Public Sector Leadership in Assessing and Addressing Risk

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Simon Grima, Ercan Özen and Rebecca Dalli Gonzi

Public Sector Leadership in Assessing and Addressing Risk

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Preface

Early in this book we offer an observation that, once made, quickly recedes into the background. However, it remains present and – indeed – reappears in various forms and at various points throughout the 12 chapters. That observation is simply this – there is very little academic writing on *risk management in public sector organisations*. This is something of a mystery. In a complex world where risk, uncertainty, and the unexpected (even unknowable) are – perhaps – its most significant features, it seems that assessing and addressing risk and uncertainties would be first-order concerns for public organisations, and therefore for public sector scholars. *Risk* makes appearances throughout the literature … yes. So does *Uncertainty* … of course. Phenomena like crises and catastrophes are featured topics. Specific topics like governance, strategic planning, operational management, finance, and audit serve as subjects *in which* risk and uncertainty (and occasionally responses to them) appear. But very little effort has been expended investigating how to think about risk management in, say, a municipality, its objective purposes, and how it should function? Really, the limited treatment is nearly embarrassing.

Alongside this, the professional or practitioner literature has its own issues. There is an abundance of how-to reports, some 'state of the profession' studies, and some featured treatment of technical subjects (worker injuries, buying insurance, accident prevention, etc.). And there are, of course, a myriad of topics that, conceptually, are risk management topics but are not framed as such – policing, firefighting, road and street design, and water and sewage management. This is not a criticism of those specific fields, but it does lead to the question: why are these subjects almost never fitted into the larger consideration of an organisation's overall effort to manage risks?

Well, as this book will attempt to set forward, there are reasons for this. While not wishing to ruin the 'surprises', the academic side of things has not produced anything approaching a unitary rationale (or dare we say it, *theory*), which essentially prevents critical testing of hypotheses and measurement of performance. Does risk management matter to public organisations? We cannot say definitively because there is no clear assertion of what risk management *is* and what it *does*. But why is that? This is what the book sets out, in part, to answer.

On the practitioner side, the issue is related to the aforementioned lack of a rationale, but our book will contend that part of the problem is a consequence of the transference of private sector risk management principles and practices into a public sector setting. Risk management was first formalised in the private sector,

so understandably public authorities followed and adopted those practices. It turns out (well, we think so) that there are several reasons to believe risk management effectively becomes a different thing when applied to public organisations and – thus – requires a different way of thinking.

To be sure, much of traditional risk management is worth doing. Public organisations want to prevent fires to public buildings, avoid injuries to employees and citizens, and prevent decisions that could lead to law suits. They should buy insurance, establish policies, procedures, and practices; they should monitor their work; and they should even pursue opportunities when appropriate (risk management is not only about threat management). However, the missing ingredient is a clearer understanding of why this should be done and how.

This preceding paragraph gets to the substance of our book, and here it is necessary to briefly explain a critical aspect of risk management that comes in for discussion in the first four chapters of the book. The evolution of risk management features a moment where recent developments lead to a somewhat unintentional swerve in the actual meaning and purpose of risk management. Enterprise risk management (ERM) is the emblematic cause of that swerve, which – it is fair to say – was not its intention. Rather, ERM argued for a kind of aggregation and integration of all that had transpired from the 1940s to the early 2000s. Risk management began as a technical managerial function (insurance buying) but over time became a collection of largely independent functions (financial risk management, health and safety, business continuity, IT security, supply chain risk management, etc.). The ERM initiative sought to integrate and consolidate these efforts into a holistic, organisation-wide, strategy-driven, function. If some risk management was good, wouldn't more comprehensive and coordinated risk management be better?

To be clear, the motive for ERM was not simply the response to the preceding question. There was a recognition that organisational risks were related and highly interconnected. It made more sense to look at the exposure to risk comprehensively. But here comes the swerve. If an organisation decides to take a comprehensive approach, the practical question is 'how does this happen?' Much ink has been spilled on this, and – in fact – this book sets out the *how* and *why* in some detail. The more impactful question, however, is this … if the intention is to comprehensively assess the potential effects of an uncertain world on an organisation, then the task really is not limited to assessing and addressing *risks*, is it? Risks (as we will explain) are *measurable uncertainties* so it becomes quickly apparent that risks are only a part of an organisation's exposure. Unmeasurable uncertainty (well, just *uncertainty*), complexity, the unknown and unknowable, and emergent phenomena are much more prominent. Furthermore, human perceptions of these things are front and centre in any effort to comprehensively understand what we will call the *uncertainty field* of an organisation. Suddenly the job is not just about mathematical measurement of risks – which nevertheless will be shown to continue to shape the identity of the field. Rather it is more of a social science function, leading to very different ways of thinking about and practicing risk management. It turns out that this insight is applicable to private sector organisations too, but the book will make the case that it is particularly critical to the development of both the rationale and practice of public sector risk management.

Moving on, our book was conceived as a textbook, an introductory textbook on public organisation risk management – particularly focussing on European public organisations. That term, *introductory textbook*, is suggestive of several things. First, it signals the intended audience; university-level students and individuals entering careers where a basic understanding of risk management is seen as useful. Second, it implies that something else will follow – that is, further and advanced treatments of the subject matter with possible forays into specialised topics – additional books, for example. In other words, it suggests that there might be an entire programme of study around the subject – an undergraduate degree or an MSc in Public Risk Management, for example (we shall have to see about that!). Third, as a textbook, it should present evidence of the linkage between academic thinking professional practice. And here we remind ourselves that one of the problems with public organisation risk management is the limited research. This last point presents a challenge, so perhaps the most ambitious view we can take here is that we will attempt to provide a baseline or starting point for future research efforts.

One final point on our intentions. For reasons already mentioned, risk management finds itself at an interesting point in time. Thinking and practices are changing or adapting, and there are obstacles and issues that need to be better understood and addressed. Furthermore – let's face it – the world of risk, uncertainty, the unexpected, and the complex is certainly not going away. If 2020–2021 taught us anything, it is that the public sector has a huge role to play in assessing and addressing risk and uncertainty – and there are severe consequences to failure. Considering this assertion, our book needs to both describe the history and context of risk management, its present state, but also to offer a view of its future. Do textbooks attempt to address what *was*, what *is*, and what *might/should be*? Ours does.

The book is divided into four sections. The first section is focussed on establishing a context for understanding risk management (in all settings) but ultimately drawing a sharper view on risk management in European public organisations. The second section looks at what might be called the 'spine' of organisational risk management – structured approaches to assessing and analysing complexity, risk, uncertainty, the unknown, and the emergent. The third section examines the array of responses that an organisation might employ to address complexity, risk, uncertainty, etc. The final section steps back to look more holistically at how risk managers and leaders decide what to do and then how they do it.

Finally, note that we are certain public organisation risk management is an important function and that the need for competent risk managers and leaders has never been more important. There is an old adage in our field: 'Nothing promotes risk management like a disaster'. If this is true (it is) 2022 will provide a huge demonstration case and we predict a period of keen interest. How long will that interest last – well, we say something about that in the book too. Among several key points will be the Sisyphean challenge of getting people interested in disasters *before* they occur! Nevertheless, we are willing to bet that there will be an elevated interest in risk management competence for the foreseeable future and are therefore hopeful our book will ignite interest in the field among – at least – some readers.

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Acknowledgements

Luck. The topic never quite surfaces in this book, but if we look closely it lurks beneath the words on nearly every page. Risk management might be (nearly) fully recast as luck management and in doing so I don't think we would be missing much in terms of description. Whatever the terminology we employ, the essential message in this book is that we control much less of our lives than we would care to admit. Yes, we take measures to prevent bad luck from befalling us and we aspire to enhance the prospects of good fortune. But this only takes us so far and somehow we have to come to terms with the idea that striving to be resilient is the best overall policy we can follow.

So it is with the subject matter of this book. We buy insurance, we make plans, we learn how to be safe, and how to take calculated gambles, and – so do risk managers. There are many concrete things that can be done in the service of managing risks, but in the face of a complex environment, with uncertainty, emergent phenomena, the unknown and even the unknowable, our overall strategy is to focus on being able to bounce back, minimise impacts of sudden events, anticipate, seek to remain agile, responsive, and resilient. Indeed, it would be hard to find a more central point in this book than sustainable resilience, the achievement of which (while never fully attainable) becomes the overarching purpose of risk management.

So it is with risk management, but so it is with me. That is, I have sought to be resilient in my life, but as with all of us, I have only had partial success. Nevertheless, resilience in the pursuit of resilience must be the way we proceed through life.

But back to 'luck', which is what I really want to talk about here.

Philosophers and scholars contemplate the role of luck and fortune, and one rather clear observation is the fact that we are often more lucky (or unlucky which, by the way, is a different matter) than we care to admit. Provocatively, it is sometimes said that the hallmark of successful individuals is their lack of appreciation for the role luck played in their success. Good parents, genetic endowments, thoughtful mentors, happy marriage, being at the right place at the right time all play a role in success. Yes, being good at what you do and working hard can position you for success, but still … I will go on the record and say that I have been very, very lucky. I would like to think that I work hard and have a modicum of intelligence, but as I look back on life, it is luck that features prominently. And for me, it is people that have mattered the most and brought me the most luck. This Acknowledgement would run to 10 pages or more if I was thorough in recognising them all, so let me provide a light organising structure to capture those that really need thanking.

My parents, now both long gone, were so powerfully influential in promoting my love of learning that I could in many senses just stop the acknowledgements here. However, my extreme good fortune in meeting and marrying my wife, Sian, has to be at the top as well … and then my lovely, smart, funny, and talented daughters, Hannah and Mallory, feature prominently as well.

Turning to matters more pertinent to this book, I had the benefit of two great mentors in my academic life, C. Arthur Williams, Jr at the University of Minnesota, and Don Norris at the University of Nebraska-Omaha. Such is my indebtedness to them that I always mention them when opportunities roll around to recognise my influences. My research colleague, Torben Juul Andersen of Copenhagen Business School deserves mention here as well. He has been a good colleague and an inspirational thinker. I am very lucky we met nearly 15 years ago, and I am happy to say we continue to have research ambitions well into the future.

Let me finish with what is a very unusual string of events that – over 25 years ago – led me down a road into the world of public sector risk management in Europe. Luck had to be present as I did not initially have any specialised knowledge of the European public sector scene. I was invited to the UK in 1995 to discuss my US work on risk pools, which eventually allowed me to work with local authorities in the UK. Along the way I became friends with Martin Fone (a risk financing and underwriting expert), Professors Lynn Drennan and John Hood of Glasgow Caledonian University, Alan Connolly and Rosemary Ryan of Irish Public Bodies, and many other experts on public sector risk management. Because of my time in the UK, I was invited to Denmark by Peter Sylow (CEO of the public body insurer KF) who, I am happy to report, has remained one of my best friends. This in turn introduced me to a constellation of public sector leaders throughout Scandinavia (first) and then the rest of Europe. This very long and winding journey of good fortune finally came to rest – for the moment – with Professors Simon Grima and Rebecca Dalli Gonzi at the University of Malta, who have been major partners in developing this book.

There is only one way to characterise this journey. Lucky. My sincerest thanks to all these friends and colleagues.

Peter C. Young, PhD

17 September 2021

Section One

Context

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Chapter One

Our Complex World

Peter C. Young and Simon Grima

Abstract

Ours is a complex world. On these five words will be built a foundation for an alternative way of framing our thinking about risk management. Complexity means many things, but a key feature is that outcomes cannot be predicted with certainty. In the best cases, opportunities arise to analyse and develop some understanding of the uncertainty within a complex system, and in the most fortunate of such circumstances it is possible to anticipate specific outcomes with some degree of accuracy. The authors call such circumstances *risks* – that is, measurable uncertainties. Complexity, however, consists mainly of interconnected uncertainties and unknown/unknowable possible outcomes or effects. And, of course, complex systems can include humans whose (in)ability to perceive and interpret such environments makes things – well – more complex.

This book ultimately will focus on how the authors construct a way to lead and manage in this environment, but first it is critical that the terminology and description of this world be given some precision. Therefore, Chapter One begins with an introduction to the idea of complexity, including some mention of the principles and concepts that inform our understanding of it. In turn, this discussion introduces uncertainty. Risk, as a category of uncertainty is discussed and the implications of its measurability are presented, which leads to a discussion of human perception and behaviour under conditions of uncertainty. Attention is then drawn to the unknown and the unknowable, and to emergent phenomena. Since the focus of this book is on public sector risk management, the chapter concludes with a brief discussion of the idea of public risk.

Keywords: Risk management; public sector; leadership; uncertainty; insurance; ERM

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Principles and Concepts

Complexity

Many management and leadership scholars have been attracted to Complexity Theory, which originated in numerous fields of scholarship in the natural sciences (Dooley, 1997). An introduction to complexity will be a useful starting point in this book, although it is important to recognise that the translation from natural science to management science creates some wrinkles that will need to be explored later. Nevertheless, a basic definition might be:

> Complexity is a characterisation or condition of the behaviour of a system, model, or other context – as a whole or within its constituent parts – all behaviours (interactions) guided by localized rules with no higher instruction evident. (Johnson, 2001, p. 19)

A very critical implication is that complexity can be studied and described even though the outcomes of the system, as far as can be known, are unpredictable. This makes the ability to quantify and assess threats, opportunities, and likely outcomes a challenging – and frustrating – task (Plsek, Lindberg, & Zimmerman, 2005). *Systems theory*, an affiliated concept, frames the study of complex behavioural patterns among interdependent agents in a social system whose purpose, structure, and functions are influenced by environmental forces (affecting parts of or an entire system). These forces and responses can appear chaotic and counterintuitive. They are certainly primarily *nonlinear*, since the observed effects of the individual parts cannot be easily aggregated into a cohesive whole – which is why the ability to predict escapes us. C*haos theory*, also a related concept, among other things, considers dynamic systems that seem to occasionally reach disordered states, and identifies patterns between linked effects and feedback loops where a small change in one state of the system can cause large effects in a later state (Gleick, 1998). Climate change is an example of such system dynamics.

Complex systems can create spontaneous order – often referred to as *self-organisation* – formed by interactions between local parts, or agents, in an otherwise disordered context. Self-organisation is not the result of organisation-wide controls, but rather the actions by/among individual agents responding to various stimuli. Organisational *multi-agent systems* reveal a form of a self-organised system composed of autonomous interacting intelligent agents that can resolve emergent problems through negotiated solutions based on updated (often supported by digital technology) information (Mařík et al., 2002).

As a further extension, a *complex adaptive system* (CAS) gives shape to a dynamic network of interactive agents where the agglomerated, or collective, effect of their combined behaviours can be adaptive and innovative. That is, together the individual responses mould and reshape the system so it becomes more compatible with its environment.

Research on complexity has brought some important perspectives to management science, including the idea of organisations as CAS (Weaver, 1948). As with complexity itself, there are numerous variations of the CAS concept, but the major attraction for management scholars is the belief that CAS can provide remedies for the limitations of traditional linear and deterministic strategy modelling (Dooley, 1997). What does all these mean for thinking about risk management? Some influences are obvious, but others only reveal themselves on closer examination. A summary of the key insights would be the following:

- *Adaptation* and *innovation* are the two central responses that agents employ to address challenges (challenges including, of course, risks, uncertainties, the unknown, and emergent phenomena).
- The fundamental operational feature of CAS organisations is that all agents (employees, managers, etc.) have unfettered ability to work with all other agents in order to assess and address threats or opportunities. These interactions may be seen as unconfined individual actions but might also be conceived as operating within organisational *systems*.
- CAS feature local rules (called *schema*) that guide individual agent's judgement, decision rules, and behaviour. By use of the term 'local rules' it is suggested that the system is not hierarchical, nor does it operate in a centralised fashion. Everyone has a role in adapting to new conditions, innovating when necessary, and otherwise monitoring for challenges to the system.
- Leaders in CAS have different roles. Two management scholars recently observed that leaders in CAS are expected to … 'Facilitate … (b)oundary spanning, organizing and implementing aligned actions, promoting cross-functional training, joint planning and decision-making, deploying resources across units to foster interconnectivity' (Uhl-Bien & Arena, 2018). This is sometimes called complexity leadership.
- It may sometimes be said that CAS are 'naturally regulated', by factors like gravity and biological constraints. In organisational systems, questions abound as to what structures may need to be built to acknowledge artificiality. In other words, naturally regulated CAS are regulated by natural laws, while organisations have to recognise that the 'regulations' that bind them must be imposed and managed by humans.

The concept of Complexity Theory introduces a set of ideas that will shape the content of future chapters, as well as changes in risk management thinking. But perhaps the additional point to be made here is that our world is made up of *many* complex systems, and these systems represent 'units of measurement' that provide some degree of meaning. However, these systems ALL may be interconnected in various ways. And so here we must come to terms with – but ultimately learn to live with – the realisation that *Everything is Connected*, a phrase that will be repeated throughout the book. Within limits, we can understand specific components of a complex system or systems but it remains fully beyond our ken to clearly understand the interconnectivity of all systems to one another.

This is a humbling matter, and indeed humility is suggested as an essential quality for risk managers and leaders later in the book.

Uncertainty

If complexity can be imagined as the description of the functioning of a system or an environment, elements or components of that system would include certainties (at least in theory), uncertainties, and phenomena that cannot be known or anticipated. Additionally, humans may be present so their capabilities, perceptions, and behaviours would be components of that complex system/environment. In adding the observer to the list we discover that there is more than one way of thinking about uncertainty.

Arguably uncertainty exists independently of observation (some theorists would not agree). That is, whether or not humans are present to observe an uncertain situation, that uncertainty could be said to exist. A tree will or will not fall in the forest whether or not we are present to observe it. When it will fall or not fall is what might be called an *objective* uncertainty – that uncertainty will resolve itself with or without an observer present. It might be said for convenience, it is *objectively determined*.

Then add the observer. There is a school of thought that uncertainty exists (only?) in the mind of the observer. For example, *Webster's New Collegiate Dictionary* defines uncertainty as 'doubt about our ability to know', and thus it might be present at any time, in any situation – even if the imagined situation was *objectively certain*. If we consider uncertainty as the result of doubting our ability to know, we could claim that doubt only occurs when an observer is present. The degree of doubt would vary and be influenced by things such as availability and understandability of information, the capacity of the observer to interpret and apply that information, and a variety of other human factors (prior experience, culture, and even genetics). Michael L. Smith developed a simple and useful representation of the varying degrees of uncertainty. See Fig. 1.1 (Williams, Smith, & Young, 1998).

Professor Michael L. Smith of the Ohio State University has developed an important conceptualisation of uncertainty. He argues that, like risk, uncertainty exists in varying degrees, and he has proposed a scheme for classifying levels of uncertainty. His 'Certainty–Uncertainty Continuum' appears as follows:

In addition to these levels, there is an implicit sliding scale of – let us call it – measurability, where a step from Level 3 towards certainty marks an increasing ability to understand the characteristics of an uncertainty. As indicated in Fig. 1.1, this understanding arises primarily from our ability to assess the probability of certain outcomes – as well as the value of the possible outcomes themselves. This growing ability to understand is what 'moves' uncertainties into the category of risks. But, to conclude here, uncertainty can be thought of as an objective phenomenon (things will either happen or not happen whether we are present or not), but uncertainty is also a state of mind. More broadly, the debate rages as to whether uncertainty is *either* or *both* – we will not trouble ourselves further here.

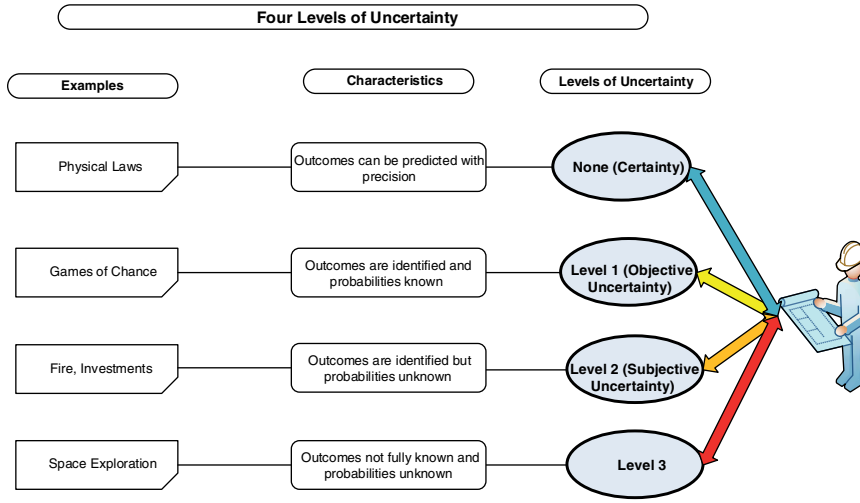

Fig. 1.1. Smith's Four Levels of Uncertainty. *Source*: Authors' compilation adapted from Williams et al. (1998).

Risk

Risk, by definition, implies measurability, and indeed, 100 years ago economist Frank Knight (1921) defined risk as *measurable uncertainty*. A slightly extended definition deriving from mathematics would be:

> Risk is the variation in outcomes around an expectation. (Williams & Heins, 1964)

As Fig. 1.2 shows, identifying all possible outcomes and the value or magnitude of each outcome permits the development of a probability distribution, which numerically reveals the characteristics of the objective risk. In turn, a probability distribution allows us to calculate an average expected outcome and, with only slightly advanced mathematical skill, a standardised measure of how the range of possible outcomes distribute themselves around the average (variance and standard deviation). These calculations lead to the mathematic definition of risk, called 'the coefficient of variation', which is determined by dividing standard deviation by the expected value. The larger the coefficient of variation (everything else being equal), the greater the risk (Grima & Bezzina, 2018).

This is as far as Chapter One takes mathematics. However, it is useful to at least be aware that the mathematical calculation of risk is based on the ability to determine probabilities as well as an expected possible outcome.

Let us return, however, to the Smith levels of uncertainty. There are different levels of uncertainty and correspondingly there are different levels of risk. What would affect the level of risk in the supposedly objective data used to construct a probability distribution? *Texture* might be a useful term here. Texture refers to the subjective or qualitative aspects of risk that seem to be missing from the simple

To demonstrate how the coefficient of variation is computed, consider the following, reflecting damage, loss, spoilage of materials in a city storage facility: Total Supply Leakage

Euro Losses Per Year	Probability
€0	0.303
€10,000	0.281
€15,000	0.256
€20,000	0.150
€30,000	0.005
€40,000	0.004
€50,000	0.001

The average or expectation for this distribution is found by: €0(0.303) + €10,000(0.281) + €15,000(0.256) + €204,000(0.150) + €30,000(0.005) + €40,000(0.004) + €50,000(0.001) = €10,010

The standard deviation for this distribution is found by calculating the square root of the following:

$(0-10{,}010)^2$ (0.303) + $(10{,}000-10{,}010)^2$ (0.281) + $(15{,}000-10{,}010)^2$ (0.256) + $(20{,}000-10{,}010)^2$ (0.150) + $(30{,}000-10{,}010)^2$ (0.005) + $(40{,}000-10{,}010)^2$ (0.004) + $(50{,}000-10{,}010)^2$ (0.001) = 58,909,910

The square root of which is: €7,675.28 (the standard deviation)

Thus, the coefficient of variation is:

Coefficient of variation = €7,675.28/€10,010 = 0.767

Fig. 1.2. The Coefficient of Variation. *Source*: Authors' compilation adapted from Williams et al. (1998).

mathematical computation described above. For example, two individuals might objectively know that the average cost of a particular event is €10,010 but have very different reactions to the knowledge. Subjectivity, perspective, and attitude would seem to be a part of risk (as would uncertainty). Moreover, texture would have to include not only perceptual factors, but also what might be called 'fuzziness' factors. Fuzziness suggests lack of clarity, the hidden interrelatedness of risks, and the complexity of our environment. In other words, uncertainty (here,