

Chapter 9

Sfumato as a Metaphor for Creating a Common Understanding in Complex Projects



Nadezhda Gotcheva

Abstract *Sfumato* painting technique is proposed as an artistic metaphor for creating a shared understanding about safety and risk in complex safety-critical multi-stakeholder projects. The aim is to illuminate a mindset and suggest approaches for softening potentially detrimental effect of sharp dysfunctional boundaries between and within different project parties, which might impair quality of communication, coordination, and collaboration and impact safety.

Keywords Inter-organisational · Sfumato · Metaphor · Safety

9.1 Introduction

Derived from the Italian word *fumo* (“smoke”), *sfumato* is a painting technique of allowing tones and colours to shade gradually into one another, producing softened outlines (Oxford Dictionary). Leonardo da Vinci is considered the inventor of *sfumato* technique and one of its most prominent practitioners, culminated in the famous *Mona Lisa* portrait (ca. 1503–1519). In contemporary art, the Japanese photographer and architect Hiroshi Sugimoto has used *sfumato* in his photographs of iconic buildings to show the essence of superb architecture by obscuring the boundaries between a building and its context (Photobook Reviewer 2021).

In this chapter, I borrow ideas from arts and specifically *sfumato* painting technique as a metaphor for developing a shared understanding about the conceptions and ways in which the organisations work to create safety in multi-stakeholder safety-critical projects. Metaphors rely on symbolism and comparisons to challenge perceptions and evoke meaning. In safety science, safety metaphors and models on accident causation have been studied (Swuste et al. 2010, 2014). For example, building on the concept of incubation period of major accidents (Turner 1978) and his medical

N. Gotcheva (✉)

VTT Technical Research Centre of Finland Ltd., Tampere, Finland

e-mail: nadezhda.gotcheva@vtt.fi

© The Author(s) 2024

J.-C. Le Coze and B. Journé (eds.), *Safe Performance in a World of Global Networks*, SpringerBriefs in Safety Management, https://doi.org/10.1007/978-3-031-35163-1_9

87

school training, Reason (1988) came up with the “resident pathogens” metaphor to express the distinction between active and latent errors.

An artistic metaphor such as *sfumato* could provide a valuable perspective towards creating a common understanding in the whole project, softening potentially detrimental effects of sharp boundaries between all different project actors that are part of “the picture”. There are many types of boundaries (country-specific, institutional, organisational, occupational, temporal, spatial) that could give rise to unhealthy tensions, major communication and knowledge sharing problems (Bosch-Sijtsema and Henriksson 2014; Whyte and Nussbaum 2020). Sometimes project partners have ended up in court to reconcile claims (Marrewijk and Smits 2016), which could be detrimental for trust, climate, work moral and collaboration. Although clear lines must be drawn between acceptable and unacceptable behaviour in terms of safety, sharp dysfunctional boundaries shall to be softened to ensure favourable conditions for creating trust and long-term relationships between project parties.

Collaboration in large-scale projects is challenging both with regard to the actors’ ability to collaborate (coordination) and willingness to do so (cooperation) (Tee et al. 2019). In safety-critical projects, the need for developing a shared understanding between different stakeholders about risks, project safety goals, common values and ways of working have been recognised as increasingly important for effective performance. Denicol et al. (2020) conducted a systematic literature review on the causes and cures of poor performance of megaprojects. These projects typically cost more than US\$1 billion; they are notoriously difficult to manage due to huge scale, high levels of complexity, diverse and often geographically dispersed actors, and significant impact on communities, the environment and governments. Building and leading collaborations was identified as one of the future avenues to advance the successful delivery of megaprojects. Hence, there is a room for new perspectives and metaphors to support creating a shared understanding of safety and risks in complex projects.

9.2 Cultural Complexity

The concept of cultural complexity has been conceptualised from different perspectives, such as anthropology (Hannerz 1992) or organisational behaviour (Sackmann 1997). According to Sackmann (1997, p. 2), the concept of cultural complexity includes two ideas: “simultaneously existing multiple cultures that may contribute to a homogenous, differentiated, and/or fragmented cultural context”. Boundaries between occupational groups within a single organisation might be more stubborn than inter-organisational boundaries and further affect safety (Tillement et al. 2009; Russel and Tillement 2022). The notion of coexisting multiple cultures is closely linked to the concept of subculture.

9.2.1 Organisational Subcultures

In the 1960s, the sociologist Howard Becker studied the subculture of jazz musicians (Hannerz 1992). He noted that a subculture formed when musicians interact and share emotions and interests rather than because they share historical roots or same skin colour. Becker's study provides insight about the conditions for developing a cultural shared understanding: it might be that it is not necessary to take a long time for a culture to develop; the intensive time spent together with others is creating conditions for culture to emerge. Schein (1990) also gives an example of a combat unit which, despite a short history in time, developed a strong culture by means of intensity of members' shared experiences.

Subcultures are embedded in a dominant, larger culture but still differ from it; they develop as a reflection of common problems or experiences that are faced by members of a work group (Gregory 1983). They tend to develop their own vocabulary, norms, values, artefacts and practices. Subcultures may emerge around "networks of personal contacts or demographic similarity" (Martin 2002). Schein (1996) differentiates between three generic subcultures in organisations, based on hierarchical level and core work task: (a) executives, concerned mostly about the financial conditions; (b) designers (engineers) who are concerned about process safety and how to minimise the human factor in operations and (c) operators, who are concerned with coping with surprises and anomalies of operations.

Since individuals usually belong to more than one subculture, in project contexts it is likely that, for example, executives or engineers may belong to the project management subculture as well. Most cultural approaches acknowledge the existence of at least three types of subculture, based on shared history with regard to education, work unit or shared work experience: (a) occupational or professional subcultures based on educational background, (b) departmental subcultures based on the work unit and (c) age or tenure-related subcultures (Parker 2000; Rollenhagen et al. 2013).

Arguing that a given subculture exists only in relation to a dominant culture or other subcultures, Martin and Siehl (1983) suggested a typology of three main subcultures. *Enhancing subcultures* are compatible to the dominant culture and even enhancing it. Its members tend to more intensely adhere to the core beliefs and values than other groups. For instance, a safety culture ambassadors group may form a subculture as they embrace the role of strong advocates of safety culture and interact accordingly (Viitanen et al. 2018). *Orthogonal subcultures* are independent from dominant culture—members adhere to the core beliefs and values of the dominant culture while simultaneously adhere also to other, not conflicting set of beliefs, for example, R&D department adheres to safety management system yet at the same time focuses on innovation, which may potentially challenge established practices. *Countercultures* are opposing or resisting the dominant culture—the "deviance" in members' beliefs and values may challenge the values, beliefs and practices of the dominant culture as a way to test the limits. For example, nurses in health care can form a counterculture if they believe their professional standards are compromised by a dominant administrative culture of bureaucracy, efficiency and cost cutting.

9.2.2 *Subcultures and Safety*

In safety research, the existence of subcultures has been linked to structural characteristics and power relations, which in turn have the potential to affect the sensemaking processes (Pidgeon 1998; Pidgeon and O’Leary 2000). This implies that various subcultures may have constructed different versions of reality, and this needs to be taken into account by the safety management. The coexistence of subcultures in organisations is potential source of misunderstandings or conflicts but also a source of diversity (Cooper 2000). This diversity of perspectives has important safety implications because it enriches the interpretation on emerging safety problems and helps to deal with potential “collective ignorance” (Pidgeon 1998). Furthermore, Boisnier and Chatman (2002) noted that subcultures can provide flexibility and responsiveness that a unitary culture could limit.

Oedewald and Gotcheva (2015) indicated that creating a common understanding and facilitating shared cultural norms through personnel training may be challenging. Training results are short-lived as there is a constant flux; companies and workers join the network and others leave. The temporary nature of a project may also reduce motivation of different parties to invest in joint development of activities and culture. In such a fast-paced networked context, the shared time with various partners is short and fragmented which sets constraints also for accumulation of lessons learned.

Cultural differences in complex projects and their effects on safety should be monitored and understood. Oedewald et al. (2011) refer to importance of *sharedness of the conceptions, practices or social norms with regard to safety*. For example, engineers involved in project work in the nuclear island may feel strong sense of personal responsibility for the future plant’s safety, while the conception of responsibility for safety may differ in the project management department or in the supply chain. Moderate variance in that sense between different groups is rather natural given different positions in the project structure, tasks or professional background. Variances are not necessarily seen as a challenge to safety, and they can be seen as an asset that have the capacity to challenge taken-for-granted assumptions. Still, if different viewpoints seem to hinder the quality of the work or prevent joint development, they need to be tackled.

9.3 Complex Projects as Cultural Phenomena

Complex projects, also framed as megaprojects or major projects, bring together differing and competing partners, interests, values and ways of doing and thinking (van Marrewijk 2013). With regards cultural influences, the Guide to the Project Management Body of Knowledge by Project Management Institute (PMI 2000: 27) referred to a dictionary definition of *culture*: “culture is the totality of socially transmitted behaviour patterns, arts, beliefs, institutions, and all other products of human work and thought”. Such a monolithic view on culture pays less attention to issues

of ambiguity, subcultures, power dynamics and the decision-making practices in complex settings (e.g. Alvesson 2013). Power dynamics and tensions play important role in organisational life and their effects on decision-making and organisational arrangements need to be considered.

Megaproject cultures have been framed by Kendra and Taplin (2004) as consisting of multiple fragmented subcultures. Anbari et al. (2010) studied cultural differences in multicultural project networks and highlighted that to achieve project goals and avoid cultural misunderstandings, project managers need to be culturally sensitive and respectful through adaptive leadership. Hietajärvi et al. (2017) explored the management of inter-organisational integration in alliance projects (Lahdenperä 2012), highlighting integration mechanisms at the level of organisational and relational arrangements. Nysten-Haarala et al. (2009) and Kujala et al. (2016) use the notion of “soft contracting” to emphasise the importance of setting contractual conditions for flexibility, good will, mutuality and commitment to cooperate with the parties, given that in a complex inter-organisational project it is not possible to foresee all uncertainties and ambiguity.

There might be many sources of division or “splitting” in multicultural project contexts, which need to be taken into account when collaboration activities are planned. For example, “faultlines” are defined by Lau and Murnighan (1998: 328) as “hypothetical dividing lines that may split a group into subgroups, based on one or more attributes”. Power struggles in teams can activate latent tensions related to language asymmetry, triggering us-versus-them relationship dynamics. Boundary spanning could be used to “build relationships, interconnections and interdependencies” to soften such dividing lines (Williams 2002). As pointed out recently by Russel and Tillement (2022), boundary spanners are able to improve information and knowledge sharing between the different organisations or professional groups within projects and thus contribute to project performance.

Cramton and Hinds (2005) built on the notion of *faultlines* to show how location differences can also strengthen the tendency towards ethnocentrism in internationally distributed teams. Ethnocentrism is the belief that the own group is superior to other groups. Consequently, this leads to reduced effectiveness of collaboration, which can have potential safety consequences. In multicultural work settings, one strategy to overcome the tendency towards ethnocentrism is *mutual positive distinctiveness* (Cramton and Hinds 2005). It is defined as a respectful attitude towards differences among members (in views, values, competencies, practices) and perceiving differences as a source of advantage. In a safety-critical context, this is not so straightforward if there are significant differences, for example in beliefs and norms with regard to questioning attitude. If there are assumptions that it is challenging to question management decisions, this needs to be worked out to raise awareness on how such an attitude could be harmful for safety. It should be noted that shared basic assumptions and beliefs are considered the deepest level of culture. Schein (1985: 9) defined culture as “a pattern of basic assumptions—invented, discovered, or developed by a given group as it learns to cope with its problems of external adaptation and internal integration—that has worked well enough to be considered valid and,

therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems.”

Aaltonen et al. (2009) studied twenty-one case projects delivered to 17 countries worldwide to identify novel ways to unravel the risks and difficulties of the project management due to the cultural differences. The results highlighted the significant impact of various project stakeholders and emerging cultural diversity on the project risk management processes. Aaltonen et al. (2009) noticed that different cultural groups in a project network initially start by operating according to one’s own cultural way, and achieving cross-cultural synergy across boundaries is a long-term process, which requires gradual learning and adaptation.

9.4 Examples of Approaches and Practices for Creating a Shared Understanding

The need to improve the sharedness in understanding of safety and risks between different stakeholders, for example in nuclear industry projects, has been previously recognised (Oedewald and Gotcheva 2015). The diverse and multiple actors may hold strikingly different conceptions and practices about ways of working and collaboration. Ensuring harmonisation of meaning, mutuality and common ground between project parties can be achieved and maintained by different means. This section presents some approaches and examples of practices for creating a common understanding in inter-organisational projects.

Project alliancing or integrated project delivery is a method based on relational contracting and trust building between the project actors (Ross 2003; Lahdenperä 2012). Although there are several models of project alliancing, generally the method creates incentives for developing best-for-project mindset and no-blame culture for all the parties involved. It emphasises equitable sharing of risk and reward, agreement on mutually beneficial principles of openness and information accessibility, open books accounting policy in pursuing of close collaboration.

Governance for safety in inter-organisational project networks includes coordination, adaptation, and safeguarding mechanisms internal to a project network that enable multiple independent organisational actors to work towards shared goals (Kujala et al. 2016; Gotcheva et al. 2020). Governance in project networks has been categorised in six dimensions: goal setting, rewarding, monitoring, roles and decision-making, coordination and capability building (Kujala et al. 2020). Governance mechanisms are approaches and concrete practices that are applied to align the different interests of project parties to enable them to work towards shared goals.

Cross-cultural synergy between project partners (Aaltonen et al. 2009) involves project management support characterised by long-term patience, mutual respect and information sharing, mutual interdependence and motivation to work together, creating a common goal, equal status between partners, joint experiences, ensuring

participation of mediator/facilitator/buffer persons and preparing for common external threats.

Boundary spanning is defined as the ability to link, communicate and engage with others and deploy effective relational and interpersonal competencies (Tushman 1977; Langan-Fox and Cooper 2014). Boundary spanners are systems thinkers who act as “cultural brokers”, who are willing and able to understand other people and organisations, to make a genuine effort to acknowledge and respect different values and perspectives, and to positively dissolve boundaries for building mutual trust. Boundaries can be spanned effectively by understanding the coding schemes and contextual information on both sides (Tushman and Scanlan 1981).

Shared space (IAEA 2016) is about building healthy social interactions to support mindfulness, engagement and well-being. It is characterised by creating “we” instead of vs. “us versus them” atmosphere; working relationships that support trust, decrease of power dynamics, mutual respect, openness for sharing of thoughts and ideas without fear of recrimination or exclusion.

Humble leadership (Schein and Schein 2018) refers to humble inquiry, genuine curiosity towards the others not as roles but as whole persons and the “art of asking instead of telling”. This approach to leadership advocates open trusting communication, building and maintaining collaborative relationships. Notably, it is the responsibility of the leader to create conditions for openness and trust.

Mutual positive distinctiveness (Cramton and Hinds 2005) refers to an attitude of respect and tolerance for differences in views, values, competencies and practices. It involves strategy for overcoming the tendency towards ethnocentrism and fostering learning from differences and perceiving differences as a source of advantage rather than seeing them as dividing lines.

9.5 Closing Remarks

In this chapter, I proposed *sfumato* as an artistic metaphor that could be useful in a highly technical, regulated and challenging domain of multi-stakeholder safety-critical projects. The process of allowing tones and colours to shade gradually into one another, producing softened lines, is believed to evoke meaning and ideas that could support partnership for safety. Many of the selected approaches and practices for creating a shared understanding in this chapter come down to familiar issues, such as the importance of mutual respect, trust building, openness or relationship building. Still, bridge building “over the whitewater” of complex inter-organisational projects is not a trivial task, especially with regard to ensuring safety. Managers and leaders, just like artists, need tools and a palette to work in this challenging field: to understand where the boundaries are, how sharp they are, how they are changing, why they exist, what is their nature, how, when, if and to what extent they could be softened.

The soothing *sfumato* tonality suggests that metaphorically, organisational boundaries, cultural divides and contractual relations between project actors may not necessarily draw thick “lines and borders” but instead “evaporate like smoke” to nurture

dialogue, openness and mutual understanding when this benefits safety. At the same time, attention should continuously be paid to make certain it is crystal clear, for instance, what are the roles and responsibilities between project parties, or which set of rules is applicable in a given situation. Safety management and leadership need to account for clarifying and harmonising these “contours” within and between organisations to ensure long-term safety in the whole project, in all lifecycle phases and for all the parties.

Oil paintings have been proven to last for many decades, denoting an unexpected resemblance to safe and effective nuclear power facilities. Leonardo da Vinci had created a masterpiece without sharp lines and razor-like boundaries. *Sfumato* metaphor’s visual power could be harnessed to create a more nuanced and shared understanding between organisations with a positive effect on safety in high-risk project contexts.

References

- K. Aaltonen, M. Murtonen, S. Tukiainen, S. Three perspectives to global projects: managing risks in multicultural project networks. (VTT Research Notes; No. 2461) (2009)
- M. Alvesson, in *Understanding Organisational Culture*, 2nd edn. (Sage, 2013)
- F.T. Anbari, E.V. Khilkhanova, M.V. Romanova, M. Ruggia, C. Tsay, S.A. Umpleby, Cultural differences in projects. Paper presented at PMI Research Conference: Defining the Future of Project Management, Project Management Institute, Washington, DC, Newtown Square, PA, 2010
- A. Boisnier, J.A. Chatman, *The role of subcultures in agile organizations*. Harvard Business School Working Paper, No. 02-091 (2002)
- P. Bosch-Sijtsema, L.-H. Henriksson, Managing projects with distributed and embedded knowledge through interactions. *Int. J. Project Manage.* **32**(8), 1432–1444 (2014)
- M.D. Cooper, Towards a model of safety culture. *Saf Sci* **36**, 111–136 (2000)
- C.D. Cramton, P.J. Hinds, Subgroup dynamics in internationally distributed teams: Ethnocentrism or cross-national learning?, in *Research in Organisational Behavior*, vol. 26, ed. by R. Kramer (Elsevier, Amsterdam, 2005), pp. 231–263
- J. Denicol, A. Davies, I. Krystallis, What are the causes and cures of poor megaproject performance? A systematic literature review and research agenda. *Project Manage. J.* **51**(3), 328–345 (2020). <https://doi.org/10.1177/8756972819896113>
- N. Gotcheva, K. Aaltonen, J. Kujala, Governance for safety in inter-organisational project networks, in *Safety Science Research: Evolutions, Challenges and New Directions*, ed. by J.-C. Le Coze (CRC Press, Taylor & Francis Group, Boca Raton, FL, United States, 2020)
- K.L. Gregory, Native-view paradigms: Multiple cultures and culture conflicts in organizations. *Adm. Sci. Q.* **28**, 359–376 (1983)
- U. Hannerz, *Cultural Complexity: Studies in the Social Organisation of Meaning* (Columbia University Press, 1992)
- A.-M. Hietajärvi, K. Aaltonen, H. Haapasalo, Managing integration in infrastructure alliance projects: Dynamics of integration mechanisms. *Int. J. Manag. Proj. Bus.* **10**(1), 5–31 (2017)
- IAEA, Performing safety culture self-assessments, International Atomic Energy Agency, Vienna, Safety reports series, ISSN 1020–6450; no. 83 (2016)
- K. Kendra, L.J. Taplin, Project success: A cultural framework. *Project Manage. J.* **35**(1), 30–45 (2004). <https://doi.org/10.1177/875697280403500104>

- J. Kujala, S. Nysten-Haarala, J. Nuottila, Flexible contracting in project business. *Int. J. Manag. Proj. Bus.* **8**(1), 92–106 (2016)
- J. Kujala, K. Aaltonen, N. Gotcheva, P. Lahdenperä, Dimensions of governance in inter-organisational project networks. *Int. J. Manag. Proj. Bus.* **14**(3), 625–651 (2020)
- P. Lahdenperä, Making sense of the multi-party contractual arrangements of project partnering, project alliancing and integrated project delivery. *Constr. Manag. Econ.* **30**(1), 57–79 (2012)
- J. Langan-Fox, C. Cooper (eds.), *Boundary-Spanning in Organisations: Network, Influence and Conflict* (Routledge, New York, 2014)
- D.C. Lau, J.K. Murnighan, Demographic diversity and faultlines: the compositional dynamics of organisational groups. *Acad. Manag. Rev.* **23**, 325–340 (1998)
- J. Martin, C. Siehl, Organizational culture and counterculture: An uneasy symbiosis. *Organ. Dyn.* **12**(2), 52–64 (1983). [https://doi.org/10.1016/0090-2616\(83\)90033-5](https://doi.org/10.1016/0090-2616(83)90033-5)
- J. Martin, *Organizational Culture: Mapping the Terrain*. (Thousand Oaks, CA, Sage Publications, 2002)
- S. Nysten-Haarala, N. Lee, J. Lehto, Hard and soft contracting, the human side of project business, in *IPMA World Congress Helsinki*, ed. by K. Kähkönen, A. S. Kazi, M. Rekola (2009), pp. 205–220
- P. Oedewald, N. Gotcheva, Safety culture and subcontractor network governance in a complex safety critical project. *Reliab. Eng. Syst. Saf.* **141**, 106–114 (2015)
- P. Oedewald, E. Pietikäinen, T. Reiman, A guidebook for evaluating organisations in the nuclear industry—An example of safety culture evaluation. Swedish Radiation Safety Authority, Report number: 2011:20 ISSN: 2000-0456 (2011)
- M. Parker, *Organizational Culture and Identity: Unity and Division at Work*. (SAGE Publications Ltd, 2000). <https://doi.org/10.4135/9781446217214>
- Photobook Reviewer, Hiroshi Sugimoto (2021), available from <https://photobookreviewer.com/2021/12/02/hiroshi-sugimoto-by-hiroshi-sugimoto/>
- N. Pidgeon, Safety culture: Key theoretical issues. *Work Stress* **12**(3), 202–216 (1998). <https://doi.org/10.1080/02678379808256862>
- N. Pidgeon, M. O’Leary, Man-made disasters: Why technology and organizations (sometimes) fail. *Saf Sci* **34**(1–3), 15–30 (2000)
- Project Management Institute, *A Guide to the Project Management Body of Knowledge (PMBOK Guide)*. (Newtown Square, PA, USA, 2000)
- J. Reason, *Resident Pathogens and Risk Management* (World Bank Workshop on Safety Control and Risk Management, Washington, DC, 1988)
- C. Rollenhagen, J. Westerlund, K. Näswall, Professional subcultures in nuclear power plants. *Saf. Sci.* **59**, 78–85 (2013)
- J. Ross, *Introduction to Project Alliancing (on engineering and construction projects)* (Project Control International PTY Ltd., Brisbane, Queensland, Australia, 2003)
- A. Russel, S. Tillement, When the project ends and operations begin: Ensuring safety during commissioning through boundary work, in *Contracting and Safety*, ed. by J. Hayes and S. Tillement (SpringerBriefs in Safety Management, 2022)
- S.A. Sackmann, *Cultural Complexity in Organisations: Inherent Contrasts and Contradictions* (Sage Publications, Thousand Oaks, CA, US, 1997)
- E.H. Schein, *Organisational Culture and Leadership. A Dynamic View. 1st edn.* (Jossey-Bass, San Francisco, CA, 1985). <https://doi.org/10.1037/0003-066X.45.2.109>
- E.H. Schein, Organizational culture. *Am. Psychol.* **45**(2), 109–119 (1990). <https://doi.org/10.1037/0003-066X.45.2.109>
- E. Schein, *Organisational Culture and Leadership*, 2nd edn. (Jossey-Bass, San Francisco, CA, 1992)
- E.H. Schein, Three cultures of management: The key to organizational learning. *Sloan Manage. Rev.* **38**, 9 (1996)
- E. Schein, P. Schein, *Humble Leadership: The Power of Relationships, Openness, and Trust* (Berrett-Koehler Publishers, Oakland, 2018)

- P. Swuste, C. van Gulijk, W. Zwaard, Safety metaphors and theories a review of the occupational safety literature of the US UK and the Netherlands, till the first part of the 20th century. *Saf. Sci.* **48**, 1000–1018 (2010)
- P. Swuste, C. Van Gulijk, W. Zwaard, Y. Oostendorp, Occupational safety theories, models and metaphors in the three decades since WO II, in the United States, Britain and the Netherlands: a literature review. *Saf. Sci.* **62**, 16–27 (2014)
- R. Tee, A. Davies, J. Whyte, Modular designs and integrating practices: Managing collaboration through coordination and cooperation. *Res. Policy* **48**(1), 51–61 (2019)
- S. Tillement, C. Cholez, T. Reverdy, Assessing organisational resilience: An interactionist approach. *Management* **12**(4), 230–264 (2009)
- The American Heritage Dictionary of the English Language, 3rd ed. (Houghton Mifflin Company, Boston, 1994)
- M. Tushman, Special boundary roles in the innovation process. *Admin. Sci. Quart.* **22**(4), 587–605 (1977)
- B. Turner, *Man-Made Disasters* (Butterworth-Heinemann, Oxford, 1978)
- M. Tushman, T. Scanlan, Boundary spanning individuals: Their role in information transfer and their antecedents. *Acad. Manag. J.* **24**(2), 289–305 (1981)
- A. van Marrewijk, Organizing Mega-projects: Understanding their Cultural Practices, 1st workshop: Megaprojects: Theory meets Practice 12–13 September, London (2013)
- A. van Marrewijk, K. Smits, Cultural practices of governance in the Panama Canal Expansion Megaproject. *Int. J. Project Manage.* **34**(3), 533–544 (2016)
- K. Viitanen, N. Gotcheva, C. Rollenhagen, T. Reiman, Safety culture assurance and improvement methods in complex projects. Final Report from the NKS-R SC_AIM. Nordic Nuclear Safety Research NKS Reports, vol. 405 (2018)
- J. Whyte, T. Nussbaum, Transition and temporalities: Spanning temporal boundaries as projects end and operations begin. *Proj. Manag. J.* **51**(5), 505–521 (2020)
- P. Williams, The competent boundary spanner. *Public Adm.* **80**, 103–124 (2002). <https://doi.org/10.1111/padm.2002.80.issue-1>

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.

