3 *Decision-Making about Unpredictable Technology Futures*

The previous chapters have begun to examine how hype is created, circulated, and increasingly institutionalised within the digital economy. We now shift our focus from producing hype to navigating, interpreting, and evaluating it. This chapter demonstrates that in an era of continual disruption, decision-makers are pressured to treat hype not as mere noise but as a strategic factor – one that demands deliberate evaluation, careful timing, and active management. We begin by illustrating the stakes through historical and contemporary examples, then examine the challenges posed by uncertainty in innovation, and conclude by showing how organisations are responding through emerging hype-evaluation practices. We trace the rise of hype's new experts – most notably industry analysts – tasked with helping organisations separate genuinely promising innovations from overblown claims.

This chapter, therefore, turns to the organisational decision-makers who must make sense of, and act within, an environment saturated with competing and exaggerated technological narratives. An unprecedented surge in digital innovations – particularly those billed as radical or disruptive – means that organisations face a dual challenge: spotting genuine opportunities while mitigating the risks of chasing inflated promises.

Consider a start-up like Juvo, which claims to disrupt traditional banking models. The instinctive reaction might be to dismiss such rhetoric outright. Yet, as argued here, decision-makers can no longer afford to ignore such claims. Hyped innovations have become a strategic variable with potentially life-or-death consequences for firms (Arnold et al., 2022).

A historical example illustrates how organisational responses to hype have evolved. One of the authors conducted research in the 1980s on the financial sector (Fincham et al., 1995), finding that banks at the time underestimated the disruptive potential of automated teller machines (ATMs). Professional bankers of that era dismissed predictions of significant industry change as speculative and unrealistic.

https://doi.org/10.1017/9781009644013.004 Published online by Cambridge University Press

As their terminology reveals, they saw ATMs as mere extensions of the teller function – a means of improving efficiency rather than a transformative innovation. Yet within a decade, ATMs had not only proliferated but also paved the way for online banking – a transformation those bankers failed to foresee. This perspective reflected a wider mindset of the time, which treated computing technologies as incremental aids rather than as drivers of fundamental change. Indeed, ATMs – initially introduced simply as an 'automatic' teller – were not recognised as precursors to a major industry transformation (see Locatelli et al., 2021).

These historical missteps highlight the risks associated with discounting technological hype while underestimating the transformative potential of emerging innovations. Juvo's ambitious assertions may indeed be inflated, yet the possibility remains that they could catalyse significant disruption in the banking sector. This highlights a recurrent organisational dilemma: dismissing hype risks forgoing genuine opportunities for innovation while embracing it risks committing resources to ultimately insubstantial promises. Compounding this dilemma is a further contemporary challenge: organisations must increasingly navigate a *proliferation* of overlapping and competing promissory narratives – each pitched as a strategic opportunity or threat – without becoming paralysed or distracted.

3.1 The Timing of Innovation Responses

Today's landscape demands a fundamentally different approach to innovation. Kumaraswamy et al. (2018, p. 1026) observe that the twenty-first century is characterised by 'continual disruption in which technological innovations and new business model changes affect not just individual firms, but entire industries and ecosystems'. In this environment, understanding and responding to hype – in essence, managing the *timing* of innovation responses – has become a crucial issue.

Innovation has long been recognised as important for an organisation to survive in an increasingly competitive market; however, its role is now seen as far more strategic. In the past, innovation was viewed primarily as a way to sustain productivity and competitiveness (Godin, 2015). Today, however, it is increasingly seen as a strategic matter because of its potential to transform the industrial landscape and

https://doi.org/10.1017/9781009644013.004 Published online by Cambridge University Press

radically restructure the position of players within that landscape. Incumbent organisations may find themselves at risk of being displaced by challengers wielding radical new technologies (Freeman, 1994) or disruptive business models (Christensen, 1997), generating what Schumpeter (1942) characterised as 'gales of creative destruction'. Conversely, these developments open up opportunities for challengers like Juvo, which can ride these waves to achieve rapid growth, higher profits, and perhaps ultimately exclude rivals in winner-takes-all competitions (Palmié et al., 2020). The stakes are thus rising significantly.

This shift in focus to the strategic impact of innovation has coincided with a dramatic increase in the pace and dynamism of technological change. These trends further amplify the challenges that innovation poses to decision-makers. The field of Innovation Studies (Godin, 2015) emerged in the twentieth century, examining how major technological advances, such as steam power and electric motors, gradually worked their way through the economy, patterns reflected in generation-long Kondratiev waves (Perez, 2015). By contrast, the current era of digital innovation features vastly higher rates of development and uptake of new products.

Together with shorter product life cycles, this acceleration generates massive market turbulence (Perez, 2015). Large multidivisional firms with dedicated R&D departments – once the powerhouses of innovation in the nineteenth and twentieth centuries – have now been outpaced by a proliferation of smaller, newer players, particularly in digital innovation (Menz et al., 2021). There is, in consequence, a multiplication in the number of voices articulating claims about a rapidly growing array of novel solutions and the benefits these will bring (Yoo et al., 2012).

This accelerating flood of digital innovations – especially radical or disruptive ones – presents both opportunities and challenges for organisational managers and other market actors. The need to respond to potentially disruptive changes brings this dilemma to the forefront: How can managers navigate and evaluate these competing claims? As we will explore later, claims of novelty inherently – and often deliberately – generate uncertainty (Jalonen, 2012). It is in this context that the term 'hype' first emerged to highlight the risk (indeed, the likelihood) that vendor claims may be unrealistic. A vendor might behave opportunistically (Williamson, 1975), exaggerating potential benefits or underestimating the difficulties of achieving them.

https://doi.org/10.1017/9781009644013.004 Published online by Cambridge University Press

Traditional business wisdom has emphasised the risks of failure associated with promising innovations, concluding that it is often best to delay adoption until the prospects are more clearly established (Khanagha et al., 2018). However, as hype's strategic significance grows, so does the need for structured approaches to evaluate and respond to it. In the following sections, we examine emerging frameworks for navigating the uncertainties inherent in hype-driven innovation.

3.2 Innovation Dilemma: The Used Apple Policy

Organisations face a profound tension in navigating technological innovation: the need to act early to seize opportunities versus the risk of committing to unproven solutions. This paradox – the *innovation dilemma* – requires balancing urgency with caution, particularly in today's rapidly evolving digital economy.

Theodore Levitt's (1965) classic paper in *Harvard Business Review* highlights the high costs, frequent failure and consequently deeply uncertain returns of new product developments. In a period in which the innovation literature focused on the maturation of product cycles of successful products, Levitt notes that 'most new products don't have any sort of classical life cycle curve at all'. Instead, 'from the very outset', they have 'an infinitely descending curve'. The 'product not only doesn't get off the ground; it goes quickly underground – six feet under' (Levitt, 1965, p. 82).

These costs and risks might be presumed to inhibit innovation altogether. However, Levitt goes on to propose a different strategy that 'badly burned' organisations have developed that he calls the 'used apple policy':

> Instead of aspiring to be the first company to see and seize an opportunity, they systematically avoid being first. They let others take the first bite of the supposedly juicy apple that tantalises them. They let others do the pioneering. If the idea works, they quickly follow suit. . . . [T]hey say 'We don't have to get the first bite of the apple. The second one is good enough', but they try to be alert enough to make sure it is only slightly used – that they at least get the second big bite, not the tenth skimpy one. (Levitt, 1965, p. 82)

Levitt's observation highlights the dilemma confronting organisational managers seeking to minimise risks and maximise benefits in uncertain technology markets. Innovation is highly uncertain. High costs and

https://doi.org/10.1017/9781009644013.004 Published online by Cambridge University Press

risks of failure can offset potentially high returns. These uncertainties vary substantially over the life cycle of an innovation. Uncertainties are highest in the early stages of development and adoption of a technology (Rosenberg, 2009). Levitt warns of the risks faced by early adopters, arguing that being first can be perilous. Rosenberg (1976) similarly wrote of 'anticipatory retardation' to describe situations where firms delay adoption due to expectations that improved versions of a technology are imminent. Thus, delaying adoption may be sensible. However, where technology creates strategic market transformation shifts rather than merely improving productivity, the difference between getting the first and last bite of the apple matters hugely (Geels & Smit, 2000).

Timing (concerning a technology's lifecycle) matters. It seems safer to delay investing in an unproven innovation. However, though uncertainty and the risk of expensive failures are highest at the early stages of a novel technology, so too are the potential benefits. Early adopters may secure a competitive advantage before this is eroded by the wide availability of equivalent functionality as the market matures (Ward, 1987). Entrepreneurs and investors may derive greatly enhanced profits from their temporary monopoly of exploitation of novel innovations (Schumpeter, 1942), which sweep through industries in a 'wave of creative destruction'. Today, attention focuses on the opportunity for disruptive innovators to displace existing incumbents and capture new market territory through new platform technologies and business models (Bower & Christensen, 1995).

Levitt's early contribution thus introduces some of the critical issues in our investigation into hype. The most significant opportunities for profit and growth arise in precisely the period when uncertainties are at their highest (Knight, 1921). Those wanting to share the benefits of early adoption and avoid being displaced by challengers like Juvo are called on to invest when reliable information to inform a decision is least available. This is the paradox at the heart of our enquiry. And it is growing more acute in the era of digital innovation, as the rate of new digital innovation increases, accompanied by shorter software development cycles and more rapid maturation and obsolescence (Nylén & Holmström, 2015). Platform innovations and other radical and disruptive innovations have gained huge salience with their promise to displace incumbents and deliver market share and profit to early investors and adopters (Gawer, 2011).

https://doi.org/10.1017/9781009644013.004 Published online by Cambridge University Press

Adopters must invest in opportunities *before* verifiable evidence becomes available that the technologies will be productive (Spieth et al., 2021). This means the capability to gauge the plausibility of hype becomes critical. To avoid what Kumaraswamy et al. (2018) characterise as 'errors of commission', traditional business wisdom emphasises the risks of failure for promising innovations and concludes that it is often best to delay adoption until the prospects are more clearly established. However, the temporality of innovation responses has become a crucial factor.

Delaying a response until robust evidence emerges of the prospects of a promising technology may reduce the risk of costly investment in unsuccessful technology pathways. However, it creates new risks from delayed access to expected benefits, and more crucially, from missing out on new opportunities for first movers from radical and disruptive change and the elevated rewards they may bring for investors and adopters. In this scenario, catch-up strategies may be expensive and miss out on the most significant rewards – characterised by Kumaraswamy et al. (2018) as 'errors of omission'.

Timing is also vital because these complex digital and organisational innovations are not 'plug and play' solutions offering readily identifiable and achievable benefits (Pollock & Williams, 2008). Adopters may need to invest significant attention and money to assess novel, perhaps arcane, technological fields (Schot & Geels, 2008). They may also need to acquire the necessary expertise and intelligence to appraise and exploit/appropriate them.

Considerable work may be required to get a new offering operating effectively in its intended context, and over time, to optimise performance (Fleck, 1994). Organisational managers may also need to unlearn entrenched views of how technology may be utilised. Acquiring technologies and developing responses may be delayed by competition between organisational teams wedded to existing and novel approaches (Volberda et al., 2021).

To make timely decisions, decision-makers must, in the words of Kumaraswamy et al. (2018, p. 1030), 'cultivate the capacity to read weak signals about potentially disruptive innovations and explore options before it is too late'. But one effect of the 'continual disruption' (Kumaraswamy et al. 2018) described above is even greater uncertainty for those navigating the sea of hype.

https://doi.org/10.1017/9781009644013.004 Published online by Cambridge University Press

3.3 Uncertainty and Innovation

Uncertainty is not just an incidental (if unwelcome) by-product of innovation. Innovation inherently generates uncertainty, disrupting traditional decision-making frameworks. However, this uncertainty is not merely a hurdle; it also drives economic dynamism, pushing organisations to develop new strategies for navigating risk and opportunity (Dorobat et al., 2025).

This paradox of innovation under uncertainty has long been recognised in economic thought. For instance, Knight's (1921) classic text argues that profit depends on imperfect knowledge and indeed that profit 'would not arise' under conditions of certainty (Knight, 1921, p. 198). Knight differentiates between risk, which involves calculable probabilities (such as market volatility), and uncertainty, where the combinatorial complexity of economic life and countless unknown factors make probabilities incalculable within business decision timeframes. His account marks a sharp departure from neo-classical models of markets composed of rational actors with perfect information. He proposes that imperfect knowledge and asymmetrical access to information are crucial for profit and even play a generative role in the economy. In short, because the future cannot be calculated in advance, decision-makers must rely on judgement and storytelling – which is exactly the space where *hype* operates.

Keynes (1936) focused on decision-making under uncertainty and introduced the concept of 'animal spirits' to describe the instincts, sentiments, and spontaneous urges that shape economic behaviour when rational calculation reaches its limits. For Keynes, in conditions where outcomes cannot be known by 'quantitative probabilities', investment decisions are not made purely through 'mathematical expectation' but are instead driven by confidence, mood, and social cues (Keynes, 1936, cited in Dow & Dow, 2012). In other words, he shows how exaggerated optimism or pessimism can drive decisions when evidence is lacking. As Keynes sees it, these animal spirits, which include emotions like confidence, optimism, pessimism, and fear, are not irrational; rather, they are necessary responses to radical uncertainty – 'of a spontaneous urge to action rather than inaction' (1936, p. 161) – arising in the absence of stable expectations. Keynes' perspective further challenges the

https://doi.org/10.1017/9781009644013.004 Published online by Cambridge University Press

image of the rational economic actor, underscoring how markets are propelled not just by information and analysis but by shifting waves of confidence and belief (Akerlof & Shiller, 2010).

Schumpeter (1947, p. 151) further develops this point, arguing that innovation is the primary driver of growth in capitalist societies. His evolutionary economic account revolves around the entrepreneur/innovator, willing to take a risk, and in return secure enhanced rent from monopoly exploitation of radical innovations by 'the doing of new things or the doing of things that are already being done in a new way'. For Schumpeter (1912, p. 163), innovation involves recombination: 'innovation combines components in a new way', with entrepreneurs using their 'more acute intelligence and a more active imagination' to envisage 'countless new combinations'.

In sum, these classic perspectives show that because the future cannot be calculated, judgement and persuasive narratives become crucial in innovation.

Building on these ideas, modern innovation economists note that radical innovations carry especially high uncertainty. Freeman (1974, p. 226) pointed out that radical innovations demand major shifts in skills and often bring in new players, thus entailing a 'very high degree of uncertainty'. Abernathy and Clark (1985) identified four innovation types based on whether an innovation conserves or disrupts existing competences and linkages. Particularly notable are architectural innovations (which disrupt competences and linkages) and revolutionary innovations (which disrupt competences but conserve linkages). This typology highlights that innovation is an inherently uncertain and combinatorial process, often requiring the creation of new knowledge and networks.

These were just the beginning of a growing body of work aimed at highlighting and classifying forms of innovation that diverge from existing technological and business models. A substantial body of literature has developed taxonomies to differentiate forms of innovation (Godin, 2015). Though little agreement exists about the relationship between these frameworks, they exhibit homologies (Edwards-Schachter, 2018). Many of these taxonomic efforts have focused on discontinuities in innovation (Breschi et al., 2000), which are variously conceived as a corollary to periods of stability. These accounts start with the observation that most innovation involves 'incremental' (Freeman, 1974) changes to existing technologies and processes in

https://doi.org/10.1017/9781009644013.004 Published online by Cambridge University Press

which the innovation 'trajectory' follows an established 'paradigm' (Dosi, 1982) or 'regime' (Nelson & Winter, 1982) patterned by broadly shared knowledge, design heuristics, standards, and regulations within a sector.

This emphasis on periods of stability also accentuates periodic shifts in technological paradigm (Constant, 1973; Dosi, 1982). The factors creating discontinuous forms of innovation have been labelled variously in successive accounts as *radical* (Freeman, 1974), *revolutionary* (Constant, 1973; Abernathy & Clark, 1985), *disruptive* (Christensen, 1997), or *emerging* (Ho & Lee, 2015; Rotolo et al., 2015). Though different authors use varying terms – radical, revolutionary, disruptive, emerging – these frameworks all point to the disruptive consequences of discontinuities in innovation (Constant, 1973; Dosi, 1982; Christensen, 1997; Rotolo et al., 2015). These paradigm shifts, variously conceived, all appear to involve changes both in the knowledge and understanding required and in relationships between actors (Abernathy & Clark, 1995), changes which pose deep uncertainties for the players involved.

This recurring emphasis on discontinuities in innovation raises questions about existing knowledge, suggesting that prior understandings may no longer be valid. Existing competences, routines, and evaluation criteria for technology design and business models are called into question (McBride et al., 2024). New understandings of the operation of a promising technology and its potential uses and users may need to be developed. The requirement for new kinds and combinations of knowledge may call for the inclusion of additional players and changes in the relationships between them (Breschi et al., 2000).

Uncertainty is not merely incidental but intrinsic to the claim of novelty that lies at the heart of innovation. Moreover, the claim to novelty by those vendors developing or promoting new innovations purposefully generates radical uncertainty. According to Joly (2010), this is intentional, as innovators must show how their ideas vastly differ from what came before to attract support and mobilise resources. This insight helps explain why hyped expectations around emerging technologies tend to unfold, as Joly (2010, p. 14) sees it, in predictable ways: the 'technology is presented as brand new' where 'it will create a new society'. However, by stressing this dramatic break from established methods, innovators and entrepreneurs inadvertently

https://doi.org/10.1017/9781009644013.004 Published online by Cambridge University Press

introduce profound uncertainties about these technologies as they declare existing evaluation criteria obsolete, and traditional metrics and assessment methods become less relevant in this context (see Tenet Three, which discusses how hype asserts the obsolescence of established evaluation criteria).

This generates a profound paradox for decision-makers. When innovation departs from known paradigms, traditional ways of understanding, and evaluating technologies – rooted in extrapolating from past performance – break down. How can organisations evaluate novel capabilities if old models no longer apply?

3.4 Evaluating Radical Futures

Given this paradox, the uncertainties surrounding radical innovation challenge traditional ideas of decision-making as a rational calculation among finite alternatives. Knight places at the core of his economic model what he called a 'theory of knowledge' (Knight, 1921, p. xii). He observed that the process of retrospectively classifying events with similar behaviours – the hallmark of 'mechanistic science' – cannot be applied to typical business decisions, which 'deal with situations which are far too unique, generally speaking, for any sort of statistical tabulation to have any value for guidance' (Knight, 1921, p. 231).

Knight's (1921, p. 209) theory of knowledge closely follows the traditional positivist model of science, describing it as a 'theory of exact knowledge, of rigorous demonstration'. Yet he shows that this model becomes unworkable in everyday economic life, where constant change undermines the stability required for such knowledge to function. As he notes, 'the properties of things and their relationships are constantly changing' (Knight, 1921, p. 207). As a result, profound uncertainty – what we now term Knightian uncertainty – arises. When there is 'real change' – for example, when considering emerging futures – 'it seems clear that reasoning is impossible' (Knight, 1921, p. 209). Put simply, Knight argues that the future cannot be known through statistical generalisation, as each business situation is irreducibly unique. Therefore, economic actors must make decisions in the absence of calculable probabilities, and it is this uncertainty that gives rise to the possibility of profit.

This insight casts doubt on the possibility of *knowing* technological futures in any definitive sense. Clardy (2022, p. 1) similarly argues that

https://doi.org/10.1017/9781009644013.004 Published online by Cambridge University Press

studies of the future cannot produce 'knowledge' in the strict epistemological sense, because 'their actual truth values cannot be determined until some later time'. Thus, claims about the future cannot be verified or falsified in advance. Futures studies, therefore, grapple with a fundamental epistemic limitation.

Adam (2023, p. 280) echoes this position by arguing that the 'future is not yet and as such cannot be considered factual'. Mirroring Knight's (1921) critique of mechanistic science, Adam notes that 'in the scientific mode of enquiry, the future per se is actually disattended'. She writes that while it is 'possible to produce probability calculations, predictions and models of the future, which are compatible with scientific methods of enquiry', this 'way of knowing the future is rooted in past and present actions or events, its results are inescapably past-based simulations, masquerading as "knowledge" of a future – at best imperfect' (Adam, 2023, p. 280). In other words, scientific approaches project the future based on historical patterns, but this projection is always provisional and incomplete.

Adam (2023, p. 280) further notes that the temporal orientation of social science and economics is largely retrospective: 'The temporal orientation of scientific investigation of this social world is focused primarily on completed (past) acts or (present) reported anticipations'. She writes (2023, p. 281) that when 'politicians, policymakers, economists and teachers, for example, want to know what lies ahead, they rely on spatial and material knowledge of the past, from which they extrapolate what might be'.

However, there are contrasting accounts that challenge the idea that the past entirely constrains the future. Some scholars, on the one hand, emphasise the future's open-ended indeterminacy. For instance, Selin (2008, p. 1888) introduces the notion of the 'ontological indeterminacy of the future', suggesting that we are 'actively creating and recreating multiple futures'. Similarly, Köhler et al. (2019, p. 3) emphasise that the future is 'open-ended' and that it is 'impossible to predict which [promising innovations] will prevail'. These perspectives highlight the radically contingent nature of the future but can risk presenting it as a vague or undifferentiated cloud of possibilities.

On the other hand, scholars argue that the future is not a blank slate. For instance, Halford and Southerton (2023, p. 273) argue that the future is 'not empty', open to 'any kind of hopes or possibilities' but is 'already here' – shaped by 'latent materialities' such as infrastructures,

https://doi.org/10.1017/9781009644013.004 Published online by Cambridge University Press

investments, and institutional legacies. These pre-existing elements condition the shape of plausible futures. In their view, actors are not operating on a blank canvas but are constantly navigating futures already partly determined by historical and material constraints.

Rather than seeing the unknowability of the future as a dead end, other scholars (Tutton, 2017) focus on how future imaginaries function in the present. For example, while acknowledging that the facticity of future claims cannot be verified, Tutton (2017) argues that propositions about the future can still be studied in terms of their effects. Drawing on Bell and Mau (1971), he suggests that the future is real 'to the extent to which present alternatives or possibilities for the future are real', and that we can understand futures by analysing the 'images of the future' that guide present action (Tutton, 2017, p. 481). That is, imagined futures have a performative role and can be empirically examined as social facts. We can study how actors navigate and evaluate unpredictable technology futures as routine practice. In other words, despite the limits to knowing the future, actors and organisations are continually engaging in *future-oriented practices*. How does this play out in everyday business decision-making?

3.5 An Economy Obsessed with the Future

According to Joly (2010), there is an increasing orientation of market actors towards the future (see also Wenzel et al., 2025). If this is the case, how do market actors routinely assess and steer their way through the shifting terrain of plausible futures? Despite the uncertainties, actors routinely engage in practical, everyday activities to navigate and evaluate the future.

Halford and Southerton (2023, p. 274) argue that researchers must 'explicitly recognise [actors'] capacity to engage directly in future-making practice'. By *future-making practice*, they mean the 'doings and sayings of a diverse range of actants actively engaging in claiming what futures might and should be, and in materialising these claims' (Halford & Southerton, 2023, p. 274). In this view, organisations are not merely responding to a pre-given future but are actively shaping it through their expectations, plans, and investments.

Adam (2023) offers a complementary perspective, suggesting that much of daily life is conducted *with a view to the future*. As she puts it:

https://doi.org/10.1017/9781009644013.004 Published online by Cambridge University Press

> At the everyday level, life is conducted projectively: imagined, anticipated, expected, planned, designed and actioned within the open and fluid horizon of both past and future. People move in this temporal domain with great competence, encompassing the past and future simultaneously. Without giving much thought to the matter, they operate with equal confidence in the action domains of planning and future making, alternating their perspective between anticipated and enacted futures. (Adam, 2023, p. 280)

Bazzani (2023, p. 384) also explores this idea through the concept of 'practical consciousness', which enables actors to navigate the future without explicit deliberation. He describes it as the tacit knowledge that allows individuals to 'go on in the contexts of social life without being able to give them direct discursive expression' (Bazzani, 2023, p. 384). This form of engagement, he adds, often involves the deployment of 'routines', which are 'unreflective flows of activities in which habits do all the perceiving, recalling, judging, conceiving and reasoning that is done'.

Thompson and Byrne (2022) highlight the importance of constructing plausible visions of the future. They suggest that market actors develop *practical knowledge* distinct from scientific knowledge – a distinction they argue warrants further exploration. As they 'cannot act solely by identifying optimal choices based on past statistical information', they 'create and use imagined futures to attend to questions of possibility rather than epistemology' (Thompson & Byrne 2022, p. 248). It is these 'imagined futures' that help orient present actions. As Thompson and Byrne (2022, p. 248) explain:

> Entrepreneurs, managers and workers aim to create convincing future scenarios to help shape reality. These 'imagined futures' become active forces in the present moment by influencing how people make decisions, form relationships, and set their expectations.

These ideas closely align with Beckert's (2016, 2021) influential concept of *fictional expectations*. Beckert (2021, p. 2) notes that 'organisations respond to the question of how to handle the future … by creating imaginaries of the future as "placeholders" … allowing them to make sense of the future and to act "as if" the future would unfold in a specific way'.

Together, these perspectives suggest that while the future remains fundamentally unknowable, it is not ungovernable. Moreover, it also points to how organisations are not paralysed by uncertainty. Despite

https://doi.org/10.1017/9781009644013.004 Published online by Cambridge University Press

the epistemic challenges, modern organisations are far from passive – in fact, they are increasingly future-oriented in their day-to-day operations. How, then, do they go about envisioning and assessing the future? Market actors deploy a range of tools, imaginaries, and practices – explicit and tacit – to make the future actionable. The task is not to predict the future with certainty but to engage with it through strategic and situated forms of judgement (Wenzel et al., 2025).

Crucially, Beckert goes further by arguing that actors not only navigate uncertainty through imaginative projection but also develop criteria for distinguishing more plausible futures from less plausible ones. Although fictional expectations cannot be verified in advance, he argues, it is clear that they can be evaluated for plausibility: 'They can be deemed credible, but their actual accuracy cannot be known' (2021, p. 4). For Beckert (2021, p. 4), fictional expectations do not mean 'fanciful fantasies, but rather assessments of future developments that combine known facts with assumptions, informed judgements and emotions'. He goes on,

> To what extent can this assessment of the foundations of credibility of fictional texts be applied to the analysis of expectations under conditions of uncertainty in the economy? One important difference is that in economic decision-making, actors scrutinise expectations not just with regard to their inherent convincingness as narratives, but with regard to their practical credibility. (Beckert, 2013, p. 225)

However, he notes that their 'broken relationship to reality' (Beckert, 2013, p. 225), which is an inherent characteristic of economic predictions under uncertainty: 'In Economics, people evaluate predictions not just on how compelling their narrative is but also on their practical credibility. This is because the future reality simply *cannot* be known in the present' (Beckert, 2021, p. 4, *emphasis in original*).

Beckert's choice of the term 'fictional' is doubtless chosen for its rhetorical value in displacing entrenched ideas of economic decision-making based on rational calculation. By highlighting the narrative creativity underpinning economic projections, he draws attention to the performative and imaginative dimensions of markets. The fiction terminology is potentially unhelpful as it implies an openness about articulating fictional claims.

Beckert himself acknowledges the risk of the term 'fictional' being misunderstood. In a later paper, he warns that departing from a

https://doi.org/10.1017/9781009644013.004 Published online by Cambridge University Press

rational-planning perspective could send us 'down the rabbit hole' of treating all knowledge as fiction (Beckert, 2021, p. 6). A way to circumvent this, he argues (Beckert, 2021, p. 6), is to distinguish between 'types of situations'. This seems important for our analysis of hype. He writes:

> When crucial aspects of the future cannot be known, planning can be seen as having largely a symbolic role, which consists in providing 'rationality badges', labels proclaiming that organisations and experts can control things that are, most likely, outside the range of their expertise... Assumptions are made that appear plausible but lack empirical anchoring and thus lead to 'mystical numbers'.... In other situations, however, more facts are known or the distribution of power puts limits on what will happen in the future. Under these conditions, strategic planning can indeed play a rational role. (Beckert, 2021, p. 6)

In other words, Beckert invites us to *differentiate* between fictional expectations based on the degree of empirical grounding that is possible. In early-stage innovation, projections often serve a symbolic role – what he calls 'rationality badges' – providing an appearance of rigour even when mainly based on assumptions. Such predictions may involve 'mystical numbers', suggesting spurious precision. However, as innovations mature, expectations should be held to higher standards of evidence and credibility. Beckert (2021) thus reminds us that claims about the future are subject to varying forms of accountability. As he (2016, p. 177) sees it, the early phase of innovation is 'particularly prone to myths', but the later stage claims less so, as they are subject to more accountability.

Logue and Grimes (2022) make a similar point. They suggest that hype performs different roles over time and is subject to shifting forms of accountability: 'Inasmuch as hype presents entrepreneurs with both a resource for motivating early engagement and also a relational liability for sustaining such engagement, it is essential that new ventures understand how to manage hype over time' (Logue & Grimes, 2022, p. 1078).

These insights are directly relevant to our analysis of hype. While often dismissed wholesale as misleading or deceptive (Vinsel & Russell, 2020), the work of scholars such as Beckert (2016, 2021) and Logue and Grimes (2022) offers a foundation for distinguishing between different forms and contexts. As our book argues, hyped expectations

https://doi.org/10.1017/9781009644013.004 Published online by Cambridge University Press

vary in their plausibility – some are grounded in technical feasibility and accumulated expertise, while others rest on hopeful speculation or tenuous assumptions.

3.5.1 Towards Evaluating Hype

Rather than dismissing hype outright or accepting it blindly, decision-makers are beginning to parse hype in terms of plausibility. This allows us to reframe the conversation: hype should neither be dismissed wholesale nor accepted at face value. Instead, it can be assessed for plausibility by examining its underlying assumptions, supporting evidence, and the contextual conditions that render certain futures more credible than others. Not all hype is equal – some promissory narratives have more substance than others, even if they cannot be fully verified in advance.

This line of argument finds further support in the growing literature on 'non-knowledge', which reinforces the need to treat claims about the future as situated, variable, and assessable rather than inherently flawed or deceptive. For instance, the argument resonates strongly with Adam's (2023, p. 280) observation that 'engagement with the future is a confrontation with imperfect knowledge, ignorance, even non-knowledge'.

Non-knowledge refers to the recognition that ignorance, uncertainty, and the unknowable are integral to decision-making (Japp, 2000; Croissant, 2014). Agnotology scholars examine the social distribution of ignorance (Schiebinger & Proctor, 2008) and argue that non-knowledge is not uniform but varies between contexts (Japp, 2000; Croissant, 2014). Japp (2000) calls for the explicit identification and description of non-knowledge and distinguishes between 'specific unknowns' and 'unspecific unknowns'. The former refers to risks that can be identified and potentially mitigated; the latter signals areas where outcomes are fundamentally unknowable. Each form has distinct implications for how actors assess risk and make decisions.

While hype should not be reduced to non-knowledge, as some suggest (e.g. Intemann, 2022), insights from this literature help to illuminate its dynamics. Hype claims often span a spectrum. Some concern *specific unknowns* – for example, whether a start-up like Juvo can deliver on its technical promises – which can be probed through due diligence or benchmarking. Others hinge on *unspecific*

https://doi.org/10.1017/9781009644013.004 Published online by Cambridge University Press

unknowns – for instance, whether a technological innovation will transform an entire sector – which are far harder to anticipate or control. Attending to this distinction highlights how organisations can, and increasingly do, develop strategies to parse and respond to different forms of uncertainty.

Specifically, our book shows how hype's new actors, particularly market gatekeepers such as industry analysts, are emerging to help organisations navigate this complexity. Rather than dismissing all hype as empty or equal, these gatekeepers work to assess which parts of hyped narratives are credible and actionable, and which remain highly speculative. As we demonstrate in the pages that follow, they dissect claims, scrutinise their elements, and judge which uncertainties can be strategically tolerated, and which demand more substantial evidence before resources are committed. Evaluating hype, in other words, is not a binary exercise of truth versus falsehood. It is a matter of assessing *degrees of plausibility* under varying conditions of uncertainty.

In sum, because organisations cannot rely on traditional methods to evaluate novel technologies, they are developing new strategies and even outsourcing this function. In fact, an entire business – the 'business of hype' – has emerged to help organisational and market actors navigate unpredictable technology futures.

3.6 The Business of Hype

In the digital economy, the task of navigating and evaluating hype has shifted from being an in-house, ad hoc activity to the basis of a specialist business – and a big one at that. Today, navigating hype is itself outsourced to specialist experts – industry analysts and analyst relations (AR) professionals – indicating that interpreting hype has become a commodified business function. Indeed, it could be argued that hype mobilisation and evaluation is now an industry in its own right – traded through consulting services and subscription-based research products. What was once an informal narrative practice – undertaken by firms to generate interest and secure resources – has evolved into a structured business populated by expert actors.

Economic sociologist Mützel (2022) describes this as a 'market of expectations', where gatekeepers actively create and trade in stories – expectations, projections, and imaginings – about the future. It bears emphasising that hype's new actors profit from the very excitement

https://doi.org/10.1017/9781009644013.004 Published online by Cambridge University Press

they help stage-manage. Analyst firms derive substantial revenues from selling (hype) evaluations and advice, while technology vendors pay AR professionals and agencies to boost their (hype) visibility. In other words, hype has become a monetised service. The fervour around future technologies is not just a cultural phenomenon but a commercial commodity – one that is packaged, traded, and strategically modulated by expert firms in the business of hype.

In our previous research, we identified how this *business of expectations* was not accidental or unstructured but orchestrated by *promissory organisations* (Pollock & Williams, 2010, 2016) – organisations whose core function is to craft, manage, and circulate future-oriented expectations. Among the most prominent examples of such organisations are industry analyst firms, though they are by no means the only ones (see Beckert, 2021). What we want to do here is examine more closely how these firms produce what we call 'promissory products'.

Drawing on Espeland and Stevens (2008), we define promissory products as mechanisms for rendering hype visible and actionable – by checking, visualising, commensurating, and quantifying it. They are tools that allow technology adopters and investors to make sense of competing claims without having to vet each one individually. Whereas in the dotcom era, a technology buyer might have had to personally assess the credibility of dozens of start-up claims (Garud *et al*., 2014), today – confronted with potentially an order of magnitude more claims – they are more likely to rely on promissory products such as the Gartner Hype Cycle Chart (HCC), Magic Quadrant, or something similar. These tools serve to pre-filter the deluge of expectations, effectively outsourcing the initial sorting and prioritisation of hype to specialised experts.

We previously explored how industry analysts arose in response to fundamental uncertainties in the supply of off-the-shelf software systems in the market (Pollock & Williams, 2016). These uncertainties centred on a solution's fit with a technology adopter organisation's specific requirement and working methods, alongside questions about software providers' capabilities to deliver on promises. Since these factors could not be established through simple inspection or a comparative assessment of vendors within the technology field, industry analysts introduced tools, such as the Magic Quadrant ranking, to help organisational managers make procurement decisions (Pollock & Williams, 2016).

https://doi.org/10.1017/9781009644013.004 Published online by Cambridge University Press

However, the needs of industry analysts' core clients – primarily technology adopters – have evolved significantly since the 2010s. Driven by dramatic changes in digital innovation as discussed above (Nambisan, 2017), today's adopters must look beyond mature products to emerging innovations that are not yet fully developed or tested. This shift has created two crucial requirements:

Future Scanning: A temporal shift from examining existing mature products to anticipating emerging offerings, requiring new forms of anticipatory engagement (MacNaghten, 2020).

Horizon Scanning: The need to look beyond existing peers and their supply chains for radical innovations emerging from adjacent or entirely different sectors. While incremental innovation typically emerges within existing technology supply chains, radical innovations require broader search capabilities and expertise to track an array of potential solutions effectively (Lundvall, 1985).

These developments have increased the difficulty of technology appraisal, particularly for managers in adopter organisations. Unlike venture capital (VC) investors, who can specialise in specific domains and make concentrated bets (Pflueger & Mouritsen, 2024), organisational technology adopters must maintain a broad perspective. They need to monitor a wide portfolio of developments, often without the resources or incentives to conduct in-depth investigations. As a result, many organisations outsource these anticipatory functions to industry analysts, consultants, and other types of futurists (Mangnus et al., 2021).

Industry analysts have responded strategically to these changing demands, evolving from guiding buyers through existing markets to helping clients navigate the uncertainties of emerging technologies. Their analysts employ a 'T-shaped' distribution of expertise, combining in-depth knowledge of specific domains with a broad understanding of developments across the digital economy (Pollock & Williams, 2016). This capacity underpins the development of new products, such as the HCC and Cool Vendor designation, that target proto-fields and embryonic markets.

Our book examines the origins and motivation of various promissory products and the epistemic system surrounding their production and maintenance. We will focus on four key types of promissory products:

https://doi.org/10.1017/9781009644013.004 Published online by Cambridge University Press

Hype Tools: We define hype tools as evaluative frameworks that guide organisational actors when approaching hyped markets, influencing the timing of their actions and decision-making processes. The HCC is a prime example of such a tool, designed to measure and quantify hype. Providing a visual and conceptual language for where a technology stands in its hype trajectory, it is both descriptive and performative: it describes what is hyped, and the mere act of being on the chart lends that technology a certain status (and omitting others implicitly devalues them). As we will argue, such tools aim to *tame hype* by predicting its rise and fall, thereby helping actors decide *when* to invest or adopt. Chapter 6 will demonstrate that the HCC represents a particularly sophisticated tool as it attempts to systematically capture, map, and convey the shifting credibility surrounding promising technologies, picking up signals at pace and across a broad remit – the entire digital economy and beyond.

Creating HCCs requires a large-scale research effort, involving the tracking of over a thousand emerging technologies to identify signals of progress or setbacks. According to Jackie Fenn, the Gartner analyst who created the tool, 'there's this massive database of 1,000 to 1,500 technologies that get updated and tracked on those [HCCs]' (Fenn, interview). This is hype management on an industrial scale – a capacity that was not present just a few decades ago. The HCC has very few direct competitors due to its scale and the resource requirements; the costs of scanning the whole territory prevent other players from entering the field. According to Fenn, 'not many organisations have the resources to put in that effort as an annual activity' (Fenn, interview). Thus, the HCC has become a de facto *standard* in discussing technology trends, providing a reference that entire industries use to calibrate their expectations.

Categories: These are classificatory schemes created by industry analysts to organise emerging innovations into named categories that guide evaluation, comparison, and investment decisions (Kennedy, 2008; Durand & Thornton, 2018). Chapter 7 shows that industry analysts frequently spearhead the introduction of new categories in the digital economy. The analyst's challenge is to make sense of competing narratives from vendors. When hype coalesces around a cluster of technologies, analysts may formalise it into a new category – naming it, defining its scope, and identifying its leading vendors.

Our book uncovers the extensive behind-the-scenes work by analysts that shapes the category lifecycle. For instance, we show that hype can precipitate *premature* category formation. Analysts work under intense pressure to remain relevant to their clients. Their challenge is to interpret the flow of

https://doi.org/10.1017/9781009644013.004 Published online by Cambridge University Press

narratives from vendors and other actors, identify the most promising narratives, and translate them into category interventions that clients can comprehend and deploy. Thus, industry analysts continuously scan emerging developments, coin names for new fields, delineate boundaries, and spotlight exemplary vendors.

Categories are not passive reflections of market developments but strategic tools designed with clients in mind. While analysts create categories for their clients, the introduction of a category can have broader effects on the digital economy. It can trigger a 'gold rush' effect, drawing a diverse range of vendors, investors and others into the nascent category/market. Yet, as Chapter 7 reveals, these categories can be retracted just as quickly, effectively extinguishing the very market they had animated, demonstrating how analysts act not only as observers of markets but also as powerful shapers of their trajectory. Why do they act in this way, and with what consequences for the broader digital economy?

The interplay between hype and categorisation offers a fertile field of study. We will argue that 'category work' increasingly constitutes an important form of 'hype work'. Because analysts attempt to organise ambiguity and channel enthusiasm, categories operate as infrastructures that render hype durable and actionable. They give hype a tangible and actionable form, linking it to market strategies and investment decisions. Categories, then, do more than label; they channel enthusiasm, organise ambiguity, and shape markets.

Rankings: The proliferation of rankings – such as Gartner's Magic Quadrant, Forrester's Wave, IDC's MarketScape, and numerous niche ones – reflects a need to continually evaluate the performance and promise of vendors within established technology sectors. In the digital economy, these rankings have become highly influential because purchasing enterprise technology is complex and fraught with information asymmetries (Williamson, 1975). Rankings respond to this by offering a comparative assessment of vendors' ability to deliver on their promises, literally mapping 'completeness of vision' against 'ability to execute' that vision. The Magic Quadrant exemplifies how hype can be distilled into a marketable format: its four-quadrant chart translates a chaotic landscape of promissory claims into a structured snapshot that decision-makers can readily digest as authoritative market guidance.

Yet, paradoxically, the growing influence of these evaluations has reshaped promissory practices in the digital economy. In some ways, the existence of rankings has also generated more hype. Much of today's hype is no longer self-generated but triggered in response to the demands of these rankings.

https://doi.org/10.1017/9781009644013.004 Published online by Cambridge University Press

Our fieldwork indicates vendors now engage with dozens of such evaluations, pursuing what one interviewee called 'landmark evaluations', meaning those that can significantly influence customer perceptions. To excel in these evaluations, vendors must craft compelling future narratives and provide credible evidence of tangible progress towards fulfilling those promises. Thus, continuous rankings impose an ongoing accountability on hype: the vendor cannot simply claim leadership; an evaluator must anoint them as a leader, and they will re-evaluate each year.

Appellations: These are market devices that qualify products by attaching them to a designation that conveys specific, institutionally backed characteristics (Karpik, 2010). In the digital economy, analyst firms perform this role by bestowing labels – such as 'Cool Vendor' – to spotlight up-and-coming ventures, signalling a change in what – and who – counts as worthy of attention in emerging markets. Established in the mid-2000s, Gartner defines a Cool Vendor as a small company that 'offers technologies or solutions that are innovative, impactful and intriguing'. In most cases, Cool Vendors are seen as offering a 'major disruptive capability or opportunity' (Gartner, 2017).

Our discussion of the creation of the Cool Vendor designation shows how analyst firms adapted their promissory products to keep pace with shifting dynamics in digital innovation. As noted earlier, we examine these appellations at a pivotal moment – their introduction – when industry analysts began broadening their evaluative focus beyond large, established vendors to include previously overlooked start-ups. By the early 2000s, a growing sense within Gartner – and among its clients – was that the firm had already missed several key transformative developments (Chapter 6). At the same time, the rise of 'digital disruption' as a strategic concern meant that clients were increasingly focused on emerging technologies and fast-moving challenger ventures, such as Juvo, that often lay outside the conventional frame of reference of analysts.

These pressures coalesced into a mandate for a new evaluative tool, one better suited to tracking novelty and disruption across a rapidly expanding innovation field. As we discuss in Chapter 4, assessing such start-ups poses particular challenges, since the evidence available for scrutiny often consists solely of promissory narratives.

Such labels serve as sanctioned hype, highlighting a select few start-ups and essentially endorsing them with an official stamp. For the chosen start-ups, it is a significant boost – being named a Cool Vendor can put a young venture on the map and attract customers or investors who would otherwise not have noticed them (Chapter 5). These labels also create a sense of curated hype,

https://doi.org/10.1017/9781009644013.004 Published online by Cambridge University Press

rather than a free-for-all where any start-up can claim to be disruptive. It is another filtering mechanism, turning the chaotic space of start-ups into a ranked field of attention.

3.6.1 Promissory Product Spiral

The growth of promissory products in the digital economy has been striking – and highly consequential. (Indeed, it was this proliferation that first drew our attention to the question of taming in the first place.) A notable example is the increasing emphasis on start-up evaluation. Once Gartner formalised this with its Cool Vendor appellation, rival analyst firms quickly followed, launching their own frameworks – from *Hot Vendors* to *Innovators* and *Market Disruptors* – each designed to capture and monetise the momentum of emerging technologies. This proliferation of labels makes clear that analyst firms are active market-makers whose business models depend on producing, packaging, and selling hype. The sheer expansion of promissory products underscores that hype is no longer incidental or episodic but has been deliberately institutionalised as a core innovation strategy in the digital economy.

To theorise this institutionalisation, we introduce the notion of *the promissory product spiral*, inspired by Robert Merton's 'financial innovation spiral' (MacKenzie, 2000; Beunza, 2019). Merton (1992) originally used the term to describe how leading financial organisations continuously innovate and commodify services, which competitors then replicate. In response, the original innovators develop new services to stay ahead, thus triggering an ongoing cycle of product development and commoditisation.

A similar dynamic is now at play in the digital economy. As one promissory product gains traction, competing analyst firms seek to imitate its format, while the original developers pivot to create the next evaluative tool. This spiral of innovation, imitation, and differentiation has driven a rapid expansion in the number and variety of promissory products. A key feature of the spiral is that it operates on multiple levels – both across products and within them.

At the cross-product level, the spiral is evident in how competing analyst firms replicate each other's innovations. When Gartner introduced the Magic Quadrant in the mid-1980s, competitors soon followed with equivalent rankings, such as Forrester's Wave and

https://doi.org/10.1017/9781009644013.004 Published online by Cambridge University Press

IDC's Marketscape. This dynamic continues today, as new evaluation frameworks are frequently launched and rapidly imitated, sustaining a competitive cycle of innovation and standardisation.

Moreover, successful products often branch out within an analyst firm: The Magic Quadrant started as one or two reports, but now there are more than a *hundred* versions of this ranking covering every niche domain. Each major technology category has been subdivided into subcategories and sub-sub-categories as industries have grown. This *internal proliferation* means that as innovation fields expand, the evaluative infrastructure multiplies alongside them.

Another core feature of the promissory product spiral is 'reactivity' – a dimension not present in Merton's (1992) original discussion of the financial innovation spiral, but one we import here as particularly useful for understanding the dynamics of promissory products. Borrowing from Espeland and Sauder (2016), who studied how ranked actors respond to rankings, we see how promissory products provoke recursive interactions between vendors and analysts. Introduced after the dotcom crash as a way to tame unregulated vendor hype, these tools soon became strategically significant. Vendors responded by investing in AR expertise and crafting more targeted narratives to improve their standing. Analysts, in turn, refined their frameworks to incorporate these inputs, generating more granular and differentiated evaluative tools. This reactivity fuelled further proliferation: each vendor adaptation prompted analysts to develop new products, which in turn required vendors to expand their strategies. Reactivity is thus not peripheral but constitutive of the spiral, locking vendors and analysts into a recursive relationship that institutionalises the management of hype.

Together, these dynamics have profound implications for the organisation of hype in the digital economy. What was once a largely unstructured phenomenon – 'hype in the wild' – has become increasingly formalised, structured, and governed through evaluative infrastructures. Hype is no longer simply a product of bold claims – it is shaped and mediated through layered systems of feedback between vendors, analysts, and AR experts. Each new promissory product (a ranking, a hype tool, a Cool Vendor appellation) generates demand for interpretation and response – spurring vendors to invest in specialist expertise and, in turn, prompting analysts to develop yet more tools. This spiral is not just an intellectual evolution; it is a business growth

https://doi.org/10.1017/9781009644013.004 Published online by Cambridge University Press

cycle, expanding the business of hype with every turn. This evolving promissory arena demands sophisticated forms of engagement from all sides, as vendors must navigate an expanding array of promissory products, and adopters must interpret them within increasingly complex evaluative environments.

We will return to this spiral metaphor in Chapter 9, where we develop it further to show how it operates as a managed process of adaptation and entrainment.

https://doi.org/10.1017/9781009644013.004 Published online by Cambridge University Press