Proposal Defense

Greenwashing and Learning in the Pipeline Industry

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Outline of talk

- Refresher (very brief)
- Framework
- Phenomenon
- Framing/Theories
- Papers
- Timelines

I feel a little bit like I am at a wedding where there are two separate families that you need to bridge. So I am going to do that by spoon-feeding you a few select insights on the two literatures. I very much designed this presentation as a series of questions–which I may forget if I get carried away.

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Introduction

Throwback
Pipeline spills, greenwashing, organizational learning

Figure: https://insideclimatenews.org/news/03052018/
enbridge-fined-tar-sands-oil-pipeline-inspections-kalamazoo-michigan-dilbit-spill

The most real example of environmental pollution that I can think of. Quite countable. That is not to say that there isn't complexity, but it is very tangible. I think nobody calls pipeline spills fake news. Environmental pollution is my motivation.

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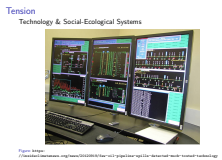

Great technology in pipelines. Not too complex, which is not to say ineffective. I can understand. You can understand. But at the same time, pipeline spills are still common place. How is that?

Tension

Technology & Social-Ecological Systems

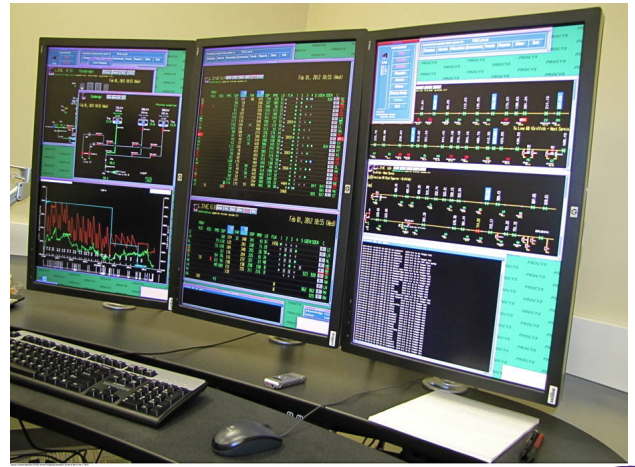

Figure: https://insideclimatenews.org/news/20120919/few-oil-pipeline-spills-detected-much-touted-technology

Juxtaposing two concepts that are a pair. Allows for talking about politics of pipeline safety through vehicle of greenwashing–reliability. And for looking into causes of pipeline spills, incident reports–validity.

So mentally that is my structure, the idea that guides me through my dissertation. How far I will make that explicit though, I do not know yet.

Framework

Juxtapose communication and reality of pipeline safety:
1. Reliability: The pipeline industry communicates a complex shared understanding of pipeline safety.

Rerup and Zbaracki (forthcoming)

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Juxtapose communication and reality of pipeline safety:
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2. Validity: Over the last 20 years, developments in pipeline safety does not address sources of pipeline spill.

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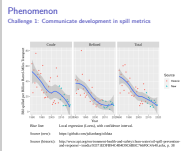


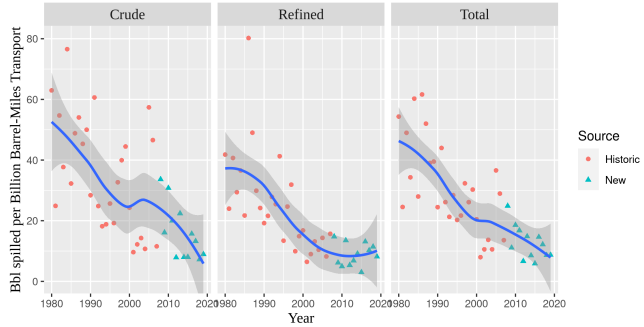
We can see three things clearly.

1. Crude pipelines show almost continuously improvements.
2. Refined shows improvements into the early 2000s, then stays constant.
3. For refined, it is hard to say whether there is one curve going on, or whether there is a decline, and then a standstill.

Meaning that the reason for improvements in pipeline safety after 2000 is something that is specific to crude oil. Also, refined learning curve for post-2000 is indistinguishable from standstill. What has changed since the year 2000?

Phenomenon

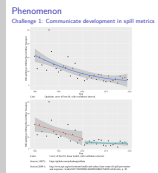
Challenge 1: Communicate development in spill metrics



Blue line: Local regression (Loess), with confidence interval.

Source (new): https://github.com/julianbarg/oildata

Source (historic): http://www.api.org/environment-health-and-safety/clean-water/oil-spill-prevention-and-response/~/media/93371EDFB94C4B4D9C6BBC766F0C4A40.ashx, p. 38



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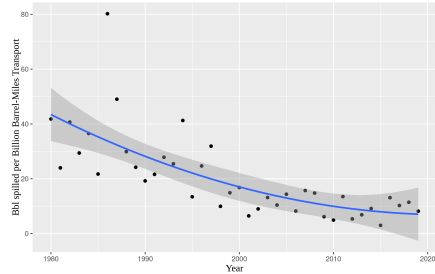
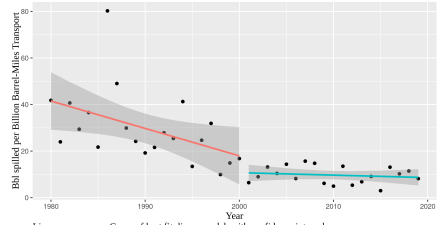


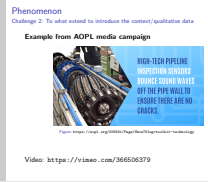
Line: Quadratic curve of best fit, with confidence interval.



Lines: Curve of best fit, linear model, with confidence interval.

Source (-2007): https://github.com/julianbarg/oildata

Source (2004-): http://www.api.org/environment-health-and-safety/clean-water/oil-spill-prevention-and-response/~/media/93371EDFB94C4B4D9C6BBC766F0C4A40.ashx, p. 38



Give me your cynical response to that video. Mark, based on your experience with technology, something like TQM. My response was–this is probably the control room for training. How many operators really have these fancy new devices in mint conditions? How much more likely is it that there are devices that have not been upgraded for 20 years? Interestingly enough, even in this short excerpt we can see one of the things that the regulator would complain about. Who can really look at six screens at the same time? How many lines is this employee operating at the same time?
This is where reliability comes into play. The industry very consistently communicates a set of technologies. We technology is comprehensible and approaches to problems are sensible. However, that the technology exists does not mean that it is used, or properly used. Reports such as NTSB on Kalamazoo show that there are many potential loopholes and error sources. The deeper I go into the qualitative data, the more I can show that. Guess why crude has improved and refined has not? Because coatings, that's my hypothesis why. Not the fancy technology, that is not necessarily broadly applied. Who knows how many operators really have these new decides?

My best guess for the last slide as to why there are big changes for crude pipelines but not refined? Coatings! If the

other technology is so great, it should also benefit refined pipelines.

Phenomenon

Challenge 2: To what extend to introduce the context/qualitative data

Example from AOPL media campaign

Figure: `https://aopl.org/305561/Page/Show?Slug=toolkit-technology`

Video: `https://vimeo.com/366506379`

Theories

Greenwashing

1. Delmas and Burbano (2011)
2. Lyon and Maxwell (2011)
3. Lyon and Montgomery (2015)
4. Marquis et al. (2016)
5. Kim and Lyon (2015)

Definitions: "any communication that misleads people into adopting overly positive beliefs about an organization's environmental performance, practices, or products" (Lyon and Montgomery, 2015, p. 226).

1. Delmas and Burbano (2011)–explaining that greenwashing can be cheaper than action. Motivations for greenwashing range from internal communication problems to problematic incentive structures.
2. Lyon and Maxwell (2011)–economic perspective on greenwashing. Economic rational. Predicting that greenwashing more likely when good environmental performance moderately surprising. Since if its not surprising, firm gains no benefit for having positive performance. And similarly, if it is not surprising, firms gain little from disclosing negative performance. Applicable to my empirical context–it *is* surprising if pipeline operators have persuasive evidence that they are save and clean. And what we see in the empirical context is exactly partial disclosure.
3. Lyon and Montgomery (2015)–differentiating different kinds of greenwashing. Distinguishing between decoupling and calculated economic greenwashing, and marketing. Providing definition.
4. Marquis et al. (2016) Role model for large scale greenwashing study. Constructing a variable that captures how much of an organization's environmental disclosure is composed of metrics that actually matter, and how much of it consists of irrelevant metrics. Nice, large scale study, good statistical power *but* the DV is misconstructed.
5. Kim and Lyon (2015)–alluding to the fact that a lot more of the communication organizations do is political. Introduces brownwashing: deliberate obfuscation of good environmental performance as not to raise expectations or in case shareholders think anything green is expensive. Overall, gives off the impression that we can take environmental information far less at face value than we thought.

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Organizational learning
1. Cyert and March (1963)
2. Argyris and Schön (1978)
3. March (1991)
4. Argote (2013)
5. March (2010)

Organizational learning

1. Cyert and March (1963) Mostly talking about learning in terms of routine adjustments, but also e.g., of attention and search rules. Important element: emphasizing the political nature of how priorities are set and what is being learned–reliability!
2. Argyris and Schön (1978) Double-loop learning. Learning is more complex than adjustments of inputs and outputs. At some point, fundamental assumptions need to be questioned in order to make an impact–there are a lot of iron tenets in the pipeline industry or fossil fuel in general that are not being touched. Gives the example of changing performance measures that are used to track progress. Maybe pipelines should stop their ridiculous 99.9999% success rate–now they are focusing on zero accidents–good.
3. March (1991) I guess Mark may not agree that this should be here as an important paper. But–does a good job of showing that going deeper and deeper on one technology does not hold as much promise as regularly straying far away–exploration!
4. Argote (2013) Mostly literature review and representative of the knowledge-based view. Which I find problematic, because it fails to recognized the distributed nature of "knowing" in organizations and the interests that clash–politics!
5. March (2010) Differentiating high-intellect and low-intellect learning. But more importantly, introducing (very briefly) validity and reliability as attributes of knowledge. Knowledge is reliable if it is shared among members of an organization/population. It is valid if it actually helps to bring about its goal/make a difference.

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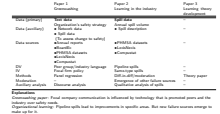

	Paper 1 Greenwashing	Paper 2 Learning in the industry	Paper 3 Learning theory development
Data (primary)	**Text data** Organization's safety strategy	**Spill data** Annual spill volume	–
Data (auxiliary)	• Network data • Spill data (To assess change to safety)	• Spill description	–
Data sources	•Annual reports •BoardEx •PHMSA datasets •LexisNexis •Compustat	•PHMSA datasets •LexisNexis •Compustat	–
DV	Peer group/industry language	Pipeline spills	–
IV	Focal firm policy	Same-type spills	–
Methods	Panel regression	Diff-in-diff/moderation	Theory paper
Moderation	–	Emergence of other failure sources	–
Auxiliary analysis	Discourse analysis	Qualitative analysis of spills	–

Explanations
Greenwashing paper: Focal company communication is influenced by technology that is promoted peers and the industry over safety needs.
Organizational learning: Pipeline spills lead to improvements in specific areas. But new failure sources emerge to make up for it.


Timeline
Chapter 1

Chapter 1
Data collection
Sample creation (PHMSA & LexisNexis) 5 days
Data merging (Compustat) 4 days
Modeling
Initial model 4 days
Feedback & iterate #1 5 days
Feedback & iterate #2 5 days
Writing
Readings 4 days
Introduction 3 days
Lit review & hypothesis development 4 days
Methods & results 5 days
Discussion 4 days
Feedback & iterating
Iteration #1 – writing & style 3 days
Iteration #2 – content 5 days
Iteration #3 – content 5 days
Iteration #4 – writing & style 2 days
Approx. 60 days (+ 10 days) = approx. Dec 31–without qualitative data!

Good news–I finished a whole lot of backend work for PHMSA data over the last 2 weeks.

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Timeline
Chapter 2

Chapter 2	
Data collection	
Sample creation (PHMSA & LexisNexis)	5 days
Data collection–Annual Reports	7 days
Data collection–industry level text	2 days
Text processing	5 days
Data merging	4 days
Modeling	
Initial model	5 days
Feedback process?	?
Writing	
Readings	2 days
Introduction	3 days
Lit review & hypothesis development	4 days
Methods & results	6 days
Discussion	4 days
Feedback & iterating	
Iteration #1 – writing & style	3 days
Iteration #2 – content	5 days
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Iteration #4 – writing & style	2 days

Approx. 60 days + 10 days + ? feedback process = some time in Jan–without discourse analysis!

Notice the question mark on feedback for NLP/modeling here.

Timeline

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Data collection–Annual Reports	7 days
Data collection–industry level text	2 days
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Feedback process?	?
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Approx. 60 days + 10 days + ? feedback process = some time in Jan–without discourse analysis!


Timeline
Chapter 3

Chapter 3	
Preparation	
Organizing literature	5 days
Graphical model or structure	1 day
Wait	?
Feedback/discussion	1 day
Wait	?
Iteration	1 day
Writing	
Introduction	4 days
Lit review	6 days
Theory	5 days
Discussion	5 days
Conclusion	3 days
Feedback	
Iteration #1 – writing & style	3 days
Wait	
Iteration #2 – content	4 days
Wait	
Iteration #3 – content	3 days
Iteration #4 – writing & style	2 days
Approx. 50 days + 8 days + ?? wait = late Dec/early Jan?	

Notice the wait here after many steps.

Timeline

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Feedback/discussion	1 day
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Timeline
Overview

1. **Chapter 1**: 60 days
2. **Chapter 2**: 60+ days
3. **Chapter 3**: 50++ days

Timeline

Overview

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Q 1
How do I deal with the observed learning/stagnation? In what terms do I describe that?

Q 1

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Q 2

Q 2

How deep should I enter into pipeline technology in writing?

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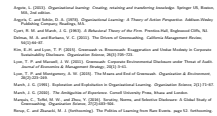

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