Problem-Solving: Matching the Art & the Science

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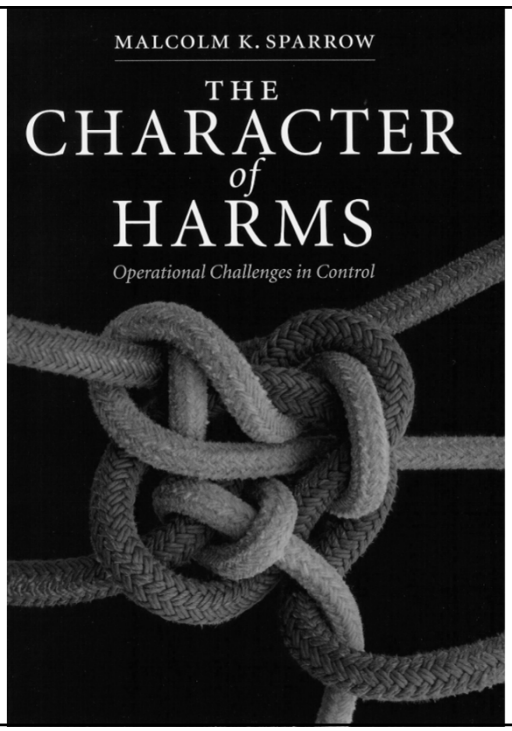
Unfinished work for the human race… "bad things, to be controlled"

"Much of the unfinished business for the human race seems to consist of harms, threats, or risks of one kind or another, insufficiently controlled. The United Nations Millennium Declaration, adopted by the UN General Assembly in September 2000 lays out among its key objectives a daunting array of such harms to be controlled. The declaration lists, among others, hunger, war, genocide, weapons of mass destruction, international terrorism, the "world drug problem", transnational crime, smuggling of human beings, money laundering, illicit traffic in small arms and light weapons, anti-personnel mines, extreme poverty, child mortality, HIV/Aids, malaria, other emerging infectious diseases, natural and man-made disasters, violence and discrimination against women, involvement of children in armed conflict, the sale of children, child prostitution, child pornography, and loss of the world's environmental resources.

Many other major policy challenges can be naturally labeled and described in similar terms. Societies seek in turn to reduce violence and crime, pollution, fraud, occupational hazards, transportation hazards, corruption, many forms of discrimination, product-safety risks, and so on."

"The Character of Harms: Operational Challenges in Control," Malcolm K. Sparrow, Cambridge University Press (2008) p1


MALCOLM K. SPARROW
THE
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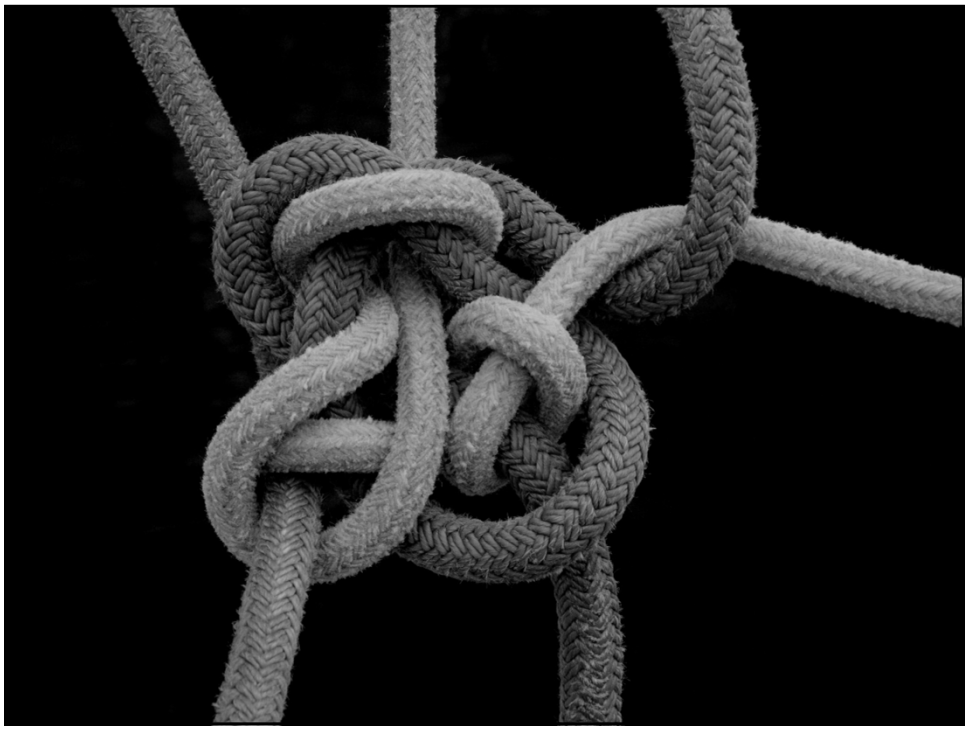
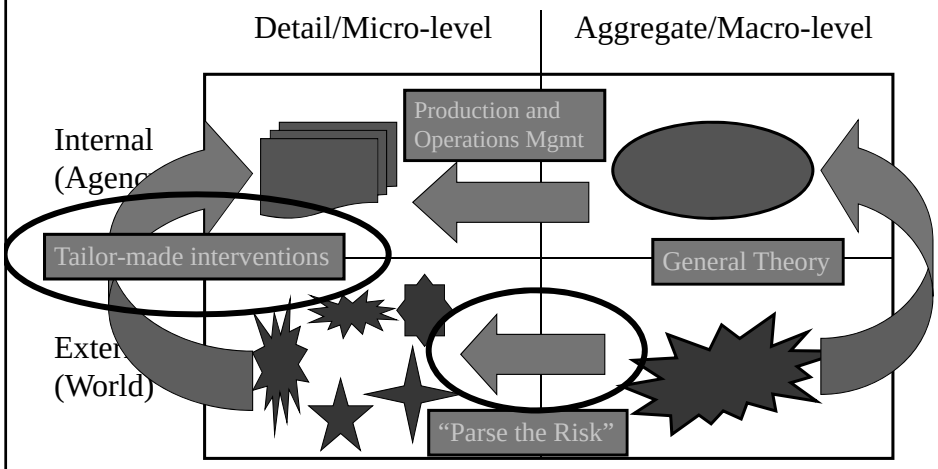


Theory of operations



"program-centric" work…

- extending the use of negotiated rulemaking in environmental protection
- exploring the role of civil society in corruption control
- evaluating the effect of "three-strikes and you're out" policies on crime levels
- reducing drug abuse by expanding drug awareness resistance programs in the schools
- decreasing worker injury rates through the use of experience-rated premium-setting for employers in workers' compensation insurance
- developing education and information campaigns that would help reduce international trafficking in women and children
- developing broader international cooperation among law enforcement and intelligence agencies in combating money laundering

"problem-centric" work…

- dealing with domestic burglaries being committed by high-school kids on their way home from school in mid-afternoon
- reducing the frequency of serious or fatal spinal and head injuries caused when roofers fall off roofs
- reducing the incidence of repetitive back-strain injuries in the nursing profession, caused by lifting patients without proper equipment
- eliminating corruption in real-estate development involving the infiltration of local development boards and manipulation of land prices
- reducing arsenic in surface waters on golf courses
- eliminating the practice of port-running, used by drug smugglers at land-border crossing points between Mexico and the United States
- reducing the threat of commercial airplane hijacking by terrorists willing to commit suicide
- combating the trafficking of Nepalese girls for prostitution in eastern Europe by smuggling organizations deceptively offering modeling careers

Operational Problem-Solving & Program Evaluation: an awkward fit…

1) Establishing "what works" too slow for operations (3-5 year lag)
2) "What works" focus may narrow the range of solutions available (use only programs previously demonstrated effective)
3) Social Science focuses on subtle effects at high levels; problem-solving focuses on obvious effects at lower levels
4) Demand for high quality experimentation may (ironically) reduce practitioners' willingness to experiment
5) Focusing on program-evaluation may perpetuate "program-centric" mindset, as opposed to "problem-centric" mindset
6) Focus on significant crime reductions may not recognize the best problem-solving performance ("spot & squish")
7) Program evaluations focus on establishing causality; problem-solving focuses on reducing problems, then moving on quickly
8) Evaluations focus on interventions, and may not pay attention to organizational competencies (even failures are valuable…)

"Governing Science" Sparrow, 2011. New Perspectives in Policing, NIJ/HKS

Risks most likely to need a problem-centric approach:

- Catastrophic risks
  - not represented in normal reactive workload
- Emerging risks
  - novel & unfamiliar, not covered by established programs
- Invisible risks
  - not manifest, or only partially manifest, in routine processes
- Risk involving conscious opponents/adversaries
  - where routine controls can be studied and circumnavigated
- Boundary spanning risks
  - not adequately addressed through single-agency programs
- Persistent risks
  - those that have not responded to traditional treatments

…a short version?

PICK IMPORTANT PROBLEMS:

FIX THEM

OSHA Survival Strategy (1995)

PICK IMPORTANT PROBLEMS:

FIX THEM:

THEN TELL EVERYBODY!

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The Stages of Problem-Solving

Stage 1: Nominate 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.

As Implemented in Formal Systems:

- Florida DEP: "Environmental Problem Solving"
- OSHA: "Problem-Solving Approach to Hazard Mitigation in the Workplace"
- U.S. Customs: "Strategic Problem-Solving" Program (narcotics)

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Targeted interventions

Applied at the point of maximum leverage

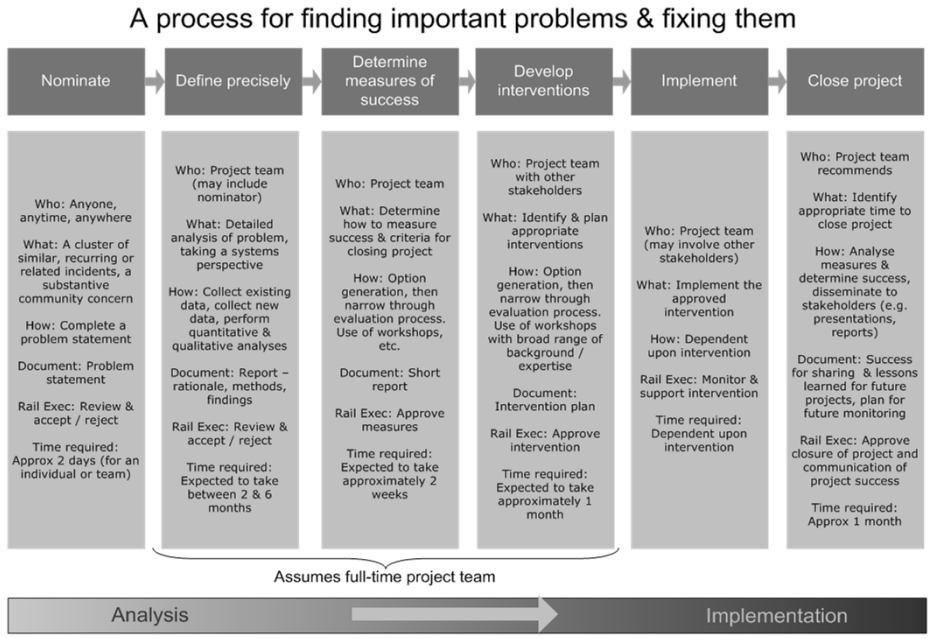
Targeted intervention process

Nominate issue	Precise definition	Success criteria	Develop intervention	Deploy and review	Close and monitor
Focus on risk clusters where we have highest ability to improve safety outcomes **Gather data and test patterns** (e.g. remuneration growth vs. claims rates; rainfall and agriculture claims)	**Uncover root cause and potential control points** **Investigate through internal and external partnerships** (eg inspectorate, HSR, industry groups)	**Determine how to measure impact** • Indicators • Methods for measuring **Outline expected changes from our actions**	**Assess optimal leverage point** • Supply chain • Control hierarchy • Community **Select the right mix of tools, channels and partnerships**	**Implement plan through actions of WorkSafe and partners** **Monitoring, review and adjust in a set cadence**	**Close project, allowing for long term monitoring and maintenance** **Link to systems compliance model to ensure sustainability**

Enhanced outcomes through developing and deploying strategies with partners and a disciplined process of research, design & monitoring

Source: *The Regulatory Craft: Controlling Risks, Solving Problems, and Managing Compliance*, Malcolm K Sparrow

219720-68 WorkSafe 2017-Phase 2 ELT update 5-7 Dec .pptx 14



Transport Safety Victoria, Australia. 2012.

Problem-solving/risk-control Essential Infrastructure

- A Nomination System: generating and funneling nominations.
- A Selection System: comparative assessment/selection.
- Assignment System: for committing personnel/resources.
- Project Records: project files, paper or electronic.
- Managerial Oversight and Periodic Review: for monitoring and adjustment during the course of a project.
- Reporting System: channeling project accomplishments into the agency's routine performance accounts.
- Support System: for Teams/Managers, access to consultants or specialists in the problem-solving art.

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Problem-solving/risk-control Essential Infrastructure

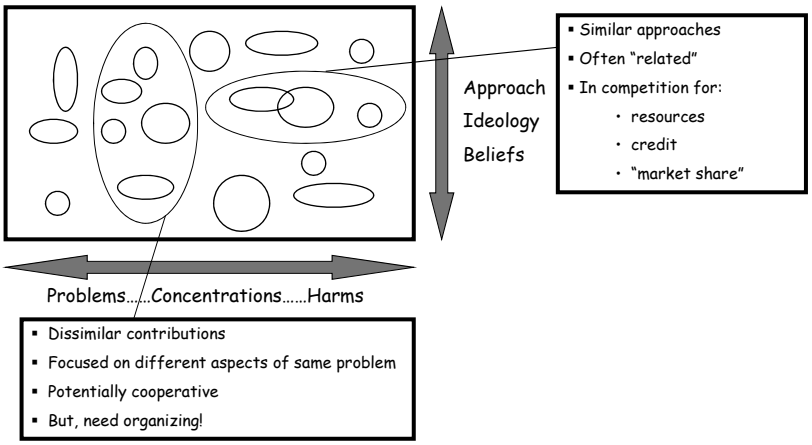
Two other features, while perhaps not absolutely essential, seem highly desirable:

- A Reward System: to provide recognition for project teams that achieve important results.
- A System for Learning: to provide broader access (within the organization and across the profession) to knowledge acquired: what works, what doesn't, what resources are available within and outside the agency, contact information, keyword-searchable databases of projects, etc.

What else should scholarship offer?

1) Broaden range of crime analysis & pattern recognition techniques, recognizing multi-dimensional nature of crime problems (beyond place/time/etc.) Focus on emerging, novel, unfamiliar…
2) Develop the interplay between data mining and investigative field craft, to support investigation of complex phenomena
3) Define and refine supporting role for analysis for each stage of the problem-solving process
4) Help design & deliver quality analytic support services for operational policing at every level of a police organization
5) Study intractable problems
6) Help elevate crime analysis & intelligence analysis to the level of a profession (avoiding capture by criminology or social science)
7) Develop a theory of analytic vigilance, to avoid "failures of imagination," knowing how much to keep looking & how to look, even when there might be nothing to find…

constellations of NFPs…



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