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Foresight impacts from around the world: a special issue

Jonathan Calof and Jack E. Smith

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Abstract

Purpose – *The aim of this article and special issue is to propose a framework for foresight impacts on policy and decision making. The need to identify direct impacts, measure them and identify the factors that lead to impact is the primary objective of the special issue and, as outlined in the article, represents a critical addition to the foresight field. On the basis of case studies, experience, and theoretical-evaluative frameworks this issue seeks to offer suggestions regarding the factors that may help policy makers, academics, consultants, and others involved in foresight produce impactful results.*

Design/methodology/approach – *The methodology deployed for this article is both empirical and meta analysis. This introductory article is based on the special issue articles as well as the authors' extensive practical experiences in foresight.*

Findings – *Foresight does impact policy. Case studies and experiences in Europe, North America, Africa and Asia identified in the special issue provide support for this. Also, as difficult as it is to measure impact, the authors explore several frameworks that will help the foresight community demonstrate impact and prove the value of foresight.*

Originality/value – *The article highlights several frameworks that will help the foresight community demonstrate impact and prove the value of foresight.*

Keywords *Foresight, Evaluation, Critical success factors, Foresight impact, Decision making*

Paper type *General review*

I. Introduction

The role of foresight is perhaps best explained by using the European Foresight Network's (2011) foresight definition:

[...] a participative approach to creating shared long-term visions to inform short-term decision-making processes.

This definition embodies the special issue's conceptual underpinning that foresight must impact decisions. This concept is well grounded in the foresight literature. For example, in a study on foresight critical success factors, Calof and Smith (2010) highlighted the need for foresight to provide actionable recommendations which fit with today's policy environment. Havas *et al.* (2010, p. 12) state:

It is crucial to prove the impact of foresight on decision making.

Georghiou and Keenan (2008) and Riedy (2009) also point to policy impact as being an important objective for foresight. Thus, a growing amount of recent foresight literature points towards the need for foresight to impact policy decisions.

Foresight literature does recognize that foresight benefits are broader than just decision impact. Ladikas and Decker (2004) identified 21 benefits of foresight in areas such as raising knowledge, forming attitudes/opinions and initializing actions. Amanatidou and Guy (2008) discussed foresights benefits in the context of promoting the development of “participatory knowledge societies”. However while these “other” benefits are valuable and important, in looking at foresight around the world, it is apparent that impacting policy decisions is a very important outcome for foresight. The Calof, Jackson and Miller viewpoint article in this special issue makes this point as does the literature cited earlier.

The challenge in the context of this article and the special issue is to further develop the foresight impact literature in three ways:

1. *Case studies that describe how foresight impacted decisions.* Given the importance of proving foresight impact on policy, this special issue provides two cases, one from Japan and another from South Africa that demonstrate policy impact. Additional impact stories are cited as lessons from the masters (Calof, Jackson and Miller article) which look at impact over a combined 80 years of foresight experience. Finally, there are references to impacts in Europe and North America within the Johnston and the Miles articles.
2. *Papers that look at how to properly measure/evaluate foresights impact on decisions.* If impact is an important factor, frameworks and instruments that help organizations assess and prove impact will be crucial. In this special issue, Professor Johnston and Professor Miles each propose frameworks for assessing impact.
3. *Articles that explore the factors that lead to decision impact.* Stories of impact and measurement instruments are critical but tomorrow's foresight practitioner will need to understand how decision making impact arises. What factors lead to impact? In the article lessons from the masters, Calof, Jackson and Miller look at what steps need to be taken that will result in impact.

II. Why study impact? Why a special issue?

The literature review presented in the introduction of this article lays the literature basis for studying decision-making impact. However, the Editors' focus on critical success factors and decision making impact arose through past experiences in the field, most notably from interactions with foresight government leaders from around the world.

The genesis for this article and special issue on Impact arose out of the first global meeting of National Foresight Program Leaders hosted by the UK Foresight Office in February 2009 at Hartwell House in England[1]. Attended by government foresight leaders from Asia, Australia, North America, China, Russia and Europe, the meeting endorsed the importance and need for more and better validation and documentation on the impacts of foresight in a complex world characterized by growing uncertainties particularly those linked to big policy challenges such as climatic disruptions, continuous upheavals in the world's major economies and changes in the roles and innovation capacities of nations in the context of accelerating global technological and social change.

And the meeting also considered an underlying issue of concern to all foresight organizations and programs – that of survival of foresight through regime changes and organizational shifts – hence the significant interest regarding the foresight value proposition and measurement data to demonstrate that value to new, and often more skeptical stakeholders.

This special issue – “Foresight: a world of impacts” is a direct response to the Hartwell House meeting and its identification of a key policy need expressed by national foresight leaders from around the world for cases highlighting foresight impacts and also for new instruments to measure impacts. Subsequently[2], in 2010 in France (hosted by the OECD) and 2011 in Canada (hosted by Policy Horizons Canada), there have been two additional meetings of national foresight program leaders who have continued to examine and review different ways of measuring foresight impacts.

Foresight – as a set of strategies for coping with societal and business uncertainty has been with us now for about 40 years, if we agree that the use of scenarios for projecting plausible trends, uncertainty and implications (affecting the global oil supply environment in 1972-73) by Royal Dutch Shell represent a reasonable, and relevant modern point of departure[3]. We raise this example for two reasons:

1. While humankind has always asked what if and imagined potential futures – from the stargazers such as Galileo and Copernicus to science writers Jules Verne and H.G. Wells, it was Royal Dutch Shell who first showed how to develop and apply an institutionalized and systematic approach to scenarios to achieve foresight; and
2. In the aftermath of the first oil crisis, the impact of having developed these scenarios in a preparatory sense was made publicly visible, by the comparative agility gained by Royal Dutch Shell in being able to both recognize the onset of the crisis and in being positioned and ready to adopt strategies for coping more effectively than other large multinational oil companies.

So, just as the Royal Dutch Shell example demonstrated to the business world how foresight could support business readiness and agility to save money and create competitive advantage, the articles and cases in this special issue articulate to public sector stakeholders a range of benefits and impacts which can support improvements and sustainability of policies, programs and analytic-agile capacities for public sector organizations and governments.

III. Foresight impacts around the world – a summary of the issue and our experiences

Does foresight produce impacts? Does it impact decisions? This special issue provides case studies from South Africa and Japan where the answer is shown to be yes. Further, the articles on how to evaluate also point to specific examples of policy impact from Australia and the UK. The viewpoint article also describes impacts in Canada. Thus, through this special issue, several examples are provided in which impact is shown. Should the reader feel that these are the only examples of foresight decision making impact, they are urged to consult the European Foresight Monitoring Network web site (www.efmn.info) which has hundreds of case studies impact stories.

As an outgrowth of this special issue, the Editors will endeavor to maintain a database of foresight impact cases and articles that can be used by foresight practitioners and others to make the case for foresight. Readers are urged to send to us, the special issue Editors other cases and impact stories.

To start the process of sharing impact stories with the field, we offer Table I which provides a short summary of some known experiences and direct impacts contained in this special issue plus a few more that the authors have been involved with. It is our hope that this table grows over time and that a rich discussion occurs within the field regarding key factors and how the table should evolve.

In developing Table I and in wanting to assist foresight impact studies in the future, the authors recognize that foresight impacts are derived from many sources and situations. Five distinct sources and types of foresight situations are used in the development of this global impact table:

1. *Value statements* – as perceived or experienced by key players and stakeholders, expressed in general or specific terms, usually as a testimonial or anecdotes, sometimes accompanied by case highlights.
2. *Roles* that foresight plays in the public arena i.e., in raising awareness, educating and influencing decisions and decision-makers, evaluating related program performance, robustness of policies or in enabling direct action especially where these are unique roles.

Table 1 Examples of foresight impacts around the world

Country	Domain or sector	Value proposition impacts	Roles, success factors impacts	Knowledge and process impacts	Policy interface impacts
Japan (Urashima <i>et al.</i>)	Low carbon society – green economy	Delphi signaled future needs and opportunities Other foresight methods added to extend reach and influence of Delphi New forum for national dialogues created through foresight plus networks for innovation	Awareness, influence and knowledge creation, with strong links to policy champions Broader influence on innovation policies from social input to S&T	Prospective consequences of ecological - economic threats prompted new policies Many years of disciplined Delphi innovation focused development created a fertile foresight receptor base	National policy for S&T – green innovation derived from foresight work Recognition now that Japan's future prosperity must include ecological –green technologies
	Innovations for energy – environment			Delphi has helped to engage decision makers with novel methods	Japan is one of the first nations to focus on the future needs of an aging population
	Preparation for an aging society	Delphi signaled future needs and opportunities	Process integrates social and S&T factors		
South Africa (Geci <i>et al.</i>)	Regional governance and planning	The South African Presidency anticipated and launched a process to embed the national foresight process and findings in the local government sphere so as to acknowledge and support local planning processes	Champions and a foreign foresight partnership with Finland were essential to having impact – e.g. economic impacts on poor neighborhoods. " It is estimated that the grant reaches over 50 percent of South Africa's poorest population." See http://ndp.treasury.gov.za	Foresight helped transform local and regional infrastructure planning from an ad-hoc reactive and short term focus into a longer term proactive and sustainability focused system linked to national development processes	The Cooperation Framework on Innovation Systems between Finland and South Africa (COFISA) – 2008-2010 focused on the application of foresight toward identifying innovation opportunities and achieving sustainable futures
	Oceans (regional) economy	Foresight used to align diverse firms in several industry sectors to see their common future interests and opportunities Canadian foresight team was hired to lead next generation vision and curriculum plan for North America's veterinary colleges	Foresight helped raise awareness of opportunities and influence action so that economic impact was twice what was initially expected Multiple roles; eight year period required; flexibility, deep client knowledge, sustained attention to critical success factors	Foresight enabled a strong case to be developed for a new way of looking at oceans in terms of resources and opportunities Extensive process competence was required to fully engage a diverse North American professional community	Foresight played a formidable role in shaping new oceans policies NAVMEC – North America's veterinary medical education colleges adopted a twenty-first century curriculum and forward strategy for profession New policy agenda being considered – systematic foresight contribution is evident
Canada-North America (Editors' experience – references in main text endnotes)	Veterinary education	More safe, secure and healthy food system through foresight	Key roles – from threat awareness raising to influencing federal security policies to evaluating other related domains in food and human health	A proactive advocate for One Health – an integrated futures ready approach to effective public health management	(Continued)

Table 1

Country	Domain or sector	Value proposition impacts	Roles, success factors impacts	Knowledge and process impacts	Policy interface impacts
	Federal public service strategy and policy – information infrastructure	Foresight successfully used to envision Canada @ 2017	Champion engagement has been key - i.e. Clerk PCO, Deputy Ministers	A key related impact has been on using a novel web 2.0 customized application for foresight engagement	Canada @ 2017 has led to further mid-long range policy foresight for DM federal policy area committees
Russia (Editors' experience)	Nano-materials policies program	Foresight played a prominent role in the approval of a new \$4 billion program over five years	Delphi and other foresight techniques effectively engaged stakeholders and a high level champion	Nano strategy also impacted other development strategies by demonstrating ways to reduce fossil fuel dependence and vulnerability	RusNano is now a high profile, well funded player and a key pillar in Russia's long term economic strategy
APEC – CTF Thailand (Editors' experience)	Energy options and policies	Foresight used to position regional energy vulnerabilities and assets in shift away from fossil fuels	Key success factors were connecting with policy champions and awareness raising for low carbon options	Comparative fuels knowledge base and roadmap has had excellent staying power since 2005	CTF based on its foresight and energy expertise was asked to evaluate Thai energy policy options
	Public health – infectious diseases	Strategic foresight investment to mitigate future SARS-type threats at a regional level	Multiple roles – impacting the design and provision of health alert networks in Thailand, Taiwan, Japan, Malaysia	Strong contribution to improved diagnostics, use of ICT and alert technologies to detect and mitigate new infectious diseases	Public health policies and practices in the region have been strengthened, partly as a direct result of foresight activities focused on emerging infectious diseases and potential global impacts
UK (discussed in Johnston paper)	Foresight – governance readiness model – with multiple roles – most directed toward policy influence	Foresight survival through leadership and regime changes 1993-2011	All the key roles were strongly played to enable a resilient survival capacity and independent institutionalized presence through five Prime Ministers and three regime changes	Resilience and longevity-continuity have allowed the UK foresight to be a global leader in foresight practice	Science and innovation, national security and health policies have been at least in part shaped by foresight activities
	Coastal environment and climate change	Value of foresight was evident in the exposure of risk and dimensioning of economic and social impacts	Foresight raised awareness, increased the influence of future impacts and enabled new assessments of risk	Foresight delivered new knowledge and new alignments of impinging factors	Foresight methodology shifted the nature and content of the policy debate
	National defence – new vision	Foresight raised the vulnerabilities of the UK and its exposure to climatic and environmental risk factors.	New alignments, systemic threats and security roles were raised, creating new sources of influence on national defense vision, priorities	Foresight has shown how interconnected environmental and security issues are	New policies have emerged – with foresight playing a key input role

3. *Success factors*: how foresight can design its projects and operational priorities and profile to ensure its results are timely, meet stakeholders needs and hence maximize their impact potential by employing measures which motivate and satisfy government managers and executives.
4. *Process and knowledge benefits*: how foresight outputs in new knowledge areas and capacities required can facilitate agility, open up the scope of stakeholder awareness and strategies etc.
5. *Policy interface*: how foresight can help policy formulation, positioning for delivery, implementation and action by co-managing forward engagement messages, and foresight insights and results that show or validate societal change and direction often in a dynamic, multilateral structure.

Table I, an impact summary overview, shows a wide range of foresight impacts that form the basis for this special issue, listed by country and sector, and identified by the five categories of impacts listed above.

As can be seen from Table I the variety of impact situations, sectors and countries is quite diverse. When we started to solicit articles for this special issue, many suggestions covering multiple types of impacts were submitted. Articles that demonstrated impact in the UK at the government level, Europe at the corporate level, Malaysia at the university level and others were submitted. But in the end, the key case studies that made it through the review process were from Japan and South Africa, where foresight has directly influenced national and regional policies on innovation and planning respectively. In an effort to help the field develop better appreciation for impact studies, the review process was especially rigorous and over half the submitted case studies were in the end rejected. Not because there was no impact but because the case studies did not possess all the rigor required by *Foresight*. In the articles that follow you will read about these impacts.

But there are other examples of impact not included in detail in the case studies that we wish to draw to the attention of the readers. In Canada, for example, there is the case of an eight year effort in foresight focused on animal health and food security, and on the future training of veterinarians[4].

Starting with the Canadian Food Inspection Agency's first project – the use of foresight techniques to assess prospective impacts of mad cow disease and subsequently to develop a global capacity for leadership in animal health emergency management, foresight has demonstrated its value as an indispensable part of the CFIA's portfolio of policy, planning and management systems[5].

Canada has also advanced the state of foresight within government through the infrastructure work and engagement of Deputy Ministers policy committees by Policy Horizons Canada[6].

Canada also brought forward a foresight exercise that united an entire regional resource-based industry[7]. Outward Bound 2015 reports on a foresight process run in Newfoundland (Canada) within the Oceans and Technology Industry. The intent of Outward Bound was to use foresight to develop a shared vision within the industry that hopefully would lead to \$1 billion in annual revenues by 2015 (four times the 2006 revenue in the industry). A foresight process was developed which involved two phases over 18 months. In all, over 100 people representing more than 75 percent of the organizations in the sector (including government, companies, academe and associations) participated in the foresight initiative. This sector-driven initiative resulted in the identification of three major areas of market opportunity. To exploit the opportunities, the foresight process also identified specific strategic directions, strategic needs, strategic actions, and specific tactical actions. This process which started in 2006 has already yielded new programs and policies at the government level, research programs in Universities and company plans. Economically, it is claimed that this shared vision and actions brought about by the foresight process as already resulted in a significant increase in industry sales.

Another example – in Thailand, the APEC Center for Technology Foresight (CTF)[8] has, over a 12-year period, developed a strong capacity for regional energy systems analysis – primarily derived from its collaborative foresight model and several projects such as the Future Fuels Technology Roadmap, and Low Carbon Society Scenarios. With this range of experience, the CTF has been asked to provide strategic advice on a broader range of national energy futures for Thailand.

IV. Measuring foresight impact

The special issue also seeks how to measure or prove that impact has indeed arisen. Measuring impact has been identified in the foresight literature as being difficult to do. Georghiou (1998) identified several problems with measuring impact, including a major measurement issue of when impact actually does occur it can take many years for project effects to become evident. Others have noted that evaluating impact based solely on impact on policy is that the research suggests that for the most part impact has been low (Riedy, 2009). This article and special issue has provided several examples of where there has been policy impact and the authors hope that other researchers and policy makers will contribute more case studies demonstrating impact in foresight conferences and journals. Measuring this impact, is however a second objective of this article.

The Schartinger *et al.* article leads off the impact papers. It is part case study and part evaluation framework. While the overarching impact we were looking for in this special issue was direct policy impact, as mentioned, there are other impacts of foresight that are important. This article looks at learning impacts from the perspective of how they can lead to the development of strategic alternatives through networking. This article is amongst the first to empirically investigate learning impact by applying social network analysis as a method for mapping out networking effects in a large foresight process. Schartinger *et al.* provide readers with a good measurement approach for evaluating the extent of learning in a foresight program, and a specific measure for evaluating the social networks established through a foresight process. Both of these should prove useful to those organizations looking for defensible measurements in their foresight evaluation programs. There are no tests for construct validity and reliability, thus, measurement strength cannot be determined, but, this article offers an important beginning for learning and network measurement.

The Ron Johnston article establishes a framework for foresight impact assessment. This article is based on a report written by Johnston as an outcome from the first global meeting of National Foresight Program Leaders hosted by the UK Foresight Office in February 2009 at Hartwell House. The article was presented at the second global meeting hosted by the OECD in Paris in March 2010. The Johnston framework starts with a need to understand the objectives and impacts from a foresight program. Drawing on the work of three generations of foresight impact research, Johnston identifies four broad types of foresight impact: awareness raising, informing, enabling and influencing. Depending on the objective of the foresight exercise (which of the four impact elements are part of the foresight plan), different metrics are proposed. For example, an influencing impact would be measured using metrics such as extent of influence (e.g. major, moderate, minor) reported and number and scale of follow-on and spin-off foresight projects. In all dozens of specific metrics are proposed and matched to the appropriate type of impact. This will hopefully help foresight organizations establish appropriate evaluation methods. The article demonstrates the utility of the impact framework and associated metrics by using it to evaluate the impact of UK and Australian foresight projects. UK projects assessed included future flooding, infectious diseases, tackling obesities, mental capita and sustainable energy management. The Australian project impact assessment was an irrigated agriculture project.

The Johnston article provides us with both an intuitively appealing evaluation methodology that matches foresight impact objective with strong metrics as well as six case studies in which impact is clearly proven. These six mini case studies add to the special issue inventory of impact stories.

The Miles article, similar to the Johnston one, recognizes that the method of evaluation depends on the objective of the foresight program. Miles writes, "The task of evaluating foresight is a challenging one, and comparison of foresight activities needs to bear in mind the different scale, scope, and ambitions of different programmes. Simple static comparison of formal inputs and outputs will miss much of the value and value-added of the activity." In fact, Miles challenges the concept of measuring foresight only in terms of it impacting policy and decisions. His framework recognizes several different roles for foresight and as a result a more dynamic evaluative approach is needed.

Miles concludes "Thus, evaluation needs to focus less on simple "impacts", and much more on how the outcomes of foresight have been coproduced by the various actors engaged (or that should have been engaged) in the process. This will be what makes it dynamic foresight evaluation". His article presents a model of how to look at these different interactions.

V. Impact factors

The special issue ends with a viewpoint article, written by Calof, Jackson and Miller. A group of academics and consultants with over 80 years combined foresight experience. The focus of this article is on how to ensure that future oriented technology assessment (FTA) activities have an impact on decision-making. On the basis of the extensive experience of the authors, this article offer suggestions regarding the factors that may help policy makers, academics, consultants, and others involved in FTA projects, produce useful and meaningful contributions to decision-making processes.

The authors note that to have impactful foresight you must have appropriate methodologies. However for the fullest impacts of foresight to arise (defined as positive impact on decisions) will require foresight teams with a strong grasp of the principles of foresight and project design, an educated client with clear expectations and a strong commitment, well-developed communication efforts throughout, and considerable managerial capacity both on the demand and supply sides of the process. The article concludes:

Taken together, the three authors argue that impactful foresight depends on an explicit procedural framework that identifies performance requirements throughout the process (Calof), organizational design elements that create the enabling factors for success (Jackson), and a set of practical design principles rooted in anticipatory systems theory (Miller). All three recognize the importance of attitudes and commitment as well as the need for foresight literacy as conditions for foresight impact.

This article makes it clear that for foresight to have impact, the client of foresight must be properly integrated into the project and educated to understand how foresight can help them. Foresight literacy is a theme within the foresight field but in this article it is clearly linked to the ability to develop impactful foresight.

VI. Conclusions and challenge to the reader

This special issue and article on foresight impact from around the world provides direct evidence of foresight impact. These case studies, we hope will form the basis for the development of a rich database of impact stories that can help promote the importance of the field. As well, it is hoped that a rich database of impact examples can also be used to assist in educating others as to the value of foresight. But let this be the beginning of the process of case study development, readers are encouraged to send more impact stories to the authors of this article.

The two articles on evaluating impact are designed to give the reader a grounding in the literature around impact evaluation and ideas that will assist them in developing evaluation programs. Proving impact must go beyond telling case stories, metrics are needed and the Miles concept paper coupled with the Johnston metrics should help in establishing a deeper program in impact measurement. But more work is needed on the development of evaluation instruments. In particular instrument validity and reliability is needed and can only arise through appropriate testing. Additional measures should also be developed.

Finally, the impact factors section/article (Calof *et al.*) is designed to stimulate debate on what are the factors that will lead to decision-making impact. It is the beginning of a dialog created by combining experience with academic scholarship but it is just a beginning. We hope that this portion of the special issue will stimulate additional scholarship and discussion on impact factors and that this in turn will result in new teaching and foresight materials.

Taken collectively this article and the special issue with its case studies of decision and policy impact, articles on measurement of impact and identification of impact factors provide a blueprint for foresight scholars and practitioners.

Notes

1. This meeting was organized by the UK Foresight Office and a non published record of proceedings is available upon request from Jon Parke of that Office (www.ukforesight.gov.uk)
2. Contact: Barry Stevens OECD Futures Unit (www.OECD.Org) and Peter Padbury, Policy Horizons Canada (www.phc.gc.ca) respectively for records of the two subsequent meetings.
3. The Shell 1972-1973 scenarios experience is widely referenced in the strategic planning literature; for example, see *Harvard Business Review*: Wack (1985a, b).
4. This story is the subject of an as yet unpublished paper: "The impact of foresight on Canadian animal health and North American veterinary medical education" (Willis *et al.*, n.d.).
5. See Smith (2007) and Willis (2007).
6. In fact, following a successful web 2.0 interactive web portal applied to the enlistment of new public servants to join in a national foresight project on the future of the Canadian Public Service, Policy Horizons Canada was created out of what previously was the Policy Research Secretariat – clearly a recognition and affirmation of the important link between foresight and future policy requirements (see: www.horizonscanada.gc.ca; for more information).
7. See Oceans Advance Inc. (2009) and www.nati.net/events-and-programs/nl-ocean-technology-commercialization-initiative.aspx
8. www.apecforesight.org; for: future fuels roadmap, low carbon society scenarios, and emerging infectious diseases.

References

- Amanatidou, E. and Guy, K. (2008), "Interpreting foresight process impacts: steps towards the development of a framework conceptualising the dynamics of 'foresight systems'", *Technological Forecasting and Social Change*, Vol. 75 No. 4, pp. 539-57.
- Calof, J. and Smith, J. (2010), "Critical success factors for government-led foresight", *Science and Public Policy*, Vol. 37 No. 1, pp. 31-40.
- European Foresight Monitoring Network (2011), available at: www.foresightnetwork.eu/index.php?option=com_content&task=view&id=13&Itemid=52 (accessed December 10, 2011).
- Georghiou, L. (1998), "Issues in the evaluation of innovation and technology policy", *Evaluation*, Vol. 4 No. 1, pp. 37-51.
- Georghiou, L. and Keenan, M. (2008), "Evaluation and impact of foresight", in Georghiou, L., Cassingena Harper, J., Keenan, M., Miles, I. and Popper, R. (Eds), *The Handbook of Technology Foresight: Concepts and Practice*, Edward Elgar, Cheltenham.
- Havas, A., Schartinger, D. and Weber, M. (2010), "The impact of foresight on innovation policy-making: recent experiences and future perspectives", *Research Evaluation*, June, pp. 91-104.
- Ladikas, M. and Decker, M. (2004), "Assessing the impact of future-oriented technology assessment", *Proceedings of the EU-US Scientific Seminar: New Technology Foresight, Forecasting and Assessment Methods*, European Commission DG JRC-IPTS, Seville, May 13-14.
- Oceans Advance Inc. (2009), *Outward Bound, a Strategic Agenda for Accelerating Growth of the Ocean Technology Sector in Newfoundland and Labrador*, Innovaquest, St John's.

Riedy, C. (2009), "The influence of futures work on public policy and sustainability", *Foresight*, Vol. 11 No. 5, pp. 40-56.

Smith, J.E. (2007), "Science and technology foresight; a provocative tool for contending with future challenges in food safety and public veterinary medicine", *Vet Ital*, Vol. 43, pp. 237-46.

Wack, P. (1985a), "Scenarios: uncharted waters ahead", *Harvard Business Review*, Vol. 63 No. 5, September/October, pp. 72-89.

Wack, P. (1985b), "Scenarios: shooting the rapids", *Harvard Business Review*, Vol. 63 No. 6, November/December, pp. 139-50.

Willis, N.G. (2007), "The Animal Health Foresight Project", *Vet Ital*, Vol. 43, pp. 247-56.

Willis, N.G., Smith, J.E. and Renwick, S.A. (n.d.), "The impact of foresight on Canadian animal health and North American veterinary medical education", available at: jesmith@telfer.uottawa.ca

Further reading

Calof, J. and Smith, J. (2010), "The integrative domain of foresight and competitive intelligence", *R&D Management*, Vol. 40 No. 1, pp. 31-9.

About the authors

Dr Jonathan Calof is recognized as one of the leaders in intelligence, foresight and business insight. A Professor at the Telfer School of Management at the University of Ottawa, Dr Calof combines research and consulting in competitive intelligence, technical foresight and management insight in the creation of the university's management insight program. He is a prolific author with over 150 publications to his credit. He is a board member for CASIS (Canadian Association of Security and Intelligence Studies) and is also co-director of the Foresight Synergy Network. Jonathan has given over 1,000 speeches, seminars and keynote addresses around the world on intelligence and insight and has helped several companies and government agencies around the world enhance their intelligence capabilities. In recognition of his contribution to the competitive intelligence field, Jonathan was presented with Frost and Sullivan's life time achievement award and was made a Fellow of the Society of Competitive Intelligence Professionals. He was also named Honorary Professor at Yunnan Normal University in China. He was appointed to the international advisory board for the HSE Russian Foresight Committee and also was made an honorary member of the Russian Society of Competitive Intelligence Professionals. In Morocco he was appointed to the board of advisors for the newly created Centre en Intelligence Economique et Management Stratégique (CIE'MS/Center for Competitive Intelligence and Strategic Management). Jonathan Calof is the corresponding author and can be contacted at: calof@telfer.uottawa.ca

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5. Effie Amanatidou. 2017. “Foresight process impacts: Beyond any official targets, foresight is bound to serve democracy”. *Futures* 85, 1-13. [[Crossref](#)]
6. VagnoniEmidia, Emidia Vagnoni, KhoddamiSoheila, Soheila Khoddami. 2016. Designing competitiveness activity model through the strategic agility approach in a turbulent environment. *foresight* 18:6, 625-648. [[Abstract](#)] [[Full Text](#)] [[PDF](#)]
7. FabbriEmanuele, Emanuele Fabbri. 2016. Strategic planning and foresight: the case of Smart Specialisation Strategy in Tuscany. *foresight* 18:5, 491-508. [[Abstract](#)] [[Full Text](#)] [[PDF](#)]
8. AwedykMatylda, Matylda Awedyk, NiezgodAgnieszka, Agnieszka NiezgodA. 2016. New opportunities for future tourism after 25 years of political and socioeconomic transformation – foresight in Poland’s tourism planning. *Journal of Tourism Futures* 2:2, 137-154. [[Abstract](#)] [[Full Text](#)] [[PDF](#)]
9. DorrAdam, Adam Dorr. 2016. Technology blindness and temporal imprecision: rethinking the long term in an era of accelerating technological change. *foresight* 18:4, 391-413. [[Abstract](#)] [[Full Text](#)] [[PDF](#)]
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11. Siri Boe-Lillegraven, Stephan Monterde. 2015. Exploring the cognitive value of technology foresight: The case of the Cisco Technology Radar. *Technological Forecasting and Social Change* 101, 62-82. [[Crossref](#)]
12. Alireza Hassanzadeh, Leila Namdarian, Mehdi Majidpour, Sha’ban Elahi. 2015. Developing a model to evaluate the impacts of science, technology and innovation foresight on policy-making. *Technology Analysis & Strategic Management* 27:4, 437-460. [[Crossref](#)]
13. Tariq Mahmood, Aleem Ahmed. 2015. Technology Foresight Exercise in Pakistan: A Case Study. *Science, Technology and Development* 34:4, 242-248. [[Crossref](#)]
14. Beata Poteralska, Anna Sacio-Szymańska. 2014. Evaluation of technology foresight projects. *European Journal of Futures Research* 2:1. . [[Crossref](#)]
15. Alireza Hassanzadeh, Leila Namdarian, Sha’Ban Elahi, Mehdi Majidpour. 2014. Impact of Technology Foresight on the Policy-making Process in Iran. *Science, Technology and Society* 19:3, 275-304. [[Crossref](#)]
16. Peyman Akhavan, Majid Ramezan, Jafar Yazdi Moghaddam, Gholamhossein Mehralian. 2014. Exploring the relationship between ethics, knowledge creation and organizational performance. *VINE* 44:1, 42-58. [[Abstract](#)] [[Full Text](#)] [[PDF](#)]
17. Ian Roberge. 2013. Futures construction in public management. *International Journal of Public Sector Management* 26:7, 534-542. [[Abstract](#)] [[Full Text](#)] [[PDF](#)]
18. Peyman Akhavan, Majid Ramezan, Jafar Yazdi Moghaddam. 2013. Examining the role of ethics in knowledge management process. *Journal of Knowledge-based Innovation in China* 5:2, 129-145. [[Abstract](#)] [[Full Text](#)] [[PDF](#)]