Project Failure

Can You Avoid It?

By

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To

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About this book

This book supposes you want to do something. Why might you fail? What can you do to reduce the chances of failure? The summary answer, and purpose, is 'find out and control what might stop you'. The book develops a generic risk management model. It is based on what is lawful, rational and fair, but the reader must recognize that players – project proponents, authorization bodies, stakeholders – can act unscrupulously (see Preface).

What you want to do – whatever that might be – is here called 'the project'. Where projects fail, the causes, and measures to limit failure, make up the body of this book and typically include one or more of the following.

Flaw 1 **Project objective and boundary conditions** are not defined, are unclear, too complex or too numerous and even conflicting. Fuzzy or no goal does not permit performance measurement and directed project management. ***Remedy*** Identify one simple objective qualified by measurable boundary conditions that must be met.

Flaw 2 **Alternatives** to the objective are not considered or are perfunctorily considered after the preferred option has already been selected, and addressed not to inform decisions but only because, for regulated environmental impact assessments, the law requires alternatives to be considered. Often the alternatives, criteria of evaluation and method of comparison are unclear and not defined upfront. ***Remedy*** Use an evaluation panel and the Delphi Process, or equivalent, to identify alternatives to achieving the objective and meeting the boundary conditions, develop criteria of evaluation and method of comparison upfront, collect data and evaluate.

Flaw 3 **Planning fallacy** The project is under-planned, costing more, taking longer, and delivering less benefits than initially envisaged. There are several causes of slippage. Initial estimates can be naïve. The project proponents lack experience, they optimistically believe Everything Goes According to Plan (EGAP), they do not consider

previous projects or, if they do, they are overconfident in their ability to deliver better. They might also deliberately understate budget and time, and overstate benefits, to make the project look good to garner political support and obtain funding. The project proponents do not use independent review and audit. Roles of board and management are muddled with board micromanaging and staff setting policy. Issues of mission, policy, strategy and implementation are included in single documents making it difficult to update and distinguish, for example, policy from implementation. ***Remedy*** To avoid these shortcomings, take the 'outside view' by applying the base rate – adopt the average track record of projects of this sort, and use 'outside' reviewers and auditors who can assess plans independently without conflict of interest. Never assume EGAP but rather the Most Likely Development (MLD) and consider 'worst case' scenarios and how to avoid them. Have board decide mission and policy, engage with management on strategy, and delegate implementation to management. Organize project documents hierarchically with mission, objective, policy at the top and the detail of strategy and implementation below. Keep the individual documents at the respective levels separate.

Flaw 4 **The perception of risk** mistakenly includes certain and uncertain eventuation with an absolute beneficial or adverse single consequence with a single likelihood. ***Remedy*** Consider risk is an uncertain eventuation of something adverse with the outcome having a range of consequence and range of likelihood, and perceive risk as not absolute but relative to organizational risk appetite.

Flaw 5 **The scope of risk assessment** is narrowly, weakly or not defined, and restricted to immediate local internal risks of the project to people and the environment. ***Remedy*** Assess all the risks of the project to people and the environment *and* of people and the environment to the project, and include strategy and external as well as internal risks.

Flaw 6 **Risk identification** is with an unclear or undefined method on an implicit assumption of the absoluteness of risk, there is reliance on views of stakeholders and experts of undisclosed risk aversion, and

there is not a deliberate and systematic scrutiny of every project facet. **Remedy** Construct an appropriate appetite for risk and identify risk using a panel of stakeholders and experts in a Delphi Process or equivalent. Identify risks against the organizational risk appetite, working systematically through every project facet, and in each facet ask: What could go wrong? What must we avoid?

Flaw 7 **Risk materiality** is mistakenly regarded as absolute and implicitly assumes a single consequence at a single likelihood for any specific risk issue. The conventions $R = L \times C$ (R is risk severity, L is likelihood and C is consequence) and $EV = P \times \$$ (EV is end value, P is probability and $\$$ is cost) understate the perceived materiality of big consequence events. Arithmetic manipulation (*eg* averaging, adding, multiplying, …) of $R = L \times C$ is commonly done but is dubious if not invalid. In most cases estimation of L and P is unreliable. Little or no provision is made for imperfect risk assessment. ***Remedy*** Work with stakeholder groups to devise the organizational appetite for risk, identify and assess risks relative to this risk appetite, focus on the worst case for each type of risk, prioritize risks with big C or $\$$ and devise controls irrespective of L or P. For medium and low C and $, develop controls using the hierarchy: avoid, prevent, mitigate, transfer, offset, accept and insure. Include as a material risk that some risks will be overlooked or eventuate more consequential than expected, and that some controls will not be effective.

Flaw 8 **Undervalued natural capital** A risk to the global project to make living on Planet A sustainable is disregard for natural capital. The here and now, the economy and employment are put ahead of long-term preservation of biospheric structure and function. This is happening because the indispensability and irreplaceability of natural capital are ignored, or because in Cost Benefit Analysis (CBA) discounting is being applied to the value of natural capital so that the goods and services that the biosphere provides are represented to reduce to little or nothing in the future. There are shortcomings to discounting natural capital. (a) There is no definitive value that a discount rate should take. (b) Unlike things to which CBA and discounting are often applied (*eg* labour *vs*

machinery, investing in A *vs* B) natural capital is non-substitutable (there are no workable alternatives to biogeochemical cycling, global climate, *etc*). (c) Natural capital has no explicit price since it does not change hands between willing buyer and willing seller in the market place, and price must be imputed (*i.e.* guessed). (d) CBA can output any result the user desires, by selecting the 'right' discount rate and 'right' natural asset values to yield or 'prove' whatever is wanted. Further, science and technology – including economics – are powerful aids for developing positive knowledge (how the world is) but are a poor basis for determining the normative (how the world should be). **Remedy** Adopt zero discount rate for natural capital and regard it as indispensable and irreplaceable. Accept that ultimate frames of reference like the sustainability ethic are value, not technical, judgements (how the world should be) and use science and technology to determine how the world is and to shape it to how we want it – by value judgement – to be. In every project avoid run-down of natural capital, either preserving or enhancing it.

Flaw 9 **Stakeholder engagement** is defective because it is authoritarian, informing and inviting comments without involving stakeholders to become project participants. The distribution of project costs and benefits in not equitable. To ***remedy***, get stakeholder buy-in. Design the project to create shared value among stakeholders. Identify stakeholder groups and engage with each involving them in decisions and implementation.

Flaw 10 **Risk responsibility** is flawed by not appointing any risk owner, by appointing risk owners who do not have executive authority, by appointing two or more owners of a risk, and by appointing a risk owner who is not the implementer of the action prone to the risk. ***Remedy*** Each risk must have one, and only one, owner, and appoint as risk owner the executive closest to the implementation.

Flaw 11 **Failure to act** Risk control often fails because of ineffective or no implementation, insufficient preparedness for risk eventuation, poor or no on-going risk surveillance and infrequent or no iteration of

plan-do-review-revise. ***Remedy*** Design controls for every risk applying the hierarchy: avoid, mitigate, transfer, offset, accept and insure. Cost the controls and provide budget and controllers. Test controls by pilot trial if possible. Implement controls. Undertake on-going surveillance.. Provide contingency budget, skills and preparedness for consequences bigger than anticipated or not anticipated. Devise and practice emergency preparedness by appointing emergency controllers and teams, and by staging emergency drills on a variety of crises: Blackouts, breakdowns, epidemics, fires, riots, seismic events, strikes, terrorism, weather extremes. Iterate plan-do-review-revise – perform reviews and update regularly or whenever objective, plans and procedures change.

Flaw 12 **Conflicting interests** can set back projects, damage reputations, and harm people and the environment. ***Remedy*** Ensure that approvals, assessments, audits and reviews are done by bodies independent of the project. Adopt the 'outside view'. When using 'wisdom of the crowd' ensure individuals act independently.

Flaw 13 The pocket risk manager Conventional risk management is so flawed (covered in the foregoing) that it is a risk to itself. Among the many shortcomings is prolixity. The challenge is to produce the concise one-page generic risk management guide avoiding the flaws. The guide proceeds as follows. Assess the alternatives and settle on the objective and boundary conditions for the project and the specific risk management exercise. Have stakeholders, working by Delphi process, develop risk appetite and identify risks by scrutinising every project facet asking 'what might go wrong?' Produce a risk register. For each risk type start with worst case. Prioritize risks with high consequence (existential threats, irreversible damage to environmental function and structure, unaffordable loss). If these big risks cannot be avoided, prevented or mitigated then abort the project. For risks of moderate to low consequence (for which there is moderate to high tolerance), apply the hierarchy of controls: avoid, prevent, mitigate, transfer, offset, accept, insure. Develop controls for every identified risk. Cost the controls. Allow for the contingency that some risks are overlooked or are more consequential than expected, and that controls are less than

fully effective. Train and equip personnel. Conduct emergency drills. Test control effectiveness by on-going monitoring. Update by iterated plan-do-review-revise.

This book addresses the above shortcomings to project management, and explains the remedies.

Preface

This book is prescriptive. It purports to say 'how'. Prescriptions can be dodgy. They often commit confirmation bias, they ignore the role of chance, and they presuppose players are scrupulous. In this preface I explain these shortcomings and how this book tries to be different.

Many works on how to succeed recount what Tom, Dick or Harriet did to excel at whatever was intended. The things in common that the successful did are identified to be the determinants of success. They are the lessons learnt. Demonstrably so. "See, it worked." They are the formulae for achieving excellence, so the experts say. Examples are everywhere. Dale Carnegie in *How to Win Friends and Influence People* entreated readers to compliment not criticize (Carnegie 1936). It sold over 30 million copies. Tom Peters and Robert Waterman's *In Search of Excellence* interviewed 43 'excellent' publicly traded companies and deduced eight common themes (Peters and Waterman 1982). In the first four years they sold three million copies. In *Strategic Opportunities: What Works in Africa* Brian Huntley surveyed successful conservation projects in Africa and distilled out 12 fundamentals for conservation success, also read by a multitudinous flock (Huntley 2023).

It should not take Johnny-come-lately to point out the fallacies in the prescriptions of *How to Win Friends and Influence People*, *In Search of Excellence*, *Strategic Opportunities* and many others – call them the 'halo-heroes'.

Niccolò Machiavelli (1469-1527) observed that: (a) Prince A and Prince B do the same thing, yet A succeeds and B fails, (b) Prince C and Prince D do it different ways, yet both succeed, and (c) Prince E develops a strategy and succeeds, he continues his strategy, then he fails (Machiavelli 2013: Chapter 25). Evidently, people and conditions vary in space and time. Any game theorist would know that (Rosenthal 2011). Simple recipes do not bring enduring or universal success. Machiavelli advocated that the Prince must strategize, and adapt to location and people, and to changes over time.

A modern-day Machiavelli is Phil Rosenzweig (Rosenzweig 2007a, 2007b). Not only does Rosenzweig reiterate Machiavelli's observations (a), (b) and (c), but he points out that entity performance, good or bad, creates an overall impression – a halo – that shapes how we perceive its strategy, leaders, employees, culture, and other elements. Today Company F succeeds and is lauded for visionary leadership, strong culture, deft financial management, *etc*. Tomorrow Company F – with no change in management – stalls.

Rosenzweig continues: According to halo-heroic books, if an entity follows a certain formula it is bound to achieve. The books rely on interviews, business press and business school case studies, all of which are undermined by the halo effect. It then becomes questionable which is cause and which is effect – the formula or the performance. The supposed determinants of success among a selection of high-performing companies might be attributions (the halo) made about the companies chosen for their long-term success.

Whether you operate in government, free enterprise or not-for-profits you are in competition for resources – funds, human capacity, space, societal support, people's time of day, *etc*. In this Machiavellian turmoil you need an ever-adapting strategy (Porter 1980, 1998a, 1998b). Even if the formulae were valid today, they will not be tomorrow.

In *Fooled by Randomness* Nassim Nicholas Taleb explains that good management is not easily distinguished from luck (Taleb 2007). He takes a cohort of 10 000 managers. He assumes that by chance alone each year 50% earn US$10 000, and 50% lose US$10 000. He assumes further that the losers disappear. After five years there are still ($10\,000 \times 0.5^5 =$) 313 managers in the game. After 10 years there are ($10\,000 \times 0.5^{10} =$) 10 survivors each having gained US$100 000, by pure luck. The outcome of chance alone hardly differs from reality where 9 out of 10 start-ups fail within a few years and only 1% of start-ups become unicorn firms like Airbnb and Uber. How many of the 43 superior performers selected by Peters and Waterman are chance survivors rather than maestro managers? How many of the six conservation stories that Huntley relates are luckily successful ones among thousands of failures?

What controls are applied in the halo-heroics to derive the formulae for success? Trial-and-error, experiments, controlled trials, placebos, comparison of successes with failures, and such like are hard to find. Daniel Kahneman explains what he calls the WYSIATI phenomenon – What You See Is All There Is (Kahneman 2011). If the search is limited then you do not see far. There are indeed some investigative accounts that try to see further, and show up generic guides for about whatever the project: set targets, devise incentives and monitor (Bloom *et al* 2012).

There is a problem with 'success stories' and lessons supposedly learnt thereby (Mentis 2020). If a company or project excels, what has been learnt? That the techniques used are correct? That is not necessarily so. Success could arise by chance (Taleb 2007). Typically we set out in Kahneman's (2011) automatic thinking Mode 1 without much insight, and it is only if and when things go awry that we switch to Kahneman's deep-thinking, deliberate and effortful Mode 2. Why did the technique disappoint or fail? What were the underlying assumptions with which we started? What was flawed about the assumptions? What new assumptions have we now adopted that, so far, have avoided failure? Even though the revised assumptions and technique now work, it does not necessarily follow that our understanding is correct. Little is learnt from success. The most definitive learning arises from failure. We adopt error elimination and discard what does not work.

Also, the methods of the halo-heroes commit confirmation bias and circular logic.

Carnegie tells innumerable stories of winning friends and influencing people, to verify his thesis. But how many of his readers would have excelled anyway, without reading his book? How many successful people have not read Carnegie? Are readers of Carnegie more successful than those who have not studied his work? Even if the readers are more successful, which is cause and which is effect? Successful executives would be expected to read more widely than the unsuccessful. Carnegie's prescription is but one tiny corner of the universe. Man is capable of different thinking modes, and the prudent operator – the Prince – selects the mode – or sequence of them – depending on the circumstances

(creativity, devil's advocate, emotion, logic, management, optimism (de Bono 1985)). Hence: Steve Jobs did not create the iPhone by being nice. The reviewer of a scientific article does not compliment flawed experimental design and mistaken statistical inference. The outside reviewer does not applaud the project that is overbudget and late. The auditor general does not congratulate unaccounted-for expenditure. Carnegie is contradicted by the adage that 'nice guys come last'.

The formulae of the halo-heroes are confirmed or verified by the same data on which they are built. This is circular logic. To wit, A is used to derive B, and B is proved by referring back to A. To illustrate, suppose a coin is tossed 100 times and yields 40 heads. Forty: sixty is an unlikely outcome (probability about 0.01) and, like Taleb's 10 survivors out 10 000, does not reflect the average. Going back to the 100 coin-spins does not prove the coin, or the coin-flipper, to be biased. Independently collected data are needed. For example, repeat 100 coin tosses 30 times. By the central limit theorem (the law of large numbers), the mean will be close to 50:50. By analogy, the halo-hero success stories are explicitly or implicitly selected from a huge population of other cases. They are WYSIATI. They are anomalous. Their generality is not verifiable by the circular argument of reference to their selected data base. The inferences drawn, for example, by Peters and Waterman from 43 companies, need to be tested against a random sample of other companies (Statistics 101).

As a test of the halo-heroes, is success possible without following their formulae? *Strategic Opportunities* offers 12 fundamentals for conservation success, as follows.

1. Identify an urgent an existential crisis
2. Present an inspiring vision, clear goals and realistic strategies
3. Develop networks of synergistic collaboration
4. Communicate effectively with all stakeholders
5. Synthesize existing or create new biodiversity knowledge and understanding

6. Secure institutional support and develop project implementation capacity

7. Promote champions and nurture strategic leadership talents

8. Create and capitalize on quick wins: success breeds success

9. Recognize the critical importance of good governance

10. Embrace the unexpected opportunities of serendipity, good luck and good timing

11. Seize the political moment of changes in governance

12. Develop creative financing strategies

Are these 12 fundamentals inferred from the successful projects in *Strategic Opportunities* descriptive or predictive of all conservation successes? Consider the following case.

Between 1969 and 1979 I was employed by the erstwhile Natal Parks Board to develop and run a wildlife advisory service to landowners (Mentis *et al* 1972-74). The abundance and diversity of wildlife – called farm game – on private land in South Africa was striking. The full spectrum of native wild species was not present, and unsurprisingly the big, dangerous and disease-carrying species were absent or scarce. But many species, some of them rare and endangered, were better represented on private land than in formally protected areas (*eg* oribi *Ourebia ourebi*; black wildebeest *Connochaetes gnou* was saved from extinction on private land).

At a quick glance, the favourable status of farm game in South Africa was not universally so around the world. I pondered the question 'why' (Mentis 2009). I compared the South African situation to that in other countries and circumstances. The differences had little if anything to do with biology but rather related to the legal and socio-economic regimes. In South Africa the farmer was implicitly regarded as the custodian of wildlife on his land, and though he did not legally own the free-

roaming wild animal on his land, he had relative freedom to do with it as he pleased – he could preserve simply for aesthetic reasons, he could hunt for himself, he could supplement his home larder, he could offer hospitality in the form of hunting opportunity to family and friends, he could sell hunting opportunities, and he could trade wild animals dead or alive, with some legal controls. Farm game in South Africa was a fungible asset. The farmer had incentive to care for his wildlife. But this was not universally so around the world. For example, in the United States wildlife was owned by the public and held in trust by the state wildlife agency. The farmer did not have the prerogative to decide to utilize game on his land, for example to limit crop damage and recoup some of the losses, or to generate an income. He was imposed upon by the state game commission who allowed hunters to trespass on his land, litter, leave gates open, light fires, and shoot his cows. Under such circumstances the wildlife was not an asset but a liability, and the farmers wanted the state game commissions to take away their pesky wild animals. In another context, on communally owned land, such as in Lesotho, there was incentive, not to preserve, but for the hunter to bag his quarry before his comrade did, and wildlife was scarce.

The inference to be drawn was that the favourable status of farm game in South Africa was fortuitous. It rested partly on Roman-Dutch law having happened to be the framework on which South African law was founded. It all came about eons ago, long predating Fraser Darling, Sir Julian Huxley, Dasmann and Mossman, Ian Henderson and other founders of the game ranching movement. *Game farming*, where game is the primary crop on the land, is not the same as *farm game* where wild animals are a secondary crop or byproduct of the farming enterprise. Contrary to the dozen fundamentals of halo-heroic conservation, for farm game there were no urgent or existential crises, no inspiring vision and clear goals, no networks of synergistic collaboration among stakeholders, no synthesis or creation of biodiversity knowledge and understanding, no secure institutional support, no champions, no quick wins, … It happened irrespective of stable or changing governance. There was luck – good and bad – and financially it was done on a shoe-string.

One merit of farm game was that it was embedded in society. Its conservation was spontaneous, maybe constrained where farmers did not care, and maybe boosted where they did care. Contrast that with the stories told in *Strategic Opportunities* where successful conservation allegedly hinged on visionary champions, biodiversity expertise, networks, institutional support and special financing to make and sustain it on behalf of society. Conservation is successful surely when most citizens, rather than only a handful of heroes, practice it as daily habit?

Farm game success in South Africa did not fit the fundamentals of conservation's halo-heroics. Rather, it seemed to contradict. It muddled along, with messy 'market forces' shaping it, with some practitioners performing better (for conservation) than others. There were no individual champions. Though my job as a wildlife extension officer was possibly unique in Africa, I claimed no responsibility for the success of farm game. It was there when I started, and still there when I left. I did no more than learn from the able practitioners and try to teach the others. Perhaps I advertised farm game, but evidently not loudly enough for conservation's halo-heroes to take note. Or maybe they deliberately did not note, but conveniently overlooked successful farm game conservation because it spoiled halo-hero story-telling.

As a postscript to my halcyon days working for the fabled Natal Parks Board, landowner rights and custodianship, and freedom to protect and trade, are no longer honoured and defended as in days of yore. By way of the socialist inspired National Democratic Revolution (NDR), private ownership and custodianship have been eroded by the alliance of the African National Congress and South African Communist Party that is creating a tragedy of the commons (Hardin 1968) lauded over by a few powerful leaders that snuffle out any dissent and enrich themselves (Jeffrey 2023). This is exacerbated internationally. In 2022 CITES (Convention on International Trade in Endangered Species) upheld the ban on sale of rhino horn since 1977 in the belief that legal supply of horn could not be sustained, and that demand needed to be damped by outright ban. What country ran dry on beer because people drank too much? Plainly, it is in the interests of NDR to continue to support CITES.

However, the collusion and ban have stifled rhino asset fungibility, live rhino value has plummeted, rhino poaching has gone rampant, rhino numbers are falling, and it is becoming too costly for private landowners, who protect the majority of wild rhinos, to continue keeping rhino. The dozen conservation fundamentals identified in *Strategic Opportunities* are irrelevant to the erosion of individual rights, demise of wildlife fungibility and failing environmental conservation that are driven by the impoverishing NDR.

Turning to the matter of scruples, most prescriptive works implicitly assume that the players in any sphere of human activity operate fair-mindedly in the belief that people are honest and try to act lawfully. Overlooked or underestimated is Machiavellianism – an approach where intent may be described variously as dishonest, immoral, subversive, unethical, unlawful and unscrupulous, all in the self-serving interests of the Machiavellians. The possible combinations of lawfulness and unlawfulness among project proponents who run projects, and the competent authorities that supposedly administer fairness and justice, are depicted in Exhibit 1. A few words on each of the outcomes are warranted.

Exhibit 1 *Lawful and unlawful project process*

		Competent authority	
		Lawful	**Unlawful**
Project proponent	Lawful	1 By the book	2 Corrupt
	Unlawful	3 Criminal	4 Toxic

In quadrant 1 (by the book) both the project proponent and the competent authority act lawfully. This is how process is meant to happen and many people naively believe that most outcomes conform to this.

In quadrant 2 (corrupt) the competent authority steers process away from what is fair and lawful by such tactics as 'look the other way', misrepresentation, procrastination, and selective use of facts and of

application of law. The benefits are kick-backs[1] to competent authority individuals, their families and friends, and their political party.

In quadrant 3 (criminal) the project proponents resort to illicit means to secure contracts and undertake acts that are unlawful, despite competent authorities trying to be fair and enforce the law.

In quadrant 4 (toxic) both the project proponent and the competent authority collaborate to evade the law.

A third dimension might be added to Exhibit 1, namely the interested and affected parties (I&APs). They can act lawfully in defence of their rights, but when they are liable to suffer costs and enjoy few or no benefits then obstruction, pickets, vandalism and violence can arise.

Deceit, dishonesty and duplicity doubtless date back to antiquity, but the foremost work on it is the book *The Prince* first published in the 16th century and conveniently reprinted many times since (Machiavelli 2013). The unscrupulousness – Machiavellianism[2] – is named after the man. The unethical behaviour did not die with Machiavelli. It flourishes the world over, not least in South Africa as explained in an unending stream of publications: *The President's Keepers* (Pauw 2017), *How to Steal a Country* (Renwick 2018), *Gangster State* (Myburgh 2019), *Our Poisoned Land* (Pauw 2022), *Truth to Power* (de Ruyter 2023), the reports of the South African Department of Justice (2021) on Judicial Commission of Inquiry into State Capture (Final Reports - Commission of Inquiry into Allegations of State Capture), the on-going reports of investigative journalists who call themselves amaBunghane (https://amabhungane.org), and Zapiro cartoons (https://www.zapiro.com). It would be naïve to believe that all this concerns just competition for political power. It is all about robbing the long-suffering taxpayer and about self-enrichment

[1] Kick-backs are not necessarily banknotes in brown envelopes, but can be other benefits such as award of business opportunities (*eg* African National Congress (ANC) runs South African government contracts with Shell SA to supply gas to Karpowership where ANC has a stake in Shell SA (see Chapter 9)).

[2] It is uncertain the extent to which Machiavelli actively preached unscrupulousness for power and authority to be attained and maintained, or dispassionately and objectively explained how people came to power and held on to it.

of the Machiavellians. Sickeningly, it permeates every facet of society. It is remarkable that cases of misrepresentation by environmental assessment practitioners never get to court, that storage and sale fuel stations are built and operate without approvals despite authorities being alerted, that multi-billion Rand developments are approved to take place within 'no go' environmentally functional watercourses, and so on.

Projects can succeed not necessarily because they are done 'by the book' but rather that they adopt 'corrupt', 'unlawful' and 'toxic' means. It is not the intention of this book to teach Machiavellianism, but rather to alert interested and affected parties about the prevalence and nature of unscrupulous tricks. To achieve this, this book does not rest on success stories. It relies on failures, on conflicts of conventional and common practice with logic, the law and experience. It relies on actual or potential failures or clashes with common sense. It prescribes what to do, and how to do it, after recognizable errors, failures and the unreasonable have been eliminated. It offers the raw material for constructing strategies to fit Machiavellian current and evolving circumstances. It makes no claim to being definitive. Machiavellians are ever-inventive. It hopes its prescriptions might be used and thereby improved, modified, replaced and updated. It pleads iterated plan-do-review-revise in recognition that any fixed strategy is destined to obsolescence.

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This book has drawn on engagement with countless people and organizations over a lifetime. As much as I would wish to acknowledge and thank each and every one, this is not feasible for reasons of space and failing memory. But there are a few people whom I must mention and who gave up valuable time to help me with this book.

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Chapter 1

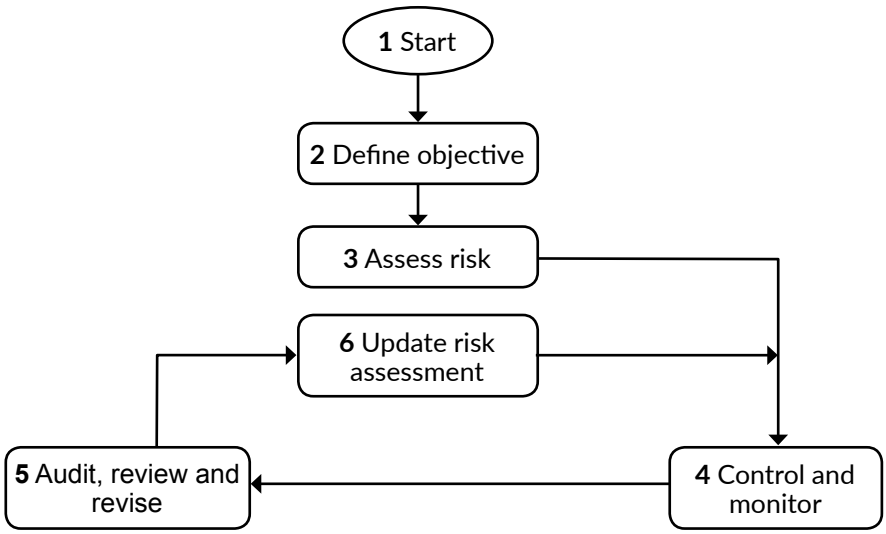
Introduction

This book offers a guide to avoiding failure.

Suppose I want to do something, not necessarily a business project, but almost anything in life. There is a chance that I might fail to achieve what I want. It is not just the known snags along the way that threaten my attainment. I know about these and can devise ways to limit them. It's the *uncertain* obstacles to my success that really trouble me. To what extent, and how, can I identify these uncertainties? What might I do to avoid or limit them? Once launched into my action, how am I progressing? Where am I falling short or failing? What might I have overlooked? What corrections should I apply? Are these corrections reducing my failings? And so on, until I achieve my goal.

That, in short, is project risk management. It includes setting a goal (what I want to do), identifying what threats there are to achieving it, assessing the relative importance of the threats, deciding which threats to control and which not, how threats will be controlled, preparing for foreseen and unforeseen threats eventuating, setting out on goal achievement, applying the controls, assessing progress and making corrections (Exhibit 2).

Exhibit 2 *Risk management algorithm*



Risk management is far from being some arcane ritual done with the luxury of big-project funding and by a team of highly paid clairvoyants. Nor is risk management the fair-weather exercise, or add-on, indulged in only when time permits or Everything is Going According to Plan (EGAP). Rather, risk management is part of the everyday life of prudent persons and organizations, it should be integral to every act, even when things are going well, and must be done when the chips are down, the odds are stacked against us, and we are in crisis.

There are two extremes in going about risk management. One is the quick and automatic or intuitive response or otherwise uncritical reliance on gut-feel or popular opinion. This is different to a second approach that is thorough, deeply thought-out, and takes time and effort. When is the 'fast and frugal' – a phrase used by Gigerenzer (2007) – approach appropriate, and when is it not to be trusted and the deeper-thinking approach warranted? How is the risk of a misleading risk assessment reduced? There is a famous debate between Daniel Kahneman and Gary Klein on expert intuition – when it can work and when it is unreliable – that is explained later in this book (Kahneman and Klein 2009).

In his bestseller, *Thinking, Fast and Slow*, Nobel Laureate Kahneman

(2011) explains two modes of thinking. Mode 1 is the immediate answer, reaction or response to an issue. Mode 2 is deliberate, effortful thinking by which we analyze a situation, its causes, implications and consequences. A few examples illustrate the difference.

Coordination in ball-sports such as cricket and tennis, and driving a car, and the fireman exiting the about-to-collapse burning house, are cases of operating in Mode 1. There isn't much time for reasoning things out. In such situation your response must be quick. However, it must not be thought that Mode 1 is purely instinctive behaviour, as is the case in reflex action when you quickly take your hand away from a hot object you have touched. With ball-sports, there might be years of practice in coordinating eye and hand. The eye-hand coordination can indeed be improved by training. The signal does pass from eye through quick processing in the brain to body and limbs. The training is developing the quick processing. You respond seemingly automatically and unthinkingly. Much the same applies in driving a car. As a learner-driver it is effortful to steer around a corner, and to coordinate feet and hands taking off on a steep incline. After a few years' practice you do all this unthinkingly. You drive down a pot-holed road swerving and weaving with your mind somewhere else.

In contrast, science, technology and professional practice rest heavily on Mode 2 thinking. To test an idea you figure out what would disprove the hypothesis, you work out what data are needed, how they need to be collected, how they might be analyzed, and then you go out and collect the data, analyze and draw inferences. Technological advance, while often inspired in a flight of imagination, requires the back-up of design, testing, redesign and retesting. Professional practice mostly involves setting the current issue against a repertoire of experience, figuring out how the present matches previous cases, what differences there might be, and how to adjust for these. All this is the very substance of Mode 2 thinking.

At this point, what is meant by 'risk'? The central problem is that doing just about anything substantive involves uncertainties about what

might go wrong. By no means do we know everything. Bordering on overstatement, Benjamin Franklin remarked "in this world there is nothing certain but death and taxes". It is helpful to categorize uncertainty. Exhibit 3 is an attempt to do this. The origins of this perspective are uncertain. The economist John Maynard Keynes recognized that some things could be quantitative or predictable, that other things could be compared, while still other things impossible to quantify. Former United States Secretary for Defence, Donald Rumsfeld, is famous for his 'unknown unknowns'.

Consider the quadrants in Exhibit 3.

Exhibit 3 *Knowns and unknowns*

		REALITY	
		Known	**Unknown**
MINDSET	**Known**	1 Known knowns	2 Known unknowns
	Unknown	3 Unknown knowns	4 Unknown unknowns

- The 'known knowns' in quadrant 1 concern what you know and understand, and things that can be measured or quantified and for which there is a high degree of certainty. For example, if I go out in the rain without wearing a raincoat I will get wet. And the income distribution of the study population can be estimated and described by mean, median and variance, and confidence limits can be attached. You know what you know or know what you can come to know.

- In quadrant 2 the 'known unknowns' are about things you know you are ignorant of or don't understand. They are poorly to not predictable. An example is a future pandemic – we know that a virus can evolve, infect people and cause death, but we do not know the nature of the virus, when it might infect people, and how infectious and deadly it might be.

- The 'unknown knowns' in quadrant 3 are about issues that you are unaware of but which are known or understood in the bigger world, or are at least capable of being discovered and known.

An example is the gas leak at the factory that we do not yet know is occurring, but we know what the consequences could be.

- The 'unknown unknowns' concern things that you and others are unaware of. They are not predictable. Unintended consequences fall in this class. When you started with A to achieve B you did not know it would cause C. When biocides were first used to control pests it was not realized that a myriad of other animals would be affected, the health and even the lives of people endangered, and the biosphere damaged, as famously explained by Rachel Carson in her bestseller *Silent Spring* (Carson 1965).

In this book, risk has the meaning defined by Viner (2015) as an *uncertainty* that an *adverse consequence* of a *given size* will occur. The italicized words in this definition carry special weight.

First, there must be *uncertainty*. There is no risk when the outcome is known with certainty. It is then quadrant 1 in Exhibit 3 and a straightforward management issue. The sun will set tonight. If we are working night-shift, we will need lighting – not a shadow of doubt about it. Steering around the known obstacles isn't the tricky part and is not risk management. It is handling the unknowns (quadrants 2, 3 and 4 in Exhibit 3), that are bothersome and that constitute risk management. This view of risk conflicts with the classical definition attributed to the economist Frank Knight (1885-1972) who distinguished between risk and uncertainty on the basis that the former is measurable. In the context of the convention that risk severity (R) is a function of likelihood (L) and consequence (C) of eventuation ($R = L \times C$), if numbers can be put to L and C there isn't much residual uncertainty. In *Silent Risk*, Taleb (2015) observes that "There is no such thing as Knightian risk in the real world, but gradation of computable risk" (*cf* Benjamin Franklin's above-cited view that death and taxes are the only certainties). Taleb's view pretty well coincides with the common usage of risk that embodies greater or lesser uncertainty, and it is this usage that this book adopts.

A second matter about the wording of our definition of risk is that the consequence is *adverse*. Some people regard uncertainty about a benefi-

cial outcome arising as a risk. However, this is unconventional in both popular and technical talk. One does not hear about 'the risk of winning the lotto'. This is not to deny that beneficial outcomes can happen, yet in the real world management does not focus on the benefit *per se*, but on the possibility of constraints or obstructions (*i.e.* risks) that might get in the way of its realization. One is reminded of the allegorical bestseller, *The Goal* (Goldratt and Cox 1986). Completing the schoolboy hike on time requires chivvying along the slowest-moving schoolboy. Put him in front and have the rest of the group attend to his every need – tie his shoe-laces, carry his bag – to ensure he keeps moving. At the factory it is the same. Find the bottleneck, and ease it to squeeze out the best possible production rate. Output is not improved by tinkering with processes not on the critical path. If the car won't start it does not help to fill the half-full fuel tank when the battery is flat. In life generally, if you want to do something, find out what might stop you – this is the very soul of this book. Making good things happen – completing the schoolboy hike on time, improving factory output, starting the car – is not *sui generis* requiring a new or different method but is achieved by one and the same old risk management approach of preventing obstructions, relaxing constraints, easing bottlenecks and fixing faults. Hence 'the risk of something good' is not in the lexicon of this book.

A third issue about the definition of risk is consequence of a *given size*. As Viner (2015) explains, a common pattern is higher frequency of low-, rather than high-, consequence events. For example, most slips or trips on the stairway result in no lost-time injury, occasionally broken bones, and only rarely a fatality. The important point that Viner (2015) makes is that for a given type of situation, there is a *range* of consequences each with own frequency (Exhibit 4). In other words, slip or trip on the staircase does not have only one probability of occurrence and only one consequence. This phenomenon of a type of event having not a single probability, and not a single consequence, but ranges of probabilities and ranges of consequences, is widely applicable (*eg* fires, vehicle accidents, disease epidemics), but is rarely, or not at all, considered in conventional risk assessment.