Prevention Services Strategy Review

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Table of Contents

Executive Summary

This review, commissioned by WorkSafeBC's Board of Directors in December 2012, is intended to "provide a critique and/or validation of WorkSafeBC's current strategy and the proposed Prevention Strategy." The Project Plan commissioning this review specifically asks that attention be paid to the following description of risk-control competence, and that Prevention Services' strategy development be evaluated in terms of whether it is likely to deliver this kind of performance:

"With respect to risks, citizens expect governments to be

a) *vigilant*, so they can spot emerging threats early, pick up on precursors and warning signs, use their imaginations to work out what *could* happen, and to do these things even before much harm is done.
b) *nimble,* flexible enough to organize themselves quickly and appropriately around each emerging risk, rather than being locked into patterns of practice constructed around the risks of a preceding decade, and
c) *skillful*, masters of the entire intervention toolkit, and adept at creating new approaches when existing methods turn out to be irrelevant or insufficient to suppress a risk."

There is plenty of evidence that BC's model, when it comes to dealing with occupational safety and health, is working well and is broadly respected. The purpose of this review is to identify opportunities to enhance WorksSafeBC's Prevention Services strategy yet further in ways that would make it world-class as a risk-based regulator and with respect to these notions of vigilance, nimbleness and skill.

The logical path this report follows starts from a fundamental assertion that applied to all regulatory, risk-control, or harm-reduction operations. History, tradition, context and structure makes a particular model of operations *natural* (or *obvious*), and that natural model works well enough for a core set of issues. It can become a *default* mode of operation. The natural model works well for most risks, and not so well for some others. From time to time other *non-aligned* risks materialize or become prominent, producing dissonance within the organization and exposing the distinctive strengths and weaknesses of the natural model. Such dissonance presents a learning opportunity for the organization, which it can exploit by systematically answering the following questions:

a) what are the distinctive features of the natural model?
b) for which classes of risk is this operational model ideally suited?
c) for which classes of risk will it turn out to be deficient or sub-optimal?
d) what auxiliary capacities and competencies are needed to deal effectively with these less-well-aligned classes of risk?

The first three of these questions constitute the central logic of this report. The fourth motivates each of the recommendations.

The occupational safety and health (OSH) regulatory function in British Columbia, titled *Prevention Services*, is embedded within the workers' compensation system. This integrated model is increasingly common around the world, but not pervasive. Executives interviewed during the course of this review all seemed keenly aware that having the prevention (OSH) function embedded in a claims-oriented organization materially influenced strategy and tactics. They did not suggest that the importance of the prevention function was undervalued within the organization; indeed, executives seemed eager to report that the assertion "Prevention is Job 1" was broadly held. Rather, the sense was that the organization's natural focus on claims-management affected patterns of thought and analysis within the organization, and those patterns influenced OSH regulatory operations in distinctive ways.

This structural setting makes it natural to treat employers as the organization's primary stakeholder group as they are paying the bill. The fact that premiums are experience-rated provides shared purpose in identifying trends in claims experience and incentives to work collaboratively to reduce claim frequency, duration, and cost. Success in that regard reduces WorkSafeBC's claims-related expenses and, in turn, lowers industry's premium costs. WorkSafeBC's historical successes in driving down claims rates rest heavily on dealing effectively with the class of risks that align well with the natural claims-management model. These *well-aligned* risks are the ones that manifest themselves as trends or clusters within available claims data; where the appropriate performance goal is unambiguously to reduce the visible claims frequency, duration, or cost; where the significance of the harm is properly reflected in claims cost; and where cooperative endeavor is likely to succeed because the financial motivations and broader interests of employers align closely with the public interest.

This report identifies six categories of risk that, for various reasons, align less well with this natural, claims-management-oriented, model. They are:

1) Serious Non-monetary losses (fatalities and life-altering injuries): For fatalities and permanent disabilities, no amount of monetary compensation can make the victim whole. Such harms align in a sub-optimal way with a claims-oriented model because the magnitude of the harm done may not be properly reflected in the claims cost.
2) Slow-acting Harms: Slow-acting harms are those where many years or even several decades may intervene between the initial cause of a harm and its manifestation. Occupational hazards that fit this category involve chemical, irritant, carcinogenic, or otherwise harmful exposures (including noise) that have disease implications later in life. These *exposure-related* risks fall in the non-aligned category because the feedback loop between control interventions and claims experience is exceptionally slow. Current

claims experience reflects exposures 20 or 30 years ago, and the level of harm being done now (through current exposures) is not captured within claims data. Moreover, the ordinary performance imperative to reduce current claims rates is not appropriate.

3) Catastrophic Risks: Catastrophic risks are those that materialize seldom or never, with probabilities that are extremely low and difficult to estimate, but which have the potential to cause widespread damage and/or extensive loss of life. Catastrophic risks often have no representation at all in historical claims data, and industry has clear incentives to downplay risk that have very low and unknown probabilities.
4) Invisible Risks: Invisible risks are those that do not fully reveal themselves, with detection or discovery rates that fall substantially short of 100%, and may be lower than 50%. The underlying scope of such problems may not be fully understood. Readily available performance metrics—the number of cases (or claims) that come to light—are inherently ambiguous, complicating the task of assessing progress.
5) Risks Involving Conscious Opponents: Some harms involve conscious opponents who seek ways to deliberately thwart controls. For WorkSafeBC, obvious examples include irresponsible fly-by-night operators determined to put short-term profitability ahead of worker safety, who therefore deliberately engage in systematic non-compliance or demand it of their workers. Managers of such enterprises adopt a "catch me if you can" attitude toward OSH regulators.
6) "Emerging Risks" Arising from Long-term Trends in Workforce Demographics and Developments in Industrial Technology: Forecasting long-term industry or technology trends and anticipating future controls that might be needed is always contentious. Given inconclusive information and a broad range of estimates about the nature and seriousness of emerging risks, adopting a "wait and see" attitude is attractive to industry as it delays new regulatory requirements, but may be publicly irresponsible given the need to lay the groundwork for future controls in a timely fashion.

WorkSafeBC is by no means unaware of these non-aligned risks, and Prevention Services is clearly motivated to tackle the full range of OSH risks using the full range of strategies and tactics. This review does not suggest that Prevention Services has allowed itself to be restricted to the "natural" claims-oriented model. Indeed, there is plenty of evidence to the contrary. Prevention Services uses a range of data sources other than claims databases to track injuries and illnesses. It embraces the use of education, consultation and enforcement, as well as partnership and collaboration around shared objectives. And the organization clearly cares deeply about some classes or risk (e.g. catastrophic risks) that align relatively poorly with a claims-focused operational model.

So the assertion here is not that Prevention Services has allowed itself to be limited to one natural or default model of operations. Rather, the critical

observation is that risks not well aligned with the natural model have to compete for attention with risks that are much better aligned. And the risks that fit the natural model best will tend to garner more attention, at the expense of others, unless the OSH strategy deliberately compensates for this predictable bias.

Hence it seems critical to develop a broad understanding, shared across the organization, about which classes of risk fail to align with the claims-management model, exactly why they do so, and what supplementary capabilities or alternative approaches are therefore required in order to deal with these risks effectively.

WorkSafeBC's Prevention Services can round-out its effective coverage of OSH risks by formalizing and fortifying its strategy and operations with respect to those risks that align least well with a claims-oriented model.

The principal recommendation (Recommendation 1) of this report is that WorkSafeBC should now create a centralized OSH Risk-Analysis group to help specify, prioritize, and guide the work of Prevention Services, paying particular attention to the six classes of non-aligned OSH risks detailed above.

Creation and operation of a substantial new OSH Risk-Analysis Group is intended precisely to produce a state-of-the-art *vigilance* capability. By paying special attention to the various categories of non-aligned risks, this group should be able to provide clarity and foresight in areas that might be thought of as the natural blind spots of a claims-oriented framework. If Prevention Services developed its intelligence and analysis capabilities in this way, there is no reason why WorkSafeBC's vigilance, with respect to OSH risks, should not be regarded as world-class.

The report makes further recommendations as follows:

> (2) Focus field-level marginal investments on the treatment of non-aligned risks. This produces some capacity at the field level to focus on non-aligned categories of risk, so that the new Risk-Analysis Group has sufficient operational capacity to direct.

The following recommendations are intended to help Prevention Services develop a greater *nimbleness* over time:

> (3) Over the next two years, Industry-based High Risk Strategies should be wound down in favor of a greater number of more carefully disaggregated risk-based projects.
>
> (4) Methodological rigor should be imposed on all risk-based projects through adoption of a suitable problem-solving protocol.

The following recommendations come under the general heading of "skillfulness," and are intended to make sure the full range of interventions tools are available, and that skills associated with a risk-based problem-solving approaches can be developed at different levels of the organization:

(5) Prevention Services should clarify the extent to which field officers find existing sanctions processes to be excessively burdensome, difficult, or slow. Prevention Services may need to streamline or redesign its formal sanctions tools in order to eliminate any real or perceived obstacles to their use by field officers.

(6) Review and amend the conditions pertaining to the issuance of Closure Orders, extending the justification beyond *imminent danger* to include non-compliance with regulations pertaining to precursors of recognized catastrophic risks.

(7) As Prevention Services constructs a portfolio of more carefully disaggregated risk-based projects, consider including some projects orchestrated and run at the local office level.

The final recommendation addresses the ways in which Prevention Services measures and reports its accomplishments, recognizing that a more sophisticated operational approach to risk-identification and control needs to be supported by a more sophisticated approach to assessment and reporting:

(8) Prevention Services should provide a more compelling and sophisticated account of its performance in controlling OSH risks, by:

- giving greater prominence in its internal and external communications to serious non-monetary losses,
- adopting a more restrictive definition of serious injury,
- more carefully segregating fatal injury cases from fatal illness cases arising from prior exposures and explaining the distinctively different behaviors of the related metrics,
- making risk-based project accounts more central within the agency's OSH performance story,
- measuring industry compliance with regulations pertaining to precursors of recognized catastrophic risks,
- explaining more clearly the behavior of metrics pertaining to invisible risks,
- systematically measuring exposure rates in workplaces that carry high exposure risk, and
- avoiding the use of inspection counts as a primary metric for any risk-control project.

WorkSafeBC's framework for occupational safety and health regulation has a great many strengths. It would be unfortunate if these went unappreciated or were

not preserved. This report does not recommend any change in the fundamental framework, but aims to be precise in specifying supplementary investments required to round out WorkSafeBC's coverage of the full range of occupational safety and health risks.

I am pleased to submit this report, with my compliments, for consideration by WorkSafeBC's Board and executive leadership team.

Malcolm K. Sparrow

PREVENTION SERVICES STRATEGY REVIEW

1.0 Purpose of the Review.

This review, commissioned by WorkSafeBC's Board of Directors in December 2012, is intended to "provide a critique and/or validation of WorkSafeBC's current strategy and the proposed Prevention Strategy."[1] Specific issues to be addressed, laid out in the Project Objectives,[2] include whether the current prevention plan has a fair chance of meeting targets and achieving desired outcomes; whether the inspectorate is being used to best effect; whether current methods are those most likely to affect the organization's key performance indicators; how the agency might better assess and describe its accomplishments in controlling health and safety risks; and whether the agency has identified and utilized the full range of tools available to regulatory policymakers to identify and control risks.

2.0 Scope and Limitations.

This review focuses specifically and exclusively on the Prevention Services Division and is not intended to cover the Claims side of WorkSafeBC's work. Therefore, this report makes no comments or recommendations with respect to WorkSafeBC's approach to claims management and administration. However, this analysis does address and examine the effect that being part of a worker's compensation organization (with a strong claims-management orientation) has on the selection and development of prevention strategies.

The depth of this review is inherently limited given the length of time available for it. These findings are based in large part on 18 interviews conducted at WorkSafeBC's central offices in Vancouver over three days in January 2013.[3] The 22 officials on the interview roster were predominantly senior executives. Apart from analysts, no one interviewed was below the rank of Regional Prevention Manager. The experience and perspective of field-level inspectors was therefore not available to the reviewer, which means that the concerns of the field staff can be faithfully reflected in this analysis only to the extent that they have been accurately described by senior managers. The good news here is that many of those interviewed had long careers in the organization, including many years of fieldwork, and seemed intimately familiar with life on the front lines.

None of the interviewees asked for any rules to be established with respect to confidentiality, and so none were. Nevertheless, this report refrains from quoting specific individuals because doing so would add little benefit and might do harm.

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[1] Contract Document: reference number 0000029471

[2] "Prevention Strategy Review: Project Plan," Betty Pirs, October 16,2012. p2.

[3] The review process was otherwise document-based.

3.0 General Observations on Structure, Strategy, History, and Recent Developments.

WorkSafeBC's approach to occupational safety and health (hereafter OSH) regulation appears to be quite successful overall. The injury rate, the serious injury rate, and the fatal injury rate have all declined substantially over the last 20 years.[4] The overall injury rate remains below the target rate currently set (2.6 per 100 person years).[5] While the overall injury rate for British Columbia is roughly 50% higher than the average across Canada, provincial comparisons not adjusted for industry composition are difficult to interpret.[6] British Columbia has a greater share of high-risk industries, including resource extraction, forestry, and construction. Meanwhile, Canada's rates, both for fatal injuries and non-fatal injuries—insofar as valid international comparisons can be drawn—might be described as *middle of the pack* among OECD countries and considerably better than those for the United States.[7]

British Columbia has more occupational safety and health field officers per person employed in the province (1 inspector for every 9,220 employees) than Ontario (10,465), Quebec (12,361), Alberta (19,607), and workplaces falling under Canadian Federal jurisdiction (15,494).[8] Inspectors in BC are paid at medium to high levels compared with their Canadian counterparts. WorkSafeBC appears to enjoy open and cooperative relationships with industry and collaborates closely with, and provides substantial funding for, industry associations focused on safety and health issues. The organization seems to enjoy good media relations and a high degree of public trust. Field officers are generally respected for their expertise and appreciated for their work.[9] The safety officer corps is broadly regarded as knowledgeable and professional in its conduct.

Other jurisdictions also seem interested in BC's successes in the OSH domain. WorkSafeBC's Prevention Services division receives many visitors from other provincial and foreign agencies intrigued by its success in reducing claims, the

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[4] The overall injury rate has dropped from 6.0 to 2.34 (per 100 person years) between 1992 and 2011, and remains below the target level currently set at 2.6 for 2012 through 2014. The serious injury rate as currently defined has dropped from 1.6 to 0.84. Over the same period the Total Accepted Fatal Claims rate (which includes current deaths from old exposures) has dropped from 1.2 to 0.7 per 10,000 person years. Worksite fatal injury claims (not including motor vehicle fatalities) have dropped from 0.55 to 0.2 per 10,000 person years, a drop of almost two thirds.

[5] See WorkSafeBC 2011 Annual report. Page 124.

[6] HRSDC calculations are based on data from the Association of Worker's Compensation Board of Canada with labour force estimates from Statistics Canada, which report the BC injury rate for 2010 at 2.15 per 100 workers, with Canada overall at 1.47. Estimates available at: http://www4.hrsdc.gc.ca/.3ndic.1t.4r@-eng.jsp?iid=20#M_1

[7] Source: LABORSTA at: http://laborsta.ilo.org

[8] For the sake of meaningful comparisons, this list is limited to Canadian jurisdictions with more than 1 million employees.

[9] As indicated by feedback from employers, employees, and other stakeholders under the *Voice of the Customer* program.

advantages of embedding the health and safety operation within a workers' compensation bureau, the right of the WorkSafeBC Board to promulgate regulations directly without them having to pass through a legislative process, and the recent impacts of focusing inspections and other activities on a select group of high risk industries. So there is plenty of evidence that BC's model, when it comes to dealing with occupational safety and health, is working well and is broadly respected. At least, it is working well for many classes of risk.

Looking forward, WorkSafeBC does have opportunities to enhance its prevention strategy by paying explicit attention to residual classes of risk that do not align so well with a worker's compensation setting and a claims-management focus.

The fundamental reality underlying this assertion applies to all regulatory, risk-control, or harm-reduction operations. In its general form it might be summarized like this: History, tradition, context and structure makes a particular model of operations *natural*, and that natural model works well enough for a core set of issues. The natural model works well for most risks, and not so well for some others. From time to time these other *non-aligned* risks materialize or become prominent, producing dissonance within the organization and exposing the distinctive strengths and weaknesses of the natural model.

Some organizations make the mistake, at this point, of throwing out their core approach, forgetting for a while its general usefulness. Through reorganization or reconstitution, they lurch to some alternative structure, regulatory ideology, or operating model, and the new model they create eventually shows its own particular shortcomings. A wiser course is to exploit the dissonance as a learning opportunity for the organization, by systematically answering the following questions:

a) what are the distinctive features of the natural model?
b) for which classes of risk is this operational model ideally suited?
c) for which classes of risk will it turn out to be deficient or sub-optimal?
d) what auxiliary capacities and competencies are needed to deal effectively with these less-well-aligned classes of risk?

The first three of these questions constitute the central logic of this report. The fourth motivates each of the recommendations.

4.0 What Are the Distinctive Features of WorkSafeBC's *Natural* Model?

The occupational health and safety functions for which WorkSafeBC is responsible and its enforcement powers are derived from Part 3 of the Workers Compensation Act, 1996. The OSH regulatory function in British Columbia, titled *Prevention Services*, is therefore embedded within the workers' compensation system. This integrated model is increasingly common around the

world, but not pervasive. Elsewhere, the OSH regulatory function is conducted by stand-alone public agencies, which may or may not come under the umbrella of a larger governmental agency (e.g. Ministries of Labor).

Executives interviewed all seemed keenly aware that having the prevention (OSH) function embedded in a claims-oriented organization materially influenced strategy and tactics. Insofar as officials perceived this as a conflict, it was not a simple matter of competition for resources.[10] Nor did anyone suggest that the importance of the prevention function was undervalued within the organization; indeed, executives seemed eager to report that the assertion "Prevention is Job 1" was broadly held. Rather, the sense was that the organization's natural focus on claims management affected patterns of thought and analysis within the organization, and those patterns influenced OSH regulatory operations in distinctive ways.

Table 1 summarizes the features of the orientation which would stem quite naturally and predictably from the structural setting and core purpose of the organization.

Table 1: Features of the Natural Model in a Claims-Management Setting	
1) Primary risk identification & detection methods:	Identifying trends, clusters and anomalies within claims data.
2) Performance focus:	To reduce claim frequency, duration, and cost.
3) Basis for risk-prioritization:	Aggregate claims cost.
4) Regulatory stance/style vis-a-vis the regulated community:	Customer-service orientation.
5) Primary mode of interaction with employers:	Partnership & collaboration around shared objectives.
6) Preferred regulatory models:	Performance-Based & Self-Regulatory.
7) Preferred regulatory tools:	Technical advising & consulting. Promoting internal safety culture.

WorkSafeBC's funding (comprised of worker's compensation insurance premiums) makes it natural to treat employers as the organization's primary stakeholder group as they are paying the bill. The fact that premiums are experience-rated provides shared purpose in identifying trends in claims experience and obvious incentives to work collaboratively to reduce claim frequency, duration, and cost. Success in that regard reduces WorkSafeBC's claims-related expenses and, in turn, lowers industry's premium costs. Using performance-based regulatory models helps to accommodate technological innovation and diversity within industry. Using self-regulatory models acknowledges the fact that large and technically sophisticated companies may be better placed to identify relevant OSH risks within their own environment than

[10] WorkSafeBC seems generally well resourced, and financially sound. Prevention Services has a total of 330 positions. WorkSafeBC currently employs 2882 staff overall.

regulators, and assumes that the public mission of controlling OSH risks effectively aligns closely with industry's own business interests.[11]

This model of operations provides a great many benefits for Prevention Services, and the object here is neither to criticize the model nor propose any radical alteration to it. The obvious benefits of this model, for the OSH regulatory mission, include the following:

- The fact that the prevention function sits within the claims organization provides officials with direct and rapid feedback as to the impact of claims reduction efforts on claims experience.
- WorkSafeBC and its stakeholders can justify investments in prevention in terms of *return-on-investment* (claims reduction), whereas this financial linkage is opaque in other jurisdictions where separate OSH regulatory organizations are funded through general tax revenues.
- WorkSafeBC enjoys considerable discretion over levels of investments in prevention, which is not the case elsewhere where OSH regulatory budgets must compete with other public purposes for tax dollars.
- Having the OSH function in-house enables better coordination between field inspection activity and other claims avoidance, claims reduction, and claims management methods.
- Cooperative relationships with industry and industry associations provide opportunities to leverage culture change within workplaces, making for durable and effective improvements in safety and health.
- A good consultative model works well for discovering the implications of new technologies and changing industrial practices.
- Performance-based and self-regulatory structures make it easier to accommodate diverse and novel industrial practices under the umbrella of acceptable compliance.

From the mid 1990's through 2004, WorkSafeBC's Prevention Services underwent some changes that emphasized various features of this natural model. Regional Prevention Managers would report directly to Regional Directors whose responsibilities straddled claims and prevention. This arrangement facilitates localized coordination across functional lines and accelerates feedback between claims experience and claims prevention. It also provides a high-level single-point-of-contact (the Regional Director) for major corporations operating within a region.

The "Voice of the Customer" program introduced a process whereby managers of industrial facilities—as well as workers, union representatives, and other

[11] Appendix 1 provides a brief summary of the distinctive nature of the four basic regulatory structures, describes their pros and cons, and relates the alternate regulatory structures to different parts of the risk-control task. The four basic models covered are (1) prescriptive regulation, (2) performance-based or principle-based regulation, (3) self-regulation, and (4) the industry association version of self-regulation.

stakeholders—could provide feedback on site inspections and the performance of inspectors. Many interviewees felt that this program had provided net benefit since its introduction, helping inspectors to understand the impact of their working style and methods and helping to curtail occasional instances of aggressive and intimidating behavior by inspectors. The obligation for inspectors to treat people with dignity, civility and respect should not in any way conflict with an uncompromising focus on safety objectives.

However, calling such a program "Voice of the Customer" clearly emphasizes the idea that workplace managers (among other stakeholder groups) are customers of the OSH function, and several interviewees pointed out the potential unease this may cause field officers.

Without the benefit of field-level interviews, this review cannot resolve whether the use of *customer-service* language throughout WorkSafeBC has had any unintended consequences for the OSH function, or compromised inspectors' willingness to take firm action when warranted. Pushing a customer orientation too far in a regulatory context can certainly be problematic, confusing, and potentially unwise.[12] OSH inspectors are primarily delivering *obligations* to industry (i.e., to comply with the law and take occupational safety and health seriously) rather than *services,* and doing so in furtherance of a public good rather than private satisfaction. In the wake of visible regulatory failures that have occurred in other jurisdictions, a customer-service orientation is often identified, in retrospect, as having contributed to the risk of regulatory capture.[13]

The *Voice of the Customer* program may, indeed, continue to deliver net benefit, provided that it focuses on the effectiveness of an inspection rather than on the satisfaction of industry managers, and that the feedback delivered on inspectors' performance is never used in such a way as to increase the reticence of field inspectors to take enforcement action. In the context of this review, however, the critical point is merely to observe that the very name of the program re-emphasizes one of the key features of the natural model, namely its customer-service orientation.

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[12] For a detailed discussion of the customer-service principles applied in a regulatory context, see Chapter 4, "Customer Service: Merits and Limits," in Sparrow, Malcolm K. 2000. *The Regulatory Craft: Controlling Risks, Solving Problems and Managing Compliance.* Washington, DC: Brookings Institution Press.

[13] In April 2008, a Congressional investigation chaired by Representative Oberstar, and prompted by whistleblowers within the SouthWest airlines office of the Federal Aviation Administration, determined that regarding airlines as "customers" had promoted excessive coziness with industry, done harm to FAA's safety mission, and contributed to the agency's unwillingness to ground SouthWest Airline's fleet of Boeing 737's on grounds of safety. At one point in their deliberations the Oberstar committee considered prohibiting the use of the term "customer" within the FAA as applied to airlines, but dropped the idea when reminded of the constitutional difficulties in trying to regulate speech. For details, see: "Managing Risks in Civil Aviation: A Review of the FAA's Approach to Safety," Report of the *Independent Review Team,* a Blue Ribbon Panel appointed by Secretary of Transportation Mary E. Peters. Washington D.C., September 2nd, 2008

5.0 For Which Classes of Risk Is this Model Ideally Suited?

The key features of the natural operating model, summarized in Table 1, make it quite obvious which classes of risk align well. This model will work perfectly well for risks:

1) that manifest themselves as trends or clusters within the available claims data, and can therefore be discovered and subsequently monitored over time through claims analysis,
2) where the appropriate performance goal is unambiguously to reduce the visible claims frequency, duration or aggregate cost,
3) where the significance or seriousness of the harm is reflected in the related claims cost,
4) where the financial motivations and broader interests of employers align closely with the public interest, making it appropriate for regulators to regard them as *customers* in search of advice and guidance that will help them improve safety and health within their workplaces,
5) where *partnership* is likely to work, because the regulator and regulated have aligned interests and complementary competencies, and
6) for which performance-based or self-regulatory models are sufficient to provide effective and appropriate control.

WorkSafeBC's historical successes (in driving down claims rates) rest heavily on dealing effectively with these *well-aligned* risks. But the risks that produce dissonance in the organization are precisely those which fail one or more of these six tests (above), and therefore align less well with the dominant modes of thought and action in a claims-oriented organization. For brevity, this report will simply refer to these more awkward risk categories, hereafter, as *non-aligned* risks. (*Somewhat-less-well-aligned* might be a more accurate descriptor, but is just too cumbersome to repeat.).

The organization is by no means unaware of these non-aligned risks, and Prevention Services is clearly motivated to tackle the full range of OSH risks using the full range of relevant strategies and tactics. This review does not suggest that Prevention Services has allowed itself to be restricted to this "natural" model. Indeed, there is plenty of evidence to the contrary. Prevention Services uses a range of data sources other than claims databases to track injuries and illnesses. Roughly half of its current suite of regulations are prescriptive (the other half being performance-based). It embraces the use of education, consultation and enforcement, as well as partnership and collaboration around shared objectives. And the organization clearly cares deeply about some classes or risk (e.g. catastrophic risks) that align relatively poorly with a claims-focused operational model.

So the assertion here is not that Prevention Services has allowed itself to be limited to the natural model of operations. Rather, the central point here is that

risks not well aligned with the natural model have to compete for attention with risks that are. And the risks that fit the natural model best will tend to garner more attention, at the expense of others, unless the OSH strategy deliberately compensates for this predictable bias.

Hence it seems critical to develop a broad understanding, shared across the organization, about which classes of risk fail to align with the claims-management model, exactly why they do so, and what supplementary capabilities or alternative approaches are therefore required in order to deal with these risks effectively.

WorkSafeBC's Prevention Services can round-out its effective coverage of OSH risks by formalizing and fortifying its strategy and operations with respect to those risks that align least well with a claims-oriented model.

6.0 For Which Classes of Risk Will the Natural Model Turn out to be Deficient or Sub-optimal?

Six classes of risk, for a variety of reasons, fail to align well with the natural model.

6.1 Serious Non-monetary Losses (fatalities and life-altering injuries)

For fatalities and permanent disabilities, no amount of monetary compensation can make the victim whole. The losses are non-monetary.

Such harms align in a sub-optimal way with a claims-oriented model because the magnitude of the harm done may not be properly reflected in the claims cost. In the case of workplace fatalities, the misalignment between the seriousness of the harm done and the financial cost of the related claims can be substantial.

Workplace fatalities, of course, attract press coverage and public concern commensurate with tragic loss. WorkSafeBC investigates each fatal incident thoroughly, and disseminates information about each through its website. So there is clearly no callousness or lack of concern in the organization over fatal and serious accidents. But when seriousness of the harm may not align with the magnitude of claims cost, one has to question whether the targeting mechanisms and prioritization schemes routinely used in operational decision making will actually produce the intense focus on such risks that the public would expect.

The proposed change in the definition of *serious injury* claims (to focus on fatal and life-altering injuries and exclude other claims of long duration[14]) represents

[14] The current definition includes a list of specific medical codes that have been identified as medically serious and claims that generate significant medical costs such as surgeries, but also includes claims involving absences from work exceeding 28 days. More than 50% of serious injury claims, thus defined, involve long absences from work but do not involve a fatal or life-

an important step in aligning the safety and health focus of Prevention Services with public notions of serious harm.

There are other steps that could help, too. Currently there is very little operational connection between the Investigation Division (which is responsible, among other duties, for examining all fatal accidents) and the selection or management of High-Risk strategies. Reports produced at the conclusion of fatal accident investigations are routinely distributed to Prevention Managers,[15] but there is no concerted effort to extract and disseminate succinct and actionable insights from them useful for field officers.[16]

This report recommends specific steps to tighten the linkage between fatal investigations and prevention priorities, enhance the analysis of serious health and safety risks, and elevate the profile of these risks in the organization's internal and external communications.

6.2 Slow-acting Harms

Slow-acting harms are those where many years or even several decades may intervene between the initial cause of a harm and its manifestation. These risks often involve biological or physiological systems, and the most obvious type of occupational hazards that fit this category involve chemical, irritant, carcinogenic, or otherwise harmful exposures (including noise) that have disease implications later in life. These *exposure-related* risks fall in the non-aligned category because:

a) The feedback loop between control interventions and claims experience is exceptionally slow. Current claims experience reflects exposures 20 or 30 years ago. The effects of *current* exposures may not be visible for years to come, and the level of harm being done now (through current exposures) is not captured within claims data.

b) The natural performance imperative to reduce current claims rates is not appropriate. The responsible course of action, which WorkSafeBC is pursuing, is to be proactive in identifying cases of current disease related to historic exposures so that the costs of services and treatments can be properly allocated and the information available to inform future protection efforts is as complete as possible.

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altering injury or illness. Using this broader definition tends to dilute the focus on genuinely serious incidents.

[15] Investigations produce roughly 100 reports per year, which range in length from 30 pages to 100 pages or more. All of these are available to Prevention Managers. Given their aggregate volume, however, one wonders how often or how carefully these would normally be read in the field.

[16] The Investigations Division does have a "Lessons Learned" initiative run by one staff member. Products are oriented towards educating industry rather than providing operational advice for inspectors.

These two features combine to render an incentive structure based on claims-experience-related-cost-reduction largely ineffective in promoting better protection for workers. Better controls, now, will not decrease claims rates anytime soon; and better identification of historic exposures will actually drive current claims rates *up*.

WorkSafeBC has already instigated policies to deal with these issues, working assiduously to try and link current disease cases (especially mesothelioma and other illnesses related to asbestos exposure) to prior workplace exposures, and establishing an *exposure registry* to record current or recent exposures, just in case they lead, in time, to disease.

6.3 Catastrophic Risks

Catastrophic risks are those that materialize seldom or never, with probabilities that are extremely low and difficult to estimate, but which have the potential to cause widespread damage and/or extensive loss of life. In engineering or complex system settings, catastrophic risks frequently require several different factors or precursor conditions to occur simultaneously in order to precipitate a disaster.

For such risks, prevention is of paramount importance. The structure of preventive work typically involves focusing on various of the precursor components, ensuring that each one seldom or never reaches its dangerous contributing state, thus helping to ensure that the combination of conditions required to precipitate the disaster cannot occur.

For WorkSafeBC, catastrophic risks fall in the *non-aligned* category of risks for a number of reasons:

a) Claims experience provides little or no motivation to control these risks, as they affect claims experience seldom or never. Catastrophic events, by definition, are rare enough not to produce trends or discernible patterns of loss. When they occur, it always comes as a nasty surprise. So these risks do not naturally feature in claims-based risk-analysis.

b) Precursor events, near misses, and other signals relating to the potential for disaster usually do not appear within claims data either. Relevant signals may include events in other jurisdictions, near-misses that produced no losses, precursor events that could be detected and measured but caused no harm by themselves, and research findings developed through the scientific community. Legal obligations to report near misses are hard to enforce. None of these signals or warnings manifest themselves within claims data, and—if the intelligence gathering function with respect

to catastrophic risks is not formally organized—may not have a collection point.

c) Cooperative engagement with industry and industry associations may provide a suitable discussion forum for discussing catastrophic risks, but voluntary cooperation is unlikely to produce the requisite action. Given the extremely low and unknown probability of a disaster occurring in any one specific location, it is very tempting for employers to assume that the risk is unlikely to materialize in any case, to discount the importance of catastrophic risk controls, and to push related obligations off into the future. Short-term focus on profitability tends to discount small probability or longer-term risks. And an absence of recent or local experience with catastrophic risk always leads to under-estimation of the related probabilities.

d) Given the misalignment of public and private motivations, performance-based or self-regulatory models are less suitable. Regulators are obliged to specify precisely what controls are required using prescriptive standards, anticipate that these will be unpopular or contentious (particularly as the related science is often uncertain and changing), and be uncompromising in their enforcement. Compliance with controls on precursors to catastrophic risks should not be negotiable.

Multiple fatality events attract disproportionate levels of public attention and concern, especially if the disaster story carries even the faintest whiff of a suggestion that innocent workers may have died as a result of corporate neglect. A single event with multiple fatalities may attract much more media and political attention than ten times the number of deaths occurring one at a time.

Intense public concern over multiple-fatality events produces intense scrutiny of regulatory strategies, as many assume that any major disaster must constitute a regulatory failure. It is critical at such times to distinguish catastrophic risks from ordinary risks; doing so enables a regulatory organization to develop the distinctive competencies needed to control catastrophic risks without devaluing or damaging the policies and systems routinely used to control ordinary risks.

One key requirement for effective control of catastrophic risks—which this report's recommendations address—is to formally designate responsibility for intelligence collection, analysis, and policy development relating to this class of risks. There needs to be a central collection point where all the various *signals* relating to catastrophic risks might come together. Furthermore, the intelligence gathering needs to be deliberate, proactive, and organized, not passive or scattered. Related tasks include:

- maintaining (and periodically reviewing) a register of catastrophic risks known to pertain to various BC industries or industrial processes,[17]
- keeping up-to-date with related scientific research,
- educating affected industry about the catastrophic risks they face,
- consulting with industry groups regarding control interventions and technologies (bearing in mind the predictable misalignment of motivations),
- promulgating appropriate prescriptive regulations relating to precursors, and adjusting requirements over time as new research becomes available,
- identifying relevant workplaces throughout British Columbia for each risk on the catastrophic risk register,
- monitoring rates of compliance with regulations covering precursor conditions, and
- providing the rationale for field officers to be firm in enforcing requirements, even in the absence of any loss experience,
- thereby providing assurance that *what can be done and should be done has been done* with respect to catastrophic risk exposures.

6.4 Invisible Risks

Invisible risks are those that do not fully reveal themselves. Detection or discovery rates fall substantially short of 100%, and may be lower than 50%.

Special difficulties in controlling such risks stem from the fact that the underlying scope of the problem may not be fully understood. Also, readily available performance metrics—the number of cases that come to light—are inherently ambiguous, complicating the task of assessing progress. If more cases are discovered this year than last, it may mean that detection methods or reporting rates improved (which would be good news), or that the incidence of the problem increased (which would be bad news).

In worker's compensation programs, familiar issues that belong in the *invisible risks* category include:

- corporations under-reporting employment rolls or misclassifying jobs (into safer categories) in order to reduce premiums,
- claims suppression (deliberate or inadvertent) as a way of reducing premiums in the long run,
- submission of fraudulent claims,
- corporate failure to report near misses as required by law,

[17] This type of work can easily grow out of control if not sensibly constrained. Such a register for British Columbia might reasonably list between 10 and 20 different catastrophic risks.

- deliberate non-compliance by small and irresponsible "fly-by-night" companies (e.g. failing to use fall-protection on construction sites, or dealing with asbestos and other toxic substances without proper exposure protection),
- toxic exposures in the workplace (the majority of which might not be routinely reported), and
- injuries involving specific victim groups (e.g. migrant farm workers) which may be substantially under-reported because of language difficulties, ignorance regarding workers' rights, or other factors.

For WorkSafeBC, invisible risks fall in the *non-aligned* category because:

a) The representation of such problems within claims data and voluntarily submitted reports may be partial and not representative of the overall scope, nature, and distribution of the problem.

b) A focus on reducing the number, duration, and cost of claims may not be appropriate. These problems often have to be deliberately *exposed* before they can be effectively *dealt with*. Efforts to expose or assess the true scope of a problem will often drive up reporting and discovery rates in the short term.[18]

6.5 Risks Involving Conscious Opponents

Some harms involve conscious opponents who seek ways to deliberately thwart controls. Obvious examples in other risk-control settings involve terrorists, computer hackers, thieves, and smugglers. For such harms, the control task takes on the nature of a dynamic game of intelligence and counter-intelligence, with each side trying to anticipate and outmaneuver the other. Who wins depends on who best understands the strategies and tactics of the opponent, and reacts most adroitly to the opposition's latest moves.

For WorkSafeBC, obvious examples of risks involving conscious opposition include irresponsible fly-by-night operators determined to put short-term profitability ahead of worker safety, who therefore deliberately engage in systematic non-compliance or demand it of their workers. Managers of such enterprises adopt a "catch me if you can" attitude toward OSH regulators.

Harms involving deliberate opposition, for WorkSafeBC, fall into the *non-aligned* category because:

[18] This is precisely the nature of the work that WorkSafeBC is now doing with respect to the discovery of exposure-related disease cases. The more successful WorkSafeBC's proactive efforts to identify cases and link them to prior exposures, the higher the related claims-rate will climb, at least in the short term. For a detailed discussion of the behavior of metrics associated with invisible problems, see: Sparrow, Malcolm K. 2008. *The Character of Harms: Operational Challenges in Control.* Cambridge, U.K.: Cambridge University Press. pp191-194.

a) Companies that engage in deliberate non-compliance probably also engage in claims suppression, and therefore their true dangerousness is unlikely to be fully revealed in claims data (at least, not until their conduct results in fatalities or other serious injuries which cannot be hidden).

b) The *customer-service* orientation, based on the assumption of aligned interests, is an inappropriate framework for engaging with them.

c) Cooperative efforts to develop a safety culture within such companies will most likely be futile. More effective approaches will involve vigorous enforcement designed to hound them into reluctant compliance, and/or a search for ways to force such players out of business for good. Efficient methods may include collaboration with other regulators (and perhaps tax authorities) in a concerted effort to make it impossible for rogue companies to operate.

6.6 "Emerging Risks" Arising from Long-term Trends in Workforce Demographics and Developments in Industrial Technology

Forecasting long-term trends and anticipating future controls that might be needed is always a naturally contentious business. Given inconclusive information and a broad range of estimates about the nature and seriousness of emerging risks, adopting a "wait and see" attitude is attractive to industry as it delays any new regulatory requirements, but may be publicly irresponsible given the need to lay the groundwork for future controls in a timely fashion.

Longer-term, prospective, or "emergent" risks fall in the non-aligned category for WorkSafeBC because:

a) They do not manifest themselves in existing claims data.

b) Industry and public incentives are misaligned. Industry prefers to "wait and see," whereas regulators tend toward a precautionary approach requiring positive action to contain potential risks until such time as they are proven insubstantial.

7.0 Enhancing Risk-Analysis and Intelligence for Non-Aligned Categories of OSH Risk.

The principal recommendation of this report is that WorkSafeBC should now create a centralized Risk-Analysis group to help specify, prioritize, and guide the work of Prevention Services, paying particular attention to the six classes of non-aligned OSH risks detailed above in sections 6.1 through 6.6.

Recommendation 1: Create a Safety & Health Risk-Analysis Group, with special focus on the six categories of Non-Aligned Risks.

Existing strategy proposals for Prevention Services already envisage an "Emerging Risks" group of some kind. Indeed, a previous version of such a group, with just two staff members, was created roughly two years ago and is now being disbanded due to a variety of circumstances. That this group and its role did not flourish the first time around may be due in large part to some lack of clarity as to focus, especially given minimal staffing and an extensive range of tasks that they might have taken on.

The unit needs to be substantial, staffed at 10 FTEs in the first year and rising fairly soon (i.e. within 2 years) to 20 FTEs. Staff members selected should be analytically inclined and strategically oriented in their thinking. The title "Emerging Risks" seems too narrow given the preceding discussion. The role is, more broadly, *central intelligence* with respect to occupational safety and health risks. A more suitable title might be: "The OSH Risk Analysis Group."

This unit would maintain close links with the existing BIA group, which currently provides analytic support to Prevention Services.[19] Current plans to have BIA analysts search on a quarterly basis for emerging trends within the claims data, and provide alerts to Prevention Services based on whatever they find, are important and should be retained. BIA, through this work, would be able to provide one *feed* into the OSH Risk Analysis Group, useful for spotting concerns that manifest themselves as trends, clusters or anomalies within claims data.

However, claims-based analysis cannot be relied upon to help discover or track non-aligned risks, and hence the Risk Analysis Group would be obliged to develop alternative analytic and intelligence mechanisms, and a considerable range of additional *feeds*, to help them anticipate more fully the whole range of extant, emerging, or potential OSH risks.

To justify some substantial investment in such a group, it might be worth listing—at least in outline form—the range of tasks that such a group might perform with respect to the six categories of non-aligned risks discussed above:

<u>With respect to serious non-monetary losses</u> (fatalities and life-altering injuries and illnesses):

1) Using the revised definition of serious injury (i.e. focusing on fatal and life-altering injuries and illnesses), examine historical data, determine trends over time, and identify significant clusters of risk suitable for special attention and intervention.

[19] BIA managers estimate that support for Prevention Services typically accounts for 25% of the workload for a pool of 30 analysts; i.e. the equivalent of 7.5 FTEs.

2) Explore the accumulated library of investigative reports relating to fatal and serious injury accidents, searching for trends or patterns that may not previously have been extracted.
3) Work with the Director of Investigations and the *Lessons Learned* program to establish a routine system for extracting key lessons and actionable insights from investigative findings, summarizing them, and disseminating them to the field in a useful and usable form for safety officers.
4) Conduct focus groups with front-line officers in key areas in order to obtain advance warning of emerging threats.

With respect to Slow-acting Harms (exposure related illnesses):

5) Clarify the scope of work already being undertaken by PODI, particularly in relation to the discovery of disease cases related to substances other than asbestos (i.e. paying special attention to the relatively less well known and less easily discoverable cases).
6) Develop methods for measuring compliance rates with respect to exposure controls, particularly among smaller and less reputable businesses who may engage in systematic non-compliance. If patterns of non-compliance are identified, flag them for attention as potential compliance projects.

With respect to Catastrophic Risks:

7) Maintain a register of catastrophic risks relevant to industries and industrial processes used in BC.
8) Monitor scientific research related to each identified catastrophic risk.
9) Monitor catastrophic events around the globe, making sure relevant lessons for BC are identified, brought home, clearly communicated, and applied.
10) Provide the lead (working with ILS and field officers) in educating affected industry and their associations about catastrophic risks they may face.
11) Provide the lead in consulting with industry groups regarding control interventions and technologies relating to the identified risks.
12) Develop prescriptive regulations relating to precursors of catastrophic risks, and adjust requirements over time as new research becomes available.
13) Identify relevant workplaces throughout British Columbia for each of the catastrophic risks on the register.
14) Monitor compliance rates with respect to regulation of catastrophic precursors by orchestrating random or representative inspections and collating the results.
15) Systematically examine near misses and instances of serious non-compliance relating to catastrophic risk, and derive lessons therefrom.
16) Promulgate the messaging required internally and externally to elevate the profile of such risks even in the absence of losses, and to sustain an appropriate level of attention over time.

With respect to Invisible Problems:

17) Design and operate the necessary measurement protocols for invisible problems, in order to determine their extent and to find any specific concentrations that may exist. Devise measurement and monitoring methods for this class of risk (which typically involve rigorous examination of small but random or representative samples from which statistically valid estimates of incidence can be derived).[20]
18) Develop knowledge of and access to other relevant databases, in order to be able to detect patterns that would not appear within claims data (e.g. the "White System" in health care settings that may show injury events and the related costs of medical treatment even though there might be no WCB claim if there were no work-time-loss).
19) Inform the organization regarding the levels of hidden problems, such as underreporting of workforce, misclassification of employee roles, claims suppression, exploitation of vulnerable workers, etc.
20) Coordinate risk-reduction projects aimed at identified concentrations of otherwise invisible harms.

With respect to risks involving Conscious Opponents:

21) Identify a range of intelligence sources and intelligence-gathering methods (e.g. undercover operations, informants, surveillance) to more fully reveal the extent of illegal activity and the strategies and tactics employed by adversaries to conduct and conceal their activities.
22) Identify and facilitate relevant inter-agency collaborations. When dealing with fly-by-night businesses, criminal enterprise, or unscrupulous employers determined to ignore OSH safeguards for the sake of quick profits, Prevention Services may benefit from the differing perspectives and powers that other licensing, regulatory, and law-enforcement authorities bring to the table. Businesses that play fast-and-loose with one regulator tend to play that way with others too—a pattern of misconduct that ultimately renders them vulnerable to concerted governmental action aimed at putting them out of business.

With respect to Long Term "Emergent" Risks:

23) Monitor external research on trends in workforce demographics and emerging industrial processes and technologies.
24) Conduct or commission analyses to establish the potential impacts of such trends for British Columbia.
25) Elevate discussion of such issues to the Board, within the organization and among its stakeholders, sufficient to mobilize timely planning and advance groundwork for effective controls.

[20] It was not clear from the interviews conducted whether Prevention Services distinguished between focused and random inspections, or conducted any explicitly random inspections. It is often useful to incorporate a small proportion of random inspections within a portfolio which is mostly focused.

These many and varied roles constitute different pieces of the centralized intelligence operation required to provide a comprehensive view of OSH risks. These are the roles particularly relevant to control of non-aligned risks. These roles are currently performed, to varying degrees, by existing staff, but there is no assignment of formal responsibility or accountability, and Prevention Services therefore faces the danger that attention to these issues remains for the time being patchy, partial, and uncoordinated. Recognizing that claims analysis was one important *feed* into the process of risk identification, but that there were many other feeds needed as well, interviewees recognized the need for Prevention Services to formalize the variety of avenues for problem discovery.

There is plenty of work here to justify the creation of a substantial group designed to gather intelligence, conduct analysis, and coordinate action on OSH risks, paying special attention to those classes of risk less well controlled through a claims-management framework.

Recommendation 2: Focus field-level marginal investments on the treatment of non-aligned risks.

Recognizing the six types of non-aligned risks described above provides ample motivation to invest additional resources in front line staffing. The "brain" envisaged in Recommendation 1 will be useless if it has no arms and legs to operate. It cannot coordinate or commission action on non-aligned categories of risk if there is no available capacity at the field level.

As the organization considers additional investments at the field level, it seems important to ensure that an expanded budget for the inspection force does not simply buy more of the same. Indeed, much time at the front lines is currently consumed with response work and mandatory inspection blitzes of one kind or another. Tackling non-aligned risks effectively is liable to require greater flexibility in deployment of existing resources, as well as additional investments at the margin.

Because no interviews were conducted with OSH inspectors or at field offices, this review cannot comment in any detail on the adequacy of staffing levels at field offices.[21] Suffice it to say, at this point, that the vast majority of the inspectorate's time is apparently consumed by a combination of (1) reactive work,[22] (2) a range of industry-specific inspection quotas organized around the High-Risk strategies, and (3) the extensive wave of mandatory compliance inspections relating to airborne dust in the wood-products industry. Very little discretionary time is left over, and hence current staffing levels and deployment strategies leave virtually no room for work of other types.

[21] This review did not include study of field-level work-time allocation, which would clearly be required to support systematic estimation of workforce requirements. Executives interviewed shared the perception that reliable work-time allocation data did not currently exist.

[22] Responding to incidents, reports, complaints, etc.

8.0 On What It Takes to be *Vigilant, Nimble,* and *Skillful.*

The Project Plan commissioning this review[23] specifically asks that attention be paid to the following description of risk-control competence, and that Prevention Services' strategy development be evaluated in terms of whether it is likely to deliver this kind of performance:

"With respect to risks, citizens expect governments to be

d) *vigilant*, so they can spot emerging threats early, pick up on precursors and warning signs, use their imaginations to work out what *could* happen, and to do these things even before much harm is done.
e) *nimble*, flexible enough to organize themselves quickly and appropriately around each emerging risk, rather than being locked into patterns of practice constructed around the risks of a preceding decade, and
f) *skillful*, masters of the entire intervention toolkit, and adept at creating new approaches when existing methods turn out to be irrelevant or insufficient to suppress a risk."[24]

8.1 On *Vigilance.*

With respect to *vigilance,* creation and operation of a substantial new OSH Risk-Analysis Group, as recommended above, is intended precisely to produce a state-of-the-art vigilance capability. By paying special attention to the various categories of non-aligned risks, this group should be able to provide clarity and foresight in areas that might be thought of as the natural blind spots of a claims-oriented framework. If Prevention Services developed its intelligence and analysis capabilities in this way, there is no reason why WorkSafeBC's vigilance, with respect to OSH risks, should not be regarded as world-class.

8.2 On *Nimbleness.*

With respect to *nimbleness*, there is some room for improvement. Interviewees shared their sense that Prevention Services too easily finds itself locked-in to plans that demand hundreds or thousands of inspections. Inspection blitzes aimed at specific focus areas leave little discretionary capacity. The High Risk strategies contribute to this effect. So too does the extensive commitment of inspectional resources to the three phase review of plants in the forestry and wood-products industry. These resource demands all converge at the front line.

Focused inspection strategies, of course, are more efficient and effective than arbitrary, ad-hoc, or haphazard allocation of inspection resources. Identifying High-Risk industries and focusing attention on them is a perfectly reasonable way

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[23] "Prevention Strategy Review: Project Plan," Betty Pirs, October 16,2012. p2.
[24] "The Sabotage of Harms: An Emerging Art Form for Public Managers," Malcolm K. Sparrow, ESADE Institute of Public Governance & Management, E-newsletter, March 2012 (published in English, Spanish, & Catalan).

of organizing field-level attention. However, such methods can become resource-consuming traps under certain circumstances. The broader the focus area (e.g., designating an *entire industry* as a focus area), the more demanding the plan and the more diffuse the effects.

Also, if the default approach for dealing with any designated focus area is to mandate a certain number of inspections, attention may shift from specific hazards and desired outcomes to the delivery of planned outputs (i.e., fulfilling a quota of inspections). If large numbers of field inspections become the tool-of-choice for any designated risk-concentration, then the plans devised will neither be very creative nor very flexible. In dealing with identified concentrations of OSH risk, Prevention Services should be able to maintain an unrelenting focus *on desired outcomes*, but must avoid any unrelenting use *of specific intervention methods*.

There are hints that the design and operation of High Risk strategies are becoming slightly more formulaic over time rather than less, gravitating towards the use of a template. That template follows the analytical habits of the OSH world, in slicing everything first by industry code, and then picking the industries that have the highest claims rates, duration, and cost. Of course, many important risk-concentrations are not *industry*-shaped at all, and would better be defined in other terms (e.g., use of ladders, vulnerable groups of workers, methods of claims suppression, etc.). WorkSafeBC has recognized the relevance of some other dimensions for defining risk concentrations, and initiated projects within ILS focusing on vulnerable categories of workers (e.g., young workers, new workers, immigrant workers). But ILS work on these *other-shaped* problems—carried out in liaison with industry associations—-appears curiously disconnected from the deployment of field-inspectors, the bulk of whose workload remains organized around inspection quotas for the designated High Risk industries.[25]

It is worth stressing that using analytically-derived focus areas is both responsible and commendable. Hence, the advent of the High-Risk industries strategy represents significant progress in tailoring Prevention Services' work to the relevant risk-terrain. Some of the High-Risk strategies have achieved notable results.[26]

But if Prevention Services aspires to *nimbleness*, and wants to find resource-efficient methods which will drive injury and illness rates down yet further, then it will need to recognize the potentially restrictive effects of establishing a few big focus areas and relying predominantly on inspection blitzes.

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[25] Currently Manufacturing, Forestry, Construction, and Health Care. Transportation has recently been added as a 5th area.

[26] Injury rates in the Manufacturing Industry have dropped significantly, from 5.1 (per 100 person years) in 2006 to 3.3 in 2010. The most substantial drops in rates were between 2008 and 2009.

There are some very practical differences between a risk-based *focus* and a risk-based *project*. A focus may become permanent, and has no explicit exit strategy. In the absence of substantial reductions in aggregate claims rates within a focus area, it would be difficult for the organization to *undo* the selection of that focus area without appearing to admit defeat.

By contrast, risk-based *projects* generally have much tighter problem definitions and establish clear goals in terms of increases in compliance rates or decreases in injury rates. Project teams expect that goals set could in fact be reached through a range of creative interventions and within a reasonable period of time. They also understand that successful projects will be closed down when the goals are reached so that resources can be allocated to other risk areas. So, in contrast with focus areas, projects are necessarily temporary and have an exit strategy explicitly built into their goals, metrics, and plans.

Many organizations fail to properly distinguish between focus areas and risk-based projects. The result is that many projects are launched with insufficiently precise problem definitions, insufficient attention to metrics, and a lack of imagination about the range of potential intervention strategies available. The plans that result, therefore, tend to be broadly diffused, reliant on familiar methods, and consequently ineffective. By failing to think clearly up-front about how success or failure might be recognized, the organization cannot tell if the plan is having any real effect or not.

In other words, *projects* launched without sufficient precision or analytical rigor tend to dissolve into *focus* areas, cannot be properly assessed or terminated, and eventually just fizzle out when the organization tires of them. The way out of this trap is to make sure that projects follow an appropriate problem-solving protocol and adhere to the methodological discipline that such work demands. Appendix 2 summarizes the essential discipline required to run (and complete!) a risk-based project.[27]

The following recommendations are intended to help Prevention Services develop a greater *nimbleness* over time:

Recommendation 3: Over the next two years, Industry-based High Risk Strategies should be wound down in favor of a greater number of more carefully disaggregated risk-based projects.

The new Health & Safety Risk Analysis Unit, as it develops, would take responsibility for the selection and coordination of a portfolio of more tightly

[27] Appendix 2 summarizes the *protocols* section from "Structures, protocols, and interactions," Chapter 7, in *The Character of Harms: Operational Challenges in Control*, Malcolm K. Sparrow, Cambridge University Press, 2008. Further discussion of the problem-solving discipline can be found in Chapter 10 of *The Regulatory Craft: Controlling Risks, Solving Problems and Managing Compliance*, Malcolm K. Sparrow, Washington, DC: Brookings Institution Press, 2000.

defined OSH risk-based projects, and would work in conjunction with Regional Directors and Prevention Services Regional Managers in picking priorities, reviewing the mix of projects periodically, allocating personnel to project teams, and monitoring their progress.

There is no reason to assume that *less* attention would be paid to the industries currently designated as high-risk. Attention would merely be paid in a different way. One project might address a specific issue within a high risk industry, such as the well-recognized problem of repetitive back-strain injuries in the nursing profession caused by lifting patients without the proper use of hoists, or without adequate training or supervision. But a specific project focused on that specific problem is quite different, operationally, from mandating an aggregate number of inspections across the entire health industry and then asking inspectors "while you're there, please pay attention to this issue, among others."

A project on the more carefully disaggregated issue would be more focused, would have clear goals, and would have an exit strategy. Within the details of the project plan, attention would be concentrated on specific practices in specific institutions that more detailed analysis and yet greater disaggregation revealed to be particularly problematic in this regard. And all relevant methods (including tailored inspections, enforcement, education, technical consulting, collaboration with industry associations, etc.) would be on the table for potential deployment under the umbrella of a coordinated intervention plan.

Focusing on High-Risk industries was an important step towards becoming a risk-based operation. Taking greater care over disaggregation of risks, problem-definition, intervention design and measurement should be viewed as the maturing of an existing trend.

Recommendation 4: Methodological rigor should be imposed on all risk-based projects through adoption of a suitable problem-solving protocol.

In particular, project teams should define quantitative metrics to be used as indicators of success, and should benchmark these before any new action is initiated. The team should pick indicators that focus on OSH outcomes or behavioral changes,[28] rather than using inspection counts or other activity measures as indicators of success. As projects unfold, project teams should adhere to the goals set, but retain the flexibility to try different methods as they search for effective plans.

[28] Suitable metrics might include problem-specific injury rates, illness rates, exposure rates, claims rates, measured compliance rates, or other behavioral measures such as *percentage of institutions who have adopted best technology or best practices in relation to this problem.*

8.3 On *Skillfulness.*

With respect to *skillfulness,* there may be some opportunities to further expand the Prevention Services toolkit (or skill-set), and to sharpen up some of the existing tools.

WorkSafeBC's Prevention Services use formal enforcement sanctions and Closure Orders quite infrequently when compared with peer organizations.[29] One explanation for that is the fact that WorkSafeBC has the right to impose substantial Administrative penalties and issue Directives including stop-work orders, and that these modes of intervention are easier and quicker, and therefore regarded as more effective. But interviewees also suggested some other factors that may be in play. Field-level inspectors apparently vary significantly in the extent to which they typically use sanctions. Alternative regulatory *ideologies* (evidenced by differing preferences among tools) co-exist within field offices. The processes for imposing formal sanctions, which require supervisory review and higher-level authorizations, are described as cumbersome and slow. Some work has already been done to streamline sanctions processes, but more may be required.

Some officers may infer from the use of *customer-service* language an underlying organizational reticence to follow through or back them up if they initiate serious enforcement action or close a plant. There may, in fact, be no such organizational reticence. But any uncertainty in the mind of an inspector, whatever its source, may make some of them hold back when firm action is warranted.

Prevention Services may face special challenges when dealing with precursor conditions for catastrophic risks. As explained above (paragraph 6.3), industry is tempted to underestimate or downplay low-probability high-impact risks. Public protection in these areas normally requires enforcement of prescriptive regulations relating to precursor or contributing conditions—a style of operations that is often contentious and contrasts with the more cooperative styles adopted when public and private interests align more closely (as they do around claims reduction). It is essential that the organization demonstrate its absolute commitment to take uncompromising and serious action when it discovers non-compliance with regulations designed to contribute to the prevention of catastrophic risks.

There may also be one technical difficulty with the current criteria for formal Closure Orders. Prevention officers have to demonstrate *imminent danger*. If the non-compliance concerns one factor, but for a disaster to occur we actually need the confluence of 4 or 5 factors, then the presence of just one dangerous condition, arguably, may not constitute *imminent danger* in the normal sense.

[29] See "Jurisdictional Review of Annual Occupational Health and Safety Activities," November 2011.

The grounds for formal closure orders might usefully be extended to cover non-compliance with provisions relating to the prevention of catastrophic harms, regardless of whether the non-compliance could be adjudged in the circumstances to constitute imminent danger. As a practical matter, to make this work, regulations and requirements of this type would need to be tagged as such (i.e., this rule addresses a factor or pre-cursor condition relating to a recognized catastrophic risk), so the extended justification clause could be triggered.

There is one final point in relation to field-level skills, which also has some implications for organizational nimbleness. The High-Risk strategies have so far been organized and orchestrated at the *provincial* level. Many risk-based projects (e.g., a project focused on back strain injuries in the nursing profession) might properly be orchestrated at that level. But some problems are locally concentrated, and field offices might usefully be invited to propose their own localized risk-reduction initiatives. (Some inspection teams may act this way anyway, in a more or less formal manner).

One of the disadvantages of province-wide projects is that field officers feel less ownership of them. The focus was selected higher-up in the organization, and the intervention plans were designed centrally. Field officers who did not participate directly in the project team or strategy design experience the plan as yet another set of requirements passed down from above. They have relatively little freedom to tailor the plan locally or to use their own discretion within it.

By contrast, if a local group of officers identifies a local concentration of harm, picks the metrics, sets the goals, and brainstorms potential action plans, then they obviously feel much greater ownership of the project. Their reward, if they succeed, is knowing that they solved the problem, which is considerably more satisfying than knowing they merely conducted their share of a mandated inspection schedule designed by someone else.

Risk-based projects can be conceived and orchestrated at *any* level within a regulatory organization. In constructing a portfolio of such projects, Prevention Services might consider including some localized initiatives as well as province-wide projects.

These observations relating to *skillfulness* are reflected in the following recommendations:

Recommendation 5(a): Prevention Services should clarify the extent to which field officers find existing sanctions processes to be excessively burdensome, difficult, or slow.

Focus groups or surveys might be used to this end. Questions used should be sufficiently open-ended to discover if there are other reasons behind any field-level reticence to use formal enforcement methods.

Recommendation 5(b): Based on the outcome of recommendation 5(a), Prevention Services may need to streamline or redesign its formal sanctions tools in order to eliminate any real or perceived obstacles to their use by field officers.

Recommendation 6: Review and amend the conditions pertaining to the issuance of Closure Orders, extending the justification beyond *imminent danger* to include non-compliance with regulations pertaining to precursors of recognized catastrophic risks.

Recommendation 7: As Prevention Services constructs a portfolio of more carefully disaggregated risk-based projects, consider including some projects orchestrated and run at the local office level. Equip field-officers with the necessary skills.

For locally run projects to be successful, some training and support in the art of problem-solving would have to be provided to the inspectors and front line supervisors involved.

9.0 Performance Reporting.

The proposal for this review also asked how Prevention Services might present a more compelling and persuasive performance account, demonstrating its impact on OSH risks. That, by itself, is a substantial subject and one which challenges virtually all regulatory agencies.[30] Suffice it to say here that the adjustments in analytical and intelligence operations discussed in this report, and the development of a more rigorous approach to risk-based projects, should significantly improve the ability of the agency to tell its story about what was accomplished and how.

Projects based on carefully articulated and precisely defined clusters of risk, with relevant metrics chosen up front and monitored throughout the life of the project, provide a natural and easy-to-grasp supplement to higher level aggregate metrics. They reveal the texture and detail of a risk-based work effort. The performance report for work of this type is merely the *collection of the project accounts*. All the project accounts, despite the vast range of different risk concentrations they might address, have the same five essential elements. The story for each one goes like this:

a) here is the data that convinced us this problem was worth special attention (please check it for yourself if you wish),

[30] For a detailed discussion of this subject, see: Chapters 5 and 6 of The Character of Harms, and Chapters 8, 19 and 20 of The Regulatory Craft.

b) here are the metrics we selected and benchmarked at the beginning, so we could tell whether we had an impact on the problem,
c) here (if you are interested) is the first action plan, and then the second one we tried, and then the set of modifications we later applied, etc. etc., until we found a plan that actually worked,
d) here is what happened to the metrics we had selected, and how we interpreted the way they had changed over time,
e) here is our eventual decision about project closure, based on having achieved a significant enough reduction in this risk area that it no longer represents a pressing priority (compared with other risks we have now identified). Closing this project enables us to move on and tackle other risk-concentrations. We are not now ignoring this problem, but moving this project into a longer-term monitoring and maintenance phase (with relatively low resource demands) sufficient to make sure this risk remains suppressed to acceptable levels and to alert us quickly should it rebound anytime in the future.

Project accounts of this type are readily understood by industry, other stakeholders, the broader public, the media, and politicians. In fact, such risk-focused project descriptions make a lot more sense to the public than "we completed x number of inspections of a particular type."

Of course, if the number of projects is small and the results are not compelling, then the project accounts will be written off by the audience as *anecdotal.* But this type of work, done well, typically produces quite substantial reductions within tightly defined problem areas, often reducing the harm done by 30% or 50% or even more, and in some cases eliminating a problem altogether through the design of a structural or technical solution. By the time WorkSafeBC has finished 5 or more rigorously conducted risk-based projects, with significant reductions achieved in each case, it will be perfectly obvious to the audience that the agency is data-driven, results-oriented, creative in its planning, honest about its accomplishments, methodologically rigorous in its approach, and judicious in its selection of risks to address and targets to pursue.

By contrast, defining very broad focus areas and then relying largely or principally on large numbers of inspections may produce detectable declines in injury or illness rates over time; but the percentage declines will be relatively small (because the efforts applied are diffused across so many different problems), and the agency will struggle to demonstrate that the marginal changes were actually caused by the focused attention.

The following recommendation captures some of the consequences for performance reporting that a maturing of a risk-based approach within Prevention Services, and a deeper appreciation of the ways in which different classes of risk behave, will surely bring.

Recommendation 8: Prevention Services should provide a more compelling and sophisticated account of its performance in controlling OSH risks, by observing the following points:

a) Greater prominence should be given, in agency reporting, to serious non-monetary losses (fatalities and life-changing injuries and illnesses).

b) The more restrictive definition of serious injury (death or life-altering injury or illness) should be adopted as this will help shift the attention to serious OSH harms.

Historical data should be filtered to match this new definition, and agency communications—internal and external—should deliberately emphasize the trends and concentrations in serious injury data, based on the new definition.

c) Whenever aggregate fatality figures are presented, the two major components—fatal injury cases and fatal illness cases arising from prior exposures—should be clearly segregated and explained, as they behave in quite different ways.

Fatal *injury* rates are, over the long term, declining; and the discovery rate for these is virtually 100%. The discovery rate for *exposure* cases has been extremely low in the past, and is now slowly rising as a result of proactive efforts to identify such cases and to link them to prior industrial exposures. So the two halves of the current fatality rate are quite different in character: one declining because of safety gains and the other rising because of increases in the discovery rate. Therefore any year-over-year comparisons or historical trends based on the overall total are basically meaningless. Hence the importance of segregating these two categories and explaining their distinctive behaviors.

d) Risk-based project accounts will usefully supplement—and over time become more central within—the agency's OSH performance story.

The project accounts should demonstrate significant reductions in carefully disaggregated risk areas, rather than marginal or imperceptible changes in broader or industry-wide categories.

e) In relation to catastrophic risks, and in the absence of actual catastrophic *events*, the agency's contribution to prevention will be measured at least in part by rates of industry compliance with prescriptive regulations pertaining to precursors of recognized catastrophic risks.

Bear in mind that valid compliance rates can only be derived from random, representative, or comprehensive sampling. Industry's 'behavior beyond the

law'—such as adoption of protective technologies and systems—may also be monitored and measured as a contributor to preventive control.

f) With respect to invisible problems, successful control strategies normally have to *expose* the problem before they can *deal* with it. Successful campaigns will therefore likely drive *up* the number of cases coming to light as reporting and detection rates improve. Public communications should clearly explain the behavior of these metrics.

Case counts will therefore tend to rise at first, only to fall later once the problem is brought under better control. The behavior of available metrics (number of cases found, number of actions taken, etc.) in relation to invisible problems is quite distinctive, and generally misunderstood. These metrics are inherently ambiguous in the absence of any serious effort to determine the underlying (and mostly invisible) incidence rate.[31]

g) To measure current *exposure* rates, Prevention Services will need to conduct compliance inspections at representative samples of workplaces in settings that carry high exposure risk.

h) The number of inspections conducted should never be used or regarded as a primary metric for any risk-control project.

Activity counts may help establish whether *we worked the plan*, but never show whether *the plan worked*. In general, as Prevention Services develops its sophistication and skill in carrying out risk-based projects, it may be worth deliberately de-emphasizing inspection-counts across the agency. The best way to shift attention away from the customary activity metrics is by providing a richer and more compelling account of risks actually controlled.

10.0 Conclusion.

WorkSafeBC's framework for occupational safety and health regulation has a great many strengths. It would be unfortunate if these went unappreciated or were not preserved. This report does not recommend any change in the fundamental framework. Nor does it propose any kind of strategic shift back to a more traditional OSH enforcement-centric model. Such a lurch would merely constitute another swing of the regulatory pendulum, from cooperative to adversarial, and would be deeply regrettable.

[31] Methods for measuring underlying frequencies typically involve rigorous audits of small but random or representative samples, followed by extrapolation of the findings across the relevant universe. For details of the relevant measurement methods, and discussion of the behavior of metrics in relation to invisible risks, see Chapter 8, "Invisible Harms," in The Character of Harms.

Far better, therefore, to remember the benefits of the existing framework, acknowledge the strengths and weaknesses of holding that frame central in the agency's regulatory strategy, and to be precise in specifying supplementary investments required to round out WorkSafeBC's coverage of the full range of occupational safety and health risks. This review has followed that approach.

I am pleased to submit this report, with my compliments, for consideration by WorkSafeBC's Board and executive leadership team.

Malcolm K. Sparrow

Appendix 1:
Using Alternate Regulatory Structures

Extracted and summarized from:

Malcolm K. Sparrow, "Crime Reduction through a Regulatory Approach: Joining the Regulatory Fold," [Policy Essay] *Criminology & Public Policy*, Vol. 11, Issue 2, May 2012. pp345-359.

Regulators need to figure out, with respect to any specific risk, *who* should be responsible for *which parts* of the risk-control task.

We can learn a lot about alternative regulatory structures and the ways in which they relate to the idea of risk management by crudely splitting any risk-control initiative into three parts. For a specific risk to be controlled (whether it relates to crime, pollution, disease, or safety hazards), someone has to *identify* the risk, someone has to *analyze the risk and design a suitable intervention* (analysis and design), and then someone has to *act in a particular way or stop acting in particular ways* to apply the intervention. Regulators and the regulated community can split these three tasks between them in various permutations and combinations, and—depending on which parts of the job government keeps and which parts government delegates to industry—thereby produce distinct models of regulatory interaction.

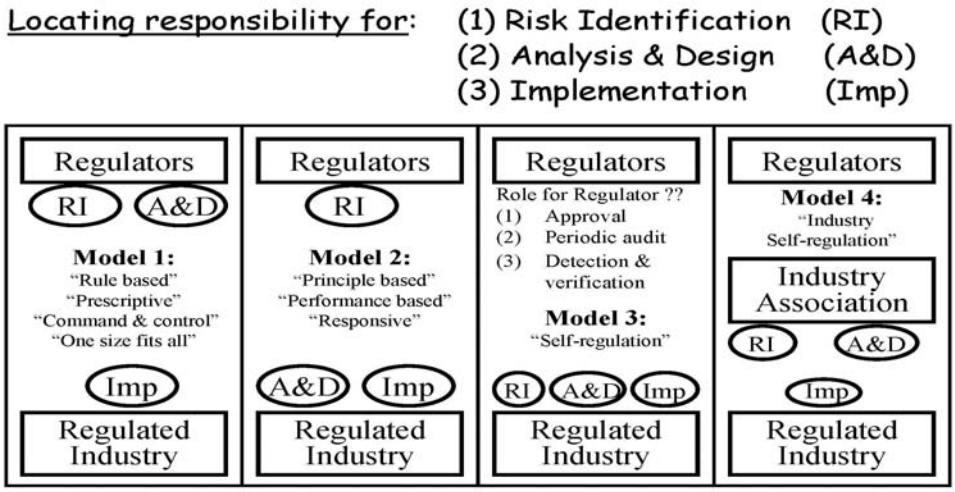
Under the traditional regulatory approach (labeled model 1 in Figure 1), government retains responsibility for spotting risks, analyzing them (maybe with some consultation along the way), and developing an intervention design. Government then issues prescriptive rules or regulations informing the community what must be done to control the risk (e.g., "balconies must be equipped with railings at least 3 ft high and with bars no further apart than 4 in"). The regulator focuses thereafter on procuring compliance, and compliance with the rules is assumed necessary and sufficient to control the risk. Regulators call this *prescriptive* or *rule-based* regulation. Those who disapprove of this style of regulation have also attached to it a variety of derogatory labels, including *command-and-control* regulation and *one-size-fits-all* regulation.

When regulators recognize diversity in the regulated industry, they shift to model 2, delegating the *analysis and design* parts of the risk-control task. In other words, government still identifies the important risks but allows industry considerable flexibility in how to control them. In the regulatory literature, this approach is usually called *performance-based* or *principle-based* regulation.

Delegation does not necessarily stop there. Large companies in highly technical arenas press for more control. They argue that it is they, not government, who know their own business best and employ the best technical experts, and who are therefore in a better position to identify the relevant risks. High-tech industries

thus press for control of all three parts of the risk-control process: risk identification, analysis and design, and intervention. Model 3, where the regulated industry or community takes responsibility for all three, is called "self-regulation." Industry is basically relied on to run its own risk-management operation, and the role of government regulators changes significantly: They inspect and approve industry's risk-management plans up front, and then periodically audit the operations of the risk-management system to make sure the company is effective in identifying and controlling risks. They should also maintain their own independent audit and discovery systems so they can verify the truthfulness of the company's account regarding problems that develop and their success (or failure) in controlling them.

Figure 1. Regulatory Structure: 4 Models



Model 4, *industry self-regulation*, is a variant on model 3. Some industries, particularly those consisting of a large number of small companies, do not want the bother of designing and running elaborate risk-control systems of their own. But they do not want government imposing burdensome and prescriptive rules either. So they club together and form an industry association, which they then rely on to identify risks common across the industry, analyze and design interventions palatable to the association's members, and issue requisite guidance and instruction.

To prefer one or another of these structures on ideological or political grounds turns out to be a huge mistake. Each structure works well for specific types of risk and likely will fail if applied to the wrong sets of risks. The state of the art, in terms of regulatory design, is to begin to appreciate the need to operate multiple regulatory structures simultaneously, even with respect to the same industry but for different classes of risk.

Self-regulation (model 3) works well for risks (a) that are observable from the level of the corporation, (b) that the corporation would be happy to disclose if found, (c) that are within their capacity to control, and (d) where controlling the risk is closely aligned with their business interests. But that is a relatively small subset of risks, and arguably it is the subset likely to be best controlled already. Self-regulation is an unreliable approach for dealing with risks that would not be visible from a decentralized perspective (i.e., which require higher level analysis and monitoring), which they would not disclose or address responsibly (such as corruption on the board), or which are beyond their capacity or not in their interests to control.

The array of structural options gets more complex when two other factors are introduced. The first involves recognizing that any of these three crude phases of the risk-control process (identification, analysis and design, and implementation) can be shared rather than being placed unambiguously with government or the community. The second involves recognizing the multi-tiered jurisdictions that pertain to many regulatory tasks. These additional dimensions enlarge substantially the range of options as one considers *who* should be responsible for *what.*

In fact, as the range of structural options increases, this simple diagnostic device becomes more and more valuable as it provides considerable clarity. For any specific category of risk, it makes sense to ask, "for *this type* of problem, *who* should be responsible for *what*?" Who is best placed to identify emerging patterns and trends? Who has a vantage point at the right level—not too high and not too localized—and the relevant data or monitoring capabilities that will enable them to spot emerging trouble, of this type, in a timely fashion? Who is best placed to analyze and understand an emerging risk, and to propose suitably tailored interventions? Which parties within the regulated community can be trusted to play their part because it is in their interests to do so, and which parties must simply be told what must be done and forced to comply (model 1) because their private interests relating to this type of risk simply do not align with public purposes? Also, which parts of the community should be consulted in the analysis and design phase because of the special insights they might have into the genesis or dynamics of specific risk types?

Note that these questions have no right answer *in general,* as there is no single regulatory structure that is good for all risks. These questions have to be asked for each distinct set of risks and should lead to different arrangements in respect of different problems. That is part of what it means to master *risk-based* regulation.

Appendix 2:
Establishing a Problem-Solving Protocol

Excerpted and summarized from:

"Structures, protocols, and interactions," Chapter 7, in *The Character of Harms: Operational Challenges in Control*, Malcolm K. Sparrow, Cambridge University Press, 2008.

To drive this risk-based work, an organization needs to develop and establish three rather different structures:

a) a protocol for problem-solving, comprising a sequence of distinct stages through which any one harm-reduction project might proceed
b) a managerial infrastructure, by virtue of which an institution can construct, direct, support, and monitor its overall portfolio of harm-reduction projects,
c) an organizational interface between this type of work and others, so that all the proper interactions between them can be understood and facilitated.

The Problem-Solving Protocol: Many different professions offer some type of risk-management or problem-solving template, usually consisting of a few discrete steps. The most common elements are the most obvious ones, namely: identifying or diagnosing a problem, planning and implementing an intervention, and monitoring the effect of that intervention. The more detailed the template, the more bureaucratic and burdensome it appears. The less detailed the template, the greater the danger of some essential piece of work being glossed over or short-changed.

Having seen a variety of such templates in use, I propose the following 6-stage outline as providing the absolute minimal level of granularity necessary to avoid the most common traps. Of course, an organization might choose to make available much more detailed guidance about each of these steps; and some have, producing comprehensive manuals for the benefit of harm-mitigation project teams.

Problem-Solving Protocol:	
Stage 1:	Nominate & Select Potential Problem for Attention.
Stage 2:	Define the Problem Precisely
Stage 3:	Determine How to Measure Impact
Stage 4:	Develop Solutions/Interventions.
Stage 5(a):	Implement the Plan
Stage 5(b):	Periodic Monitoring/Review/Adjustment
Stage 6:	Project Closure, and Long Term Monitoring/Maintenance.

The simplest 3-step versions might specify *diagnosis*, *treatment*, and *monitoring*. This 6-stage version looks a little more complex but, for the price of just a little extra detail, incorporates a number of important lessons learned from practical experience.

First, it recognizes Stage 1 as administratively separate from everything that follows. Nomination of a problem for attention might occur long before a project is launched, and the nominator is not necessarily a part of the project team, nor even a part of the organization that undertakes or manages the project. Separating stage 1 from the rest therefore recognizes the possibility that the nomination of the problem, and decisions about whether or not to select it for priority treatment, may occur elsewhere and at a different time, and involve actors separate from the project team.

Second, designating the work of *defining a problem precisely* as a distinct stage (stage 2) emphasizes the significant amount of analytical work involved in developing an accurate problem-specification. It recognizes that the problem-nominator might not actually fully understand the nature and scope of the problem. It recognizes that risk-concentrations, even once found, still need to be studied. It acknowledges the complexity of the choices involved in setting the scale, and picking the right dimensions by which to characterize a harm. It acknowledges the need to consider multiple and competing perspectives on what the problem is, and negotiations over how it should be framed. And it helps to control the *leap-to-action* syndrome, slowing down those who would otherwise assume at the very first mention of a problem that they already knew the solution well enough to launch into action without further thought.

Third, this slightly more detailed template helps to guarantee the single most critical piece of methodological rigor in the problem-solving process: it obliges a project team to consider relevant metrics carefully (stage 3), and to do so *before* they consider or select any intervention plans (stage 4). Making the selection of metrics a distinct step signals the fact that this also represents a substantial piece of work, often demanding as much creativity and ingenuity as design of an action plan. The order is important also, because if project teams choose their metrics *after* selecting a plan, they will face the inevitable temptation to measure the organization's compliance with *the plan* rather than measuring the plan's impact on *the problem*.

In agencies where the leap-to-action syndrome seems particularly powerful, I urge managers to press on their project staff an even more draconian version of this discipline and to establish the rule: '*no new action*, until the relevant metrics have been selected, and benchmarked, and you have a clear understanding of how you would expect each to move if you succeeded.' Sometimes staff protest, and get impatient, eager to try out a new strategy. But if they do not determine ahead of time which indicators count, and how they expect them to behave, then there is simply no way for them to evaluate whether any plan is actually working or not.

Fourth, by splitting stage 5 into parts (a) and (b), highlighting the need for *periodic review*, this outline makes it clear that picking an action plan is not necessarily a one-time-thing. Many brilliant and effective solutions were not the first ones tried. In order to get to the second or third action plan, an organization has to be ready, both culturally and analytically, to recognize when a plan is not working and be prepared to abandon it so they can try the next idea. Any presumption that the first plan chosen must necessarily succeed drives out the possibility of honest and timely evaluation, and leaves the organization doing what public agencies seem to do so often—running a program for ever, without serious regard for its effects, just because once-upon-a-time it seemed like a good idea.

Fifth, this template formally recognizes the need for project *closure*. In the harm-reduction business it is much easier to open projects than close them, not least because closing a project usually involves accepting some residual level of harm. In the absence of a decision framework for closing projects, an agency will tend to keep opening new ones until it drowns under a mass of unfinished projects. For this type of work to be sustainable in the long term as an operational strategy, agencies need to observe the *law of conservation of projects,* which states, simply, that projects need to be closed at roughly the same rate, on average, as they are opened. Otherwise projects proliferate, energy becomes too broadly dissipated, the whole machinery grinds to a halt, nothing ever gets finished, and the whole approach ends up discredited.

As a practical matter, projects might be closed for one of two general reasons: either the project *succeeded*, with the concentration of harm sufficiently mitigated (even if the resulting level is non-zero) that this particular concentration no longer represents a special priority. At this point, the project may enter a longer term monitoring or maintenance mode (to prevent the problem recurring), but it should not continue to consume the same level of resources or attention in the long term.

The other basis for closing a harm-mitigation project would be the realization that, for some reason or another, there was no real prospect of success. The problem is utterly intractable, or the necessary partners refused to cooperate, or the problem lies too far beyond the agency's jurisdiction or competence, resources available are inadequate, or the project faces insurmountable legal or political obstacles. At this point executives need to be able to face (and probably to defend) the decision to re-invest resources and attention in more promising areas.

A third possibility involves temporary suspension of a project during some time of crisis, but in a way that guarantees an orderly resumption once the crisis has passed.

Malcolm K. Sparrow

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