



The future of global research: A case study on the use of scenario planning in the publishing industry

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Key points

- Scenario planning is fun and engaging and is a good opportunity to revisit your company's core strengths and competitive advantage!
- Scenario planning should drive long-term thinking in organizations.
- It will change the nature of the strategic conversation and can be used to help validate business innovation.
- Scenarios can help to engage with other organizations in the industry and help people work together to create preferred future outcomes.
- The complexity of scenario planning should not be underestimated and shortcuts do not work.

INTRODUCTION – WHY SCENARIO PLANNING?

The rapid pace of complex change in the wider environment within which all organizations operate means that a reliance on trend analysis and projection is no longer enough to guarantee future success. The UK-based Saïd Business School's Oxford Scenarios Programme (OSP) (see www.sbs.ox.ac.uk) names this wider landscape the 'contextual' environment (see also Ramirez & Wilkinson, 2016). It may also be known as the macro or external environment. Its unpredictable and unstable nature is described by the OSP as 'TUNA conditions', meaning turbulent, uncertain, novel, and ambiguous. Another common description is VUCA – volatility, uncertainty, complexity, and ambiguity (Tovar, 2016). In these circumstances, businesses can no longer rely on the 'predict and control' approach to strategy. This is as true for publishers as it is in all other industries, with no organization immune to the wider uncertainties driven, for example, by geopolitical and economic turmoil and the pervasive impact of technology on societal structures and social norms.

BMJ's understanding of scenario planning is that it is a collaborative intervention that organizations can use to help make sense of a rapidly changing industry and environment and to anticipate plausible shifts in industry, thereby increasing preparedness for the future. It provides a structured and creative way to reflect on wider uncertainties in the external environment

and formulate multiple, plausible narratives for future direction. These future narratives, along with the process undertaken to formulate them, generate new knowledge, improve thinking about the future, and help envision ways to act appropriately.

With its origins in military intelligence, scenario planning was developed as a tool for strategic planning by Pierre Wack in the 1970s at Royal Dutch Shell. It is commonly used by large corporations. Today, Shell boasts a sizeable scenarios team, including experts in energy, climate change, economics, socio-cultural change, political analysis, and competitive intelligence (CI; Shell, n.d.). This case study demonstrates that scenario planning can be practiced effectively by organizations in the publishing industry.

BMJ'S APPROACH

BMJ is a healthcare knowledge provider of trusted medical information and services that today employs 470 staff in our UK head office and global hubs. Our services include world-leading general and specialty medical journals, learning and continuing professional development resources, and evidence-based decision support tools. We embarked on our scenario planning journey in September 2016. The era of 'hypercompetition' (Rifkin, 1996), which the publishing and knowledge services industry is witnessing with widespread disruption from untraditional quarters, led us to recognize that we needed the whole organization to reach the same level of

understanding about the factors driving change in our industry. Examples of such hypercompetition and disruption include the growth of university presses (Adema & Stone, 2017); the recent launches of publishing platforms by Wellcome Trust, Gates Foundation, and Great Ormond Street Hospital; and the possible launch of a publishing platform by the EU (Enserink, 2017; STM, 2017).

There are many different approaches to scenario planning. We at BMJ have largely based our methodology on Saïd Business School's innovative OSP. The distinctive characteristics of OSP are its emphasis on scenario planning as a learner-centric experience, the use of several iterations in order to deliver real impact, and the need for a balance of competitive and collaborative strategic action. BMJ has formulated four plausible, alternative future narratives for global research. Our scenario narratives can be accessed here: www.bmj.com/company/scenarioplanning/. Our scenarios incorporate many medical and healthcare trends, partly because of the nature of our business and partly because of the potentially transformative impact of medical and digital technologies on research and society. As D.T. Max quotes in *National Geographic*, 'Our bodies, our brains, and the machines around us may all one day merge ... into a single massive communal intelligence. ... Medicine is always the leading edge in these applications, because using technology to make someone well simplifies complicated moral questions' (Max, 2017). Our scenarios have enabled us to closely examine how the global research ecosystem may evolve, to consider our future role, and to devise practical strategic options and deliverables.

At BMJ, we believe that our scenarios are not only helping us increase our preparedness for the future but that they will allow us to engage more widely with the research community to shape preferred future outcomes and help achieve our vision of 'a healthier world'.

THE PROCESS

Project scope and purpose

Our first step (see Fig. 1) was to form a core scenarios team that met on a fortnightly basis to discuss approach and next steps. The core team defined the purpose of the exercise and formulated the project question. The objectives of the scenario planning exercise were to make sense of the complexity of change in our industry, to pressure-test our ambition and approach, and to create preparedness of the business for the future. We narrowed our project question down to how *global research* might evolve over the next 20 years and in what ways this may disrupt our business. We picked research because this is our core business, and our work to understand the sector highlighted the great amount of change that is happening in this area. We found that focusing on global research (rather than, e.g. the future of scholarly publishing or medical research) and extending the timeframe were important for stretching our thinking and reaching new insights to serve our project purpose. Depending on their nature, other projects may work better with wide or narrow objectives and different timeframes. We later built on the project question,

asking how we might mitigate the threats and realize the opportunities. It is worth spending time on the project question and revisiting it as new knowledge is acquired. It can then be regularly referred back to and is a very useful way of anchoring the project, keeping it directly relevant to the project purpose as complex uncertainties in the wider environment are explored.

Internal and external engagement

We propose that scenario planning is a highly desirable activity for publishers to undertake in these uncertain times. Business as usual activity and pressing day-to-day tasks must be attended to, and yet there are no shortcuts to creating useful scenarios. Gaining the support and involvement of executive leaders and the relevant managers is critical. Support from BMJ's Board, outgoing and incoming CEOs, and Executive Leadership Team has been a key factor in the success of our effort.

After gaining initial support from senior leadership, we began a programme of internal and external engagement. Within BMJ, we were able to gain a wide level of support by making presentations to the relevant managers and departments and by taking up a slot in our CEO's monthly video (a clip of our video can be found at <https://www.youtube.com/watch?v=FKUkW7rAnNU&t=4s>). Multiple internal presentations, large and small and in different formats, are a good way of building engagement quickly. We continued to engage over the course of the project, updating key staff as we progressed through the project phases and inviting them to get actively involved in the scenario planning.

Externally, we had the opportunity to share experiences in scenario planning with the Royal Society of Chemistry who had recently undertaken a scenario-based initiative. (See their Future of the Chemical Sciences initiative: www.rsc.org/campaigning-outreach/campaigning/future-of-the-chemical-sciences/) We also benefited from the advice of leading external scenario planning experts. We received enthusiastic contributions from our editors during our annual Editor's Retreat in March 2017, finding this a valuable way to test our thinking to date.

Background preparation: research interviews and workshop pre-read

The next phase involved thorough preparation for our scenario-building workshops. We held a total of 50 internal and external interviews to identify the critical driving forces for our scenarios. These included a number of internal interviews with our Executive Leadership Team as well as managers in our divisions and international hubs to understand their different perspectives and their hopes and concerns for the future. This objective is described by Thomas Chermack (2011). It has the additional benefit of continuing to build internal engagement. This was followed by interviews with key external thought leaders and subject matter experts, ranging from government and charitable funders, academic and industry research institutions, and digital leaders to the owner of a crowd-funded science magazine and the head of IT in a primary school.

Process and timelines

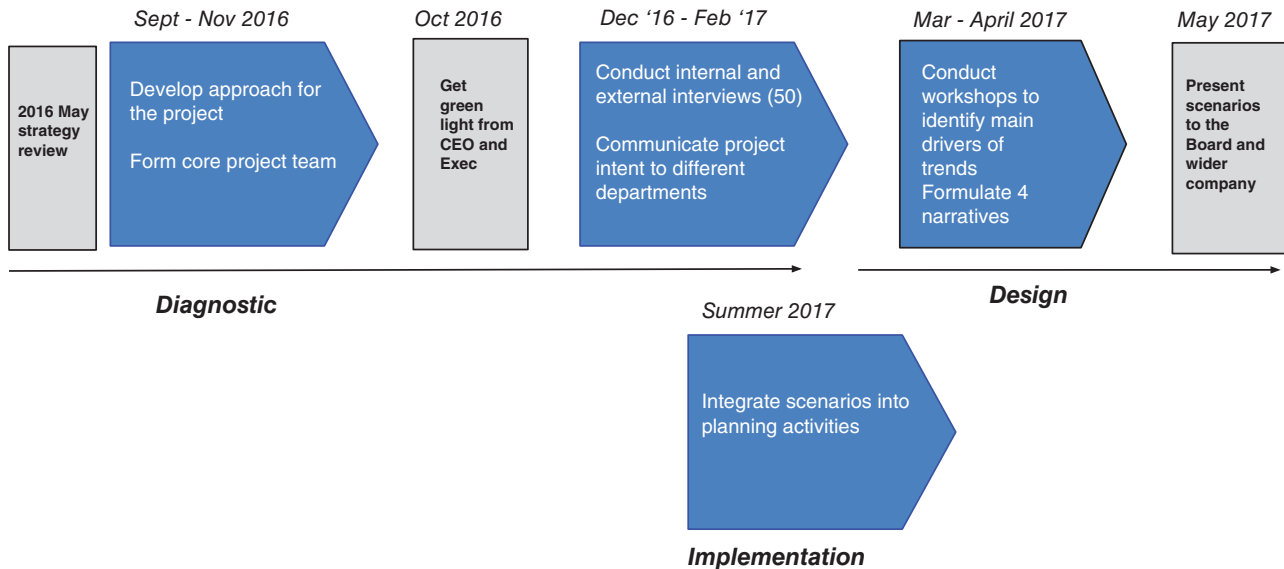


FIGURE 1 Process and timelines overview.

Our internal and external interviews helped build the foundation of our four alternative futures, enabling us to include the most critical issues. We were able to incorporate surprising elements in our scenario narratives by speaking with thought leaders from both within and outside our existing networks. As we were exploring complex territory outside our usual sphere of activity, we recorded the interviews and had them fully transcribed by a subject matter expert. Although time-consuming, this meant that we could revisit the ideas and themes during the analysis and report-writing phase, which later interviews revealed to be critical. We recommend that managers and decision makers across the organization should be involved in the interviews. This helps the organization to start benefiting from insights and external perspective early on in the process and also helps to get buy-in right from the outset.

The project should be led by the scenario planning lead and should be driven centrally. We appointed our market and competitive intelligence manager to this role. Scenario planning is a tool that is often used by CI managers to make their intelligence actionable and impactful. At BMJ, CI is a central function that works with many areas of the business and can often spot opportunities for collaboration.

We recommend that the scenario planning lead should attend as many interviews as possible to gain a holistic view of the elements being introduced. In this way, we have been able to build upon themes and explore them further in later interviews. We found that as the interviews progressed, we were able to modify our questions. As we became more familiar with the critical issues, it was possible to run more targeted sessions in order to clarify and add rich detail to the themes being discovered.

Highlights from our interviews

Following the interviews, a detailed analysis was undertaken of the interview transcripts. Our thorough interviewing and

preparation phase enabled us to identify and report on three wider global trends and six research themes that may drive changes in global research over the next 20 years.

Three global trends:

- Technology: Artificial intelligence, machine learning, and automation.
- Geopolitical: Globalization and protectionism/nationalism.
- Socio-economic: Distrust of experts and personalization of brand.

Six global research themes:

- Research types: Translational, serendipitous, data-driven, and interdisciplinary.
- Research actors: Disruptive and uncertain.
- Funding landscape: Cost of research, collaboration, and open science.
- Research evaluation: Economic impact and research stories.
- Future of research communication: Evolution and authenticity.
- Healthcare: Sustainability, connectedness, and privacy.

For more information on these, download our report here: www.bmj.com/company/scenarioplanning/.

Some of the questions based on the wider trends that we identified included: the level of human intervention that will be needed in research as roles and processes become data-driven and automated; the impact of protectionism and globalization on research collaboration and openness; and the effects of social trends on research conduct, such as the increasing distrust of experts and the personalization and democratization of the brand. Our interviews also identified themes more specific to the research industry environment that raised key questions for the future, such as:

- Can investment in discovery science be maintained by Western nations in times of austerity, and if not, what will be the impact on science and society?
- Given that funding levels are stable at best in the UK, how can we foster innovation and remain world leaders in scientific research?
- Will increasing interdisciplinarity and collaboration in research help to address big global health problems such as antimicrobial resistance, or will political, economic, and other factors hinder this?
- How will researchers and other actors in the research ecosystem adapt to a world of big data, stratified medicine, and speed-driven science?
- As research is transformed with the availability of large-scale, real-time data, how will the pharmaceutical industry's shift in focus away from large-scale clinical trials to 'real-world', policy-based research affect the landscape?
- Will greater involvement from industry evolve the higher social purpose of research into a system commanded by the people with the most money? What positive impacts could industry-academic collaboration have?
- Will open research and research collaboration help cut down on wasteful replication? Will this be hindered if industry players remain proprietary or if protectionist policies take hold?
- There may be challenges in maintaining the researcher pipeline as science speeds up and evolves, so who, or what, could step in?
- Could the public and patients contribute more to research and determine the research agenda more directly, or even become researchers of the future?
- Could more direct involvement from the public and patients or other factors finally see the demise of the impact factor in research evaluation?
- What is the future of peer review, what roles do brand and trust play, and which of the actors in this space will rise to the challenge?

Our interviews and a subsequent workshop pre-read, later summarized for our Board, informed the next phase – a series of three workshops that we used to build our scenarios.

Scenario-building workshops

Our workshop design was largely based on the OSP. The workshops are intended to stretch current thinking and cause a level of discomfort for the participants. If proceedings are uncontroversial, they are not doing their job. Described below is how we implemented ours.

We ran three workshops, each 2 weeks apart. Our first was a large workshop attended by 20 internal executive leaders and managers. Its objectives were to (1) examine the robustness of BMJ's distinctive competencies and competitive advantage over a 20-year timeframe and (2) determine the key drivers of change in global research. The exercises were based on the findings of

our interviews together with the collective knowledge in the room. As part of objective (2), we ran an exercise to identify the actors in our industry environment. This is called the 'transactional' environment by the OSP and refers to the environment that we can influence by interacting with the other actors that comprise it. It is also sometimes referred to as the meta environment. In practical terms, the thoroughness of our pre-workshop preparation and subsequent report, combined with the fact that our senior leadership had recently assessed BMJ's distinctive competencies and competitive advantage, meant that our workshop tasks were completed in just over half a day. A full day may well be appropriate for other organizations, depending on the level of preparation and their project purpose and design. This longer duration is recommended by Thomas Chermack.

The second workshop was a full-day event comprising 30 internal and external participants. Due to the size of the workshop, we worked in three smaller groups. The objectives of this workshop were to (1) build on our findings from workshop one by revisiting the tasks, this time with the benefit of an external lens (this enabled us, e.g. to add to our list of external actors); (2) build the framework of the scenarios step by step, benefiting from our internal and external participants' views on the factors considered to be most critical and uncertain in our industry environment; and (3) create an end state for our scenarios and give them descriptive, memorable names. The outcome of this was that we came away with three two-by-two scenario grids, each with two axes that were selected to represent the two factors most critical and uncertain to the industry environment. We found that most of the critical uncertainties identified for the axes were selected by at least two groups but that none were selected by all three. This left us with the possibility of needing to create 12 scenarios in total. Other organizations, such as Rolls Royce (Ramirez, Churchhouse, Palermo, & Hoffmann, 2017), have taken this a step further, developing 12 scenarios and then settling on a smaller, more useful set. However, as resources were more limited for us, our core scenarios team picked two axes, creating a 'master' two-by-two grid to base our scenarios (see Fig. 2). As predicted by the OSP, selection of the axes gave rise to spirited debate.

The workshop itself did not deliver the second two objectives in full but enabled the core scenarios team to formulate the framework and create the end state for the scenarios in the interim period between the second and third workshops. The outcomes from the second workshop and the interval before the third workshop allowed us to give considered thought to our options.

Our third and much smaller workshop comprised seven internal participants and one external healthcare innovation consultant. The objective was to build more granular events into our scenarios and to use systems thinking to examine how and why these events could interconnect and play out against each other. Systems thinking is described by the OSP as a tool that helps to look at the world from a higher vantage point and recognize the interconnections between the various elements in the bigger picture. We assigned the four scenarios to workshop participants, who were tasked with writing the scenarios in pairs. The scenarios can be written by one person, but ours benefited from both broader input

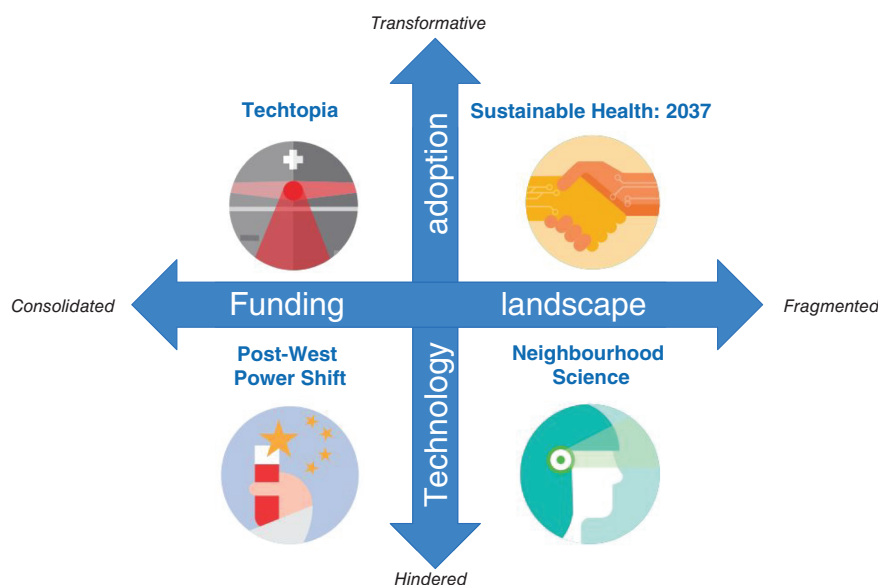


FIGURE 2 Master scenario axes selected from the second workshop.

and speed of execution in this way. They were then reviewed by one writer for consistency in style. We considered whether any of the scenarios could be merged and agreed that all four were distinctive enough for our purposes to warrant keeping as individual stories. A smaller number can, however, make examination of the strategic implications more straightforward.

USING THE SCENARIOS

Strategy

When it comes to making an investment decision, we think about whether it will deliver on our profits for the next 3 years and also whether it will align with future business models. Scenario planning has helped us develop an understanding of what those future business models will be and has stimulated us to consider opportunities in areas that are not yet established and well-defined.

BMJ is an innovative company, and we have always strived to embrace change: we have successfully adopted new business models and pioneered open access - in fact *BMJ Open* is the world's largest medical journal. Editorially, we are continuing to innovate and differentiate ourselves with *The BMJ*: open peer review, open data, campaigning, and investigative works are all examples of this. We have also successfully diversified and organically developed Best Practice and BMJ Learning, which are trusted tools in the medical community.

We know that organizations can innovate only by constantly challenging current thinking and trying new approaches. This is why we embarked on a scenario planning project, to test our hypotheses on the future of research through plausible but challenging scenarios describing how the future may unfold.

The benefit of scenario planning is that it can profoundly change the nature of the strategic conversation in an organization

through 'gentle re-perception' (Pierre Wack, see Kleiner, 2003). In this way, it can be a catalyst for internal change, and it has impacted our business at different levels.

Because scenario planning is an iterative and collaborative process, participants from across the business and at all levels have been able to gain additional perspective and new learning from the interview stage onwards. A key point in the project was the sharing of the workshop pre-read based on the external interviews we conducted. The pre-read took the form of a comprehensive 25-page report, identifying the critical global and research themes that may impact the future. From this moment, the project gained increasing momentum to deliver an impact across the entire organization. For example, it informed the development of our innovative new journal *BMJ Open Science*. It has also reinvigorated our approach to innovation, and we have re-launched our cross-company ideas meetings, led by our digital strategy team.

At an organizational level, our scenarios validated the areas of change we had identified that would disrupt our business, and these have been incorporated into our strategic planning process. The business model of the future will be different from the business model of today, so our scenarios stimulated debate at our strategic offsite. They were scrutinized by our Board of Directors who provided a steer for our next steps, recommending that we explore the impact of the critical trends and themes identified. Our scenario planning has also helped to shape our acquisitions strategy as we actively look for potential companies operating in our sector.

We conducted a strategic analysis of our scenarios, collaborating across our product, digital, marketing, and operational divisions and using our scenario narratives to imagine what research and scholarly communication might look like in each of our futures. For each scenario, we considered the role of researchers; the state of open science and research data; and the future of research evaluation, academic tenure, peer review, and journals.

We explored who the winners, losers, and new entrants might be in each future and identified the milestones that would need to be reached to open the gateway into one of the futures.

We used these learnings to inform a scenario-based strategy map analysis, basing this on the approach outlined in an article and shared by our digital strategy team: *Scenario-based strategy maps* (Buytendijk, Hatch, & Micheli, 2010). Through this process, we have made financial, customer, internal process, and learning and growth recommendations to the executive team. An overview of all our scenario-based learnings and strategic recommendations have been summarized in a SWOT-TOWS matrix.

The OSP encourages the inclusion of positive and negative elements in each scenario. The future is unlikely to be all good or bad and is likely to include elements from each of our scenarios. The degree to which the trends and themes unfold will depend on many complex factors. In addition to identifying strategic opportunities for BMJ and how we might leverage these, we have also examined how we might mitigate potential threats that we identified as conflicting with our organization's vision of helping to create 'a healthier world'. For example, we considered what role scholarly communication might play in a world where research exists predominantly to serve national or private interests.

Continuing engagement

Our scenarios raise important questions about the purpose of research, and its value and place in society. We believe that open dialogue across the research ecosystem is essential to help shape the global research industry of the future. A distinctive feature of the OSP is its emphasis on

'The need for a balance of competitive and collaborative strategic action for surviving and thriving in TUNA conditions'.

In this spirit, BMJ will continue to engage with the research community and reframe our scenarios as the global research environment evolves. Since formulating our scenarios, we have discovered the work that the Royal Society is doing on the *Future of Research Culture in the UK* (Dally & Downey, 2017; Downey, 2016). We invite organizations to use our scenarios to challenge their current thinking and consider what their preferred future outcomes might look like. By doing this, we can work together to ensure that global research evolves in a way that all can benefit from in the future.

CONCLUSION

In BMJ's experience, scenario planning has proven to be an intensive and rewarding process. Our scenarios have changed the nature of our strategic conversation and are helping to validate and stimulate innovation in the business. The OSP combines creativity with an evidence-based approach and is both art and science within a systematic and comprehensive framework. Scenario planning is not an easy option and does not offer quick answers. One of our main learnings is that the process has to be followed thoroughly in order to build engagement and produce credible scenarios. It is not possible to create plausible and useful scenarios by

taking shortcuts. The success of our scenarios is a testament to the enthusiasm of our participants at all levels to be involved, to challenge preconceived ideas and think beyond their immediate targets and goals. Another learning is that scenario planning needs to be conducted centrally. This ensures focus – which is hard to incorporate as part of business as usual. It is also very important to include the business owner in the core scenarios team.

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CONFLICT OF INTEREST

BMJ's CEO, Peter Ashman, is on the Editorial Board of *Learned Publishing* but was not involved in the review or any decision on this article.

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