From Systems to Social Marketing: The case of tobacco. (Or: cultural catalyzers in social systems)

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THE DECLINE OF TOBACCO?
COMPLEX ECOSYSTEMS
Tobacco is a complex ecosystem

- Confluence of several dimensions
- Different time scales
- Tightly coupled actors
- Actions that feed back on themselves and “unexpected” effects
- Nonlinearities
- History dependence and resistance to change
- Separation in time and space between cause and effect
- Structures causing behavior
(The 1964 surgeon general’s report) was most likely an important catalyst in creating a public policy climate that enabled the litigation that led to the Tobacco Settlement Agreement several decades later (...). By the same token, the report may have led to unanticipated “negative” consequences (...). (Trochim et al, 2006).
ASSEMBLING A SYSTEM DYNAMICS MODEL
Components of the model

- Political power from industry
- Power from social change agents
- Public’s attitude
- Perception about health problems
- Time

Catalyst
Attitudes on complex issues:

• Often take a long time to change (generations): attitude strength

• Ignaz Semmelweis: at least 50 years to change perceptions regarding the role of antiseptic procedures in hospital-acquired infections

• Almost two thirds of the British public opposed same-sex relationships because they believed they were morally “wrong” 25 years ago.
Attitudes and perceptions: time to change

Role of demography, denial of smokers, time scale of cultural patterns and the sheer marketing efforts from the industry:

“Following the release of the report in January 1964 and the resulting banner headlines throughout the country, it was widely assumed that Americans would give up tobacco (...) By 1973, tobacco consumption had not declined appreciably from 1964 levels” (Brandt, 2007).
System dynamics: notation
The model
Two scenarios

Nationally representative survey in the US: 43% support banning and 77% reducing nicotine (Connolly et al, 2012)
THEORETICAL PROPOSITION:

CULTURAL CATALYZERS
Cultural catalyzers accelerate change in social systems through changes in public’s attitude.

They tend to combine most of these characteristics:

- Concrete, visceral: go for the heart
- Narratives, cultural products (acting on a sense-making machine)
- Triggers of tipping points in ambivalent attitudes
- Play classic persuasion notes: authority, unity.
Large losses of total ozone in Antarctica reveal seasonal ClO\textsubscript{2}/NO\textsubscript{x} interaction

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Recent attempts\textsuperscript{1,2} to consolidate assessments of the effect of human activities on stratospheric ozone (O\textsubscript{3}) using one-dimensional models for 30\textdegree N have suggested that perturbations of total O\textsubscript{3} will remain small for at least the next decade. Results from such models are often accepted by default as global estimates\textsuperscript{3}. The inadequacy of this approach is here made evident by observations that the spring values of total O\textsubscript{3} in Antarctica have now fallen considerably. The circulation in the lower stratosphere is apparently unchanged, and possible chemical causes must be considered. We suggest that the very low temperatures which prevail from midwinter until several weeks after the spring equinox make the Antarctic stratosphere uniquely sensitive to growth of inorganic chlorine, ClX, primarily by the effect of this growth on the NO\textsubscript{2}/NO ratio. This, with the height distribution of UV irradiation peculiar to the polar stratosphere, could account for the O\textsubscript{3} losses observed.
• Obesity: “And until medical science is on board, we will not see a true tipping point. People are catching on—there has been a sea change; there is a movement afoot—but we haven’t reached a tipping point yet.” (Robert Lustig)

• Global warming: ?
CAVEATS AND IMPLICATIONS
• Hindsight bias and the role of randomness

• Modern world: Fragmentation of attention, superficiality

• General attitudes may require several *mini catalyzers* for change (ex. gay parades)
• Reverse or concomitant causation: economic cycles may explain change in prevailing mental models years later. Ex. Reaganomics (80’s) vs. stagnation in the 70’s.

• Why did Al Gore fail? Possibility of thresholds (“strategic inflection points”– Andy Grove) + Systems respond to several influences from other domains.
Possible implications for social marketing

• Search and promote possible catalyzers

• Sell narratives and frames, reach *shining stars*. Two stage process for complex problems.
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