and key implications. *Saf. Sci.* (2017). ISSN 0925-7535. <https://doi.org/10.1016/j.ssci.2017.10.019>
2. B. Wilpert, Impact of globalization on human work. *Saf. Sci.* **47**(6) (2009), 727–732. ISSN 0925-7535. <https://doi.org/10.1016/j.ssci.2008.01.014>

3. M. Nilsen, E. Albrechtsen, O.M. Nyheim, Changes in Norway's societal safety and security measures following the 2011 Oslo terror attacks. *Saf. Sci.* (2017). ISSN 0925-7535. <https://doi.org/10.1016/j.ssci.2017.06.014>
4. I. Anyfantis, G. Boustras, A. Karageorgiou, Maintaining occupational safety and health levels during the financial crisis—a conceptual model. *Saf. Sci.* (2016). ISSN 0925-7535. <https://doi.org/10.1016/j.ssci.2016.02.014>
5. H.H.K. Sønnderstrup-Andersen, E. Bach, Managing preventive occupational health and safety activities in Danish enterprises during a period of financial crisis. *Saf. Sci.* (2017). ISSN 0925-7535. <https://doi.org/10.1016/j.ssci.2017.03.022>
6. U. Beck, *Risk Society, Towards a New Modernity* (Sage Publications, 1992)
7. EHS Today, 9/11: Safety and Health Lessons Learned (2006). http://www.ehstoday.com/fire_emergencyresponse/ehs_imp_38472. Visited on 28 February 2018
8. M. Kano, M.M. Wood et al., Terrorism preparedness and exposure reduction since 9/11: the status of public readiness in the United States. *J. Homeland Secur. Emerg. Manage.* **8**(1) (2011)
9. J.L. Gin, J.A. Stein, K.C. Heslin, A. Dobalian, Responding to risk: awareness and action after the September 11, 2001 terrorist attacks. *Saf. Sci.* **65**, 86–92 (2014)
10. F.W. Guldenmund, The nature of safety culture: a review of theory and research. *Saf. Sci.* **34**(1), 215–257 (2000)
11. K. Mearns, S. Yule, The role of national culture in determining safety performance: challenges for the global oil and gas industry. *Saf. Sci.* **47**, 777–785 (2009)
12. S. Smith, The increasing insecurity of security studies: conceptualizing security in the last twenty years. *Contemp. Secur. Policy* **20**(3), 72–101 (2007). <https://doi.org/10.1080/13523269908404231>
13. C. Varianou Mikellidou, L.M. Shakou, G. Boustras, C. Dimopoulos, Energy critical infrastructures at risk from climate change: a state of the art review. *Saf. Sci.* (2017). ISSN 0925-7535. <https://doi.org/10.1016/j.ssci.2017.12.022>
14. P. Dominiczack, A. Nassif, 60,000 homes are blacked out as vandal fire causes huge power cut, *Evening Standard* (2009). <https://www.standard.co.uk/news/60000-homes-are-blacked-out-as-vandal-fire-causes-huge-power-cut-6746359.html>. Last visited 19 March 2018
15. European Climate Adaptation Platform, Adaptation information, January 2018. <http://climate-adapt.eea.europa.eu/adaptation-information/general>
16. S.M. Rinaldi et al., Identifying, understanding, and analyzing critical infrastructure interdependencies. *IEEE Control Syst.* **21**(6) (2001)
17. C. McCauley, S. Moskalenko, Mechanisms of political radicalization: pathways toward terrorism. *Terror. Polit. Violence* **20**(3), 415–433 (2008). <https://doi.org/10.1080/09546550802073367>
18. T.B. Sheridan, Forty-five years of Human–Machine systems: history and trends. Keynote Address, in *Proceedings of 2nd IFAC Conference on Analysis, Design and Evaluation of Human–Machine Systems. Varese, Italy, September 10–12, 1985* (Pergamon, Oxford, 1986)
19. C.C. Huang, B.H. Kleiner, New developments concerning religious discrimination in the workplace. *Int. J. Sociol. Soc. Policy* **21**(8/9/10) (2001), 128–136. <https://doi.org/10.1108/01443330110789880>
20. B.R.E. Wright, M. Wallace, J. Bailey, A. Hyde, Religious affiliation and hiring discrimination in New England: a field experiment. *Res. Soc. Stratif. Mob.* **34** (2013), 111–126. ISSN 0276-5624. <https://doi.org/10.1016/j.rssm.2013.10.002>
21. J.I. Sanchez, P. Brock, Outcomes of perceived discrimination among Hispanic employees: is diversity management a luxury or a necessity? *Acad. Manag. J.* **39**(3), 704–719 (1996). <https://doi.org/10.2307/256660>
22. M. Verkuyten, Religious fundamentalism and radicalization among Muslim minority youth in Europe. *Eur. Psychol.* **23**, 21–31 (2018). <https://doi.org/10.1027/1016-9040/a000314>
23. N. Drydakakis, The effect of unemployment on self-reported health and mental health in Greece from 2008 to 2013: a longitudinal study before and during the financial crisis. *Soc. Sci. Med.* **128** (2015), 43–51. ISSN 0277-9536. <https://doi.org/10.1016/j.socscimed.2014.12.025>

24. M. Karanikolos, P. Mladovsky, J. Cylus, S. Thomson, S. Basu, D. Stuckler, J.P. Mackenbach, M. McKee, Financial crisis, austerity, and health in Europe. *Lancet* **381**(9874), 1323–1331 (2013). [https://doi.org/10.1016/S0140-6736\(13\)60102-6](https://doi.org/10.1016/S0140-6736(13)60102-6)
25. N. Mucci, G. Giorgi, M. Roncaioli, J. Fiz Perez, G. Arcangeli, The correlation between stress and economic crisis: a systematic review. *Neuropsychiatr. Dis. Treat.* **12**, 983–993 (2016). <https://doi.org/10.2147/NDT.S98525>
26. V. Sedano de la Fuente, M.A. Camino López, I. Fontaneda González, O.J. González Alcántara, D.O. Ritzel, The impact of the economic crisis on occupational injuries. *J. Saf. Res.* **48** (2014), 77–85. ISSN 0022-4375. <https://doi.org/10.1016/j.jsr.2013.12.007>
27. M. Funke, M. Schularick, C. Trebesch, Going to extremes: politics after financial crises, 1870–2014. *Eur. Econ. Rev.* **88** (2016), 227–260. ISSN 0014-2921. <https://doi.org/10.1016/j.eurocorev.2016.03.006>
28. G. Calhoun, G. Derluigan, *The deepening crisis: governance challenges after neoliberalism* (New York University Press, New York and London, 2011)

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.

