Industrial Ignorance-Making After Tobacco: A Case Review of Six Selected Sectors Based on the 28-Strategy List

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Abstract

Internal documents from the tobacco industry showed that the companies knew about the harms of cigarettes but told the public something else. This article asks whether other industries have done the same, and what the evidence shows. Our criterion is a documented gap between what an industry knew or did and what it said in public. The criterion has two branches. The strong branch rests on an internal document, an admission or a court ruling. The weaker branch compares public statements with scientific evidence. Using published sources, we examined six sectors other than tobacco (food and beverages, social media, opioids, chemicals, alcohol and talc). We coded the cases against Goldberg and Vandenberg's (2021) list of 28 strategies. We found a documented gap in all six sectors. Twelve of the 28 strategies met the full criterion. Suppressing incriminating information and influencing government and laws recurred most often. Outside the list we found two things: a hypothesis, "manufacturing certainty" (a positive claim of safety instead of planting doubt), and a borderline case, "designing for craving". Fifteen strategies were not recorded. This does not mean they were absent, because our evidence comes from places where litigation or whistle-blowing exposed documents. We selected the cases ourselves, one coder worked on them, and the search was not systematic. The findings therefore cannot be generalised. We can see ignorance-making only where documents have been opened.

Keywords: ignorance-making, industrial doubt-making, agnotology, post-tobacco industries, internal industry documents

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Introduction

This is our second article on "agnotology". Proctor first used the term in his book *The Cancer Wars* (Proctor, 1995). He later turned it into a research framework in the edited volume *Agnotology* (Proctor, 2008).

In his other book, *Golden Holocaust*, Proctor showed that ignorance can be made, maintained and distributed. His leading example was the tobacco industry. Its internal documents, which came to light after the court cases, showed that the companies knew about the harms of cigarettes and in practice told the public something else (Proctor, 2011).

His work made tobacco a historical example of “strategic ploy” and “active construct”. The question for this article is what happened next. Have other industries done the same, and if so, what is the evidence?

As in the previous article (Saadat, 2026), we use only the third of the three meanings of ignorance in Proctor’s classification. The three meanings are ignorance as native state (not-yet-knowing), as lost realm, and as strategic ploy (active construct) (Proctor, 2008, p. 8). The difference is that the earlier article examined what happened to the word “agnotology” in the ignorance-studies literature. This article examines the behaviour of industries other than tobacco.

In that article we used OpenAlex data to show that research on industrial doubt-making has mostly continued outside the word “agnotology”. Only 8 to 10% of the works citing the 2008 book contain the term. We concluded that, to find evidence, we should search for the industry and the strategy, not the word. In other words, the earlier article concerned the “literature” and said nothing about the “behaviour of industries”. This article goes beyond the literature and turns to the industries.

We also borrow one tool from the earlier article: Goldberg and Vandenberg’s (2021) “list of 28 doubt-making strategies”. It is a numbered list of tactics that industries have used to sow doubt about science and defend their products. Examples are suppressing incriminating information, ghostwriting articles, attacking opponents and getting improperly close to a regulator (Section 1.2).

Goldberg and Vandenberg built the list from five cases: tobacco, coal, sugar, Syngenta and atrazine, and the Marshall Institute with its affiliated scientists on climate. As we wrote in the earlier article, some of their sources overlapped with the sources we took as our starting point there, so the list was not independent evidence. The authors themselves write that new cases may add further strategies. Here we apply the list to a fresh set of cases and sources. Independence is still incomplete, because the UCSF Industry Documents Library has supplied both the list and several of our own sources (Section 1.4).

We therefore have three questions:

1. In which industries other than tobacco is there documentary evidence of the “knowing–saying gap”?
2. Which of Goldberg and Vandenberg’s 28 strategies appear in these industries, and is there also a strategy outside the list?
3. Where is there no document, and what does this void mean?

Please keep a few points in mind before reading the text.

First, we do not ask “which industry is bad”, and we do not ask “what have people come to believe”. Our criterion is only the documented gap between what the industry said and what it knew or did.

Second, we do not generalise the behaviour of one company to its whole industry. In most cases our unit of analysis is a specific company: Coca-Cola, Philip Morris and Kraft, DuPont and 3M, Monsanto, Purdue, Johnson & Johnson and Meta. In alcohol, the unit is industry-

affiliated organisations. In the MACH case, it is the interaction between alcohol companies and a research-funding body. We use the word "industry" only as a category.

Third, we do not measure the effect of these strategies on people's minds. The documents show what the industry did and wanted. What people actually came to believe would need survey and experimental data.

Fourth, we chose the cases ourselves. They are not a random sample.

Fifth, some of the evidence consists of allegations made in court that have not yet received a ruling. We show these separately in the text.

With these points made, the article proceeds as follows:

Section 1 sets out the criterion and method.

Section 2 presents the cases one by one.

Section 3 maps the cases onto the list of 28 strategies.

Section 4 discusses patterns outside the list (one hypothesis and one borderline case), disclosure bias, public discourse without documents, positive thinking, strategic ignorance and limitations.

The Conclusion follows.

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1. Criterion and method

Before presenting the cases, we need to make clear what we call "ignorance-making" and how we measure it. This section covers four things: the criterion for ignorance-making, the list of strategies, the grading of evidence and the way we selected the cases.

1.1 The criterion for ignorance-making

We separate ignorance-making from ordinary marketing and lobbying with one criterion: a documented gap between what an industry knew or did and what it told the public, its employees, regulators or scientific journals. Without this criterion, every advertisement would count as "ignorance-making" and the article would lose its credibility. The criterion has two branches.

Strong branch: an internal document, admission or ruling shows that the industry knew something or did something, and that its public statements said the opposite. *Weaker branch:* an analysis that compares the industry's public statements with the scientific evidence of the time. In this branch we show that the statements do not match the available science, but we cannot show what the company knew internally. "Knowing" here means only access to the evidence.

Four further clarifications are needed.

First, we take "knowing" to mean that the information existed in the organisation. One employee's document does not prove that all senior managers knew of it.

Second, "doing" is also part of the criterion. Suppose a company presents a researcher as "independent" but wrote the researcher's text itself. A gap between doing and saying exists even if the company says nothing about what it knew of the harm.

Third, "saying" is addressed to different audiences (the public, a regulator, employees, a scientific journal), and for each case we state which one. We do not count an internal statement or an unpublished draft as public "saying". We record the proof for such cases as indirect.

Fourth, silence (non-disclosure) is not the same as a false statement. We accept both, and in each case we make clear which one it is.

1.2 The list of 28 strategies

The list comes from Goldberg and Vandenberg (2021), and we have added no strategy. They extracted and numbered these 28 tactics from the documents of the five cases named in the Introduction. In the text we refer to strategies by their numbers in this list.

According to the original article, five strategies (1, 2, 3, 8 and 21) appeared in all five cases. Strategies 20 and 24 appeared only in tobacco, and strategy 25 only in the Marshall Institute case.

Goldberg and Vandenberg state some cautions, and we adopt them. The absence of a strategy may reflect only the absence of documentation. The strategies do not carry equal weight. The definitions below are our own summaries, too.

The list uses words such as "incriminating", "beneficial" and "opponent" from the industry's own viewpoint and in terms of its interests. "Incriminating information" means information that harms the industry, and "beneficial information" means information that helps it. These words say nothing about public health, scientific accuracy or ethical judgement.

The full list follows.

(1) Attack Study Design: stressing flaws in the design of an opposing study, such as bias, confounding or sample size, even though they have little effect on the result;

(2) Gain Support from Reputable Individuals: recruiting experts, doctors, scientists, journals and health officials to defend the industry's account;

(3) Misrepresent Data: choosing data selectively, designing a study to fail, or using a meta-analysis to dilute other people's work;

(4) Suppress Incriminating Information;

(5) Contribute Misleading Literature: using journals and media to mislead or to divert attention to peripheral issues;

(6) Host Conferences or Seminars, so that only information beneficial to the industry circulates;

(7) Avoid/Abuse Peer-Review: publishing without peer review or without disclosing funding, or exploiting a journal's reputation;

(8) Employ Hyperbolic or Absolutist Language, such as the labels "sound science" and "junk science";

(9) Blame Other Causes;

(10) Invoke Liberties/Censorship/Overregulation: invoking the law to claim equality and freedom of speech for the industry's account, despite differences in the quality of evidence;

(11) Define How to Measure Outcome/Exposure, while undermining opponents' guidelines;

(12) Take Advantage of Scientific Illiteracy, media/individuals: stressing scientific complexity to confuse the audience, or spreading information that is false but easy to digest;

(13) Pose as a Defender of Health or Truth;

(14) Obscure Involvement, such as ghostwriting, front companies or attorney-client privilege;

(15) Develop a PR Strategy;

(16) Appeal to Mass Media: invoking balance in reporting and the fairness doctrine, and building relationships with media figures;

(17) Take Advantage of Victim's Lack of Money/Influence;

(18) Normalize Negative Outcomes;

(19) Impede Government Regulation: swamping regulators to slow or stop their work;

(20) Alter Product to Seem Healthier;

(21) Influence Government/Laws: getting improperly close to regulators and encouraging policy that favours the industry;

(22) Attack Opponents, scientifically/personally;

(23) Appeal to Emotion;

(24) Inappropriately Question Causality: repeating "correlation is not causation" despite strong evidence;

(25) Make Straw Man Arguments: rejecting an argument that the opponent did not make;

(26) Abuse Credentials: using a qualification in one field to claim authority in another;

(27) Abuse Data Access Requests, to distort and attack;

and (28) Claim Slippery Slope: claiming catastrophic consequences if the industry's account is not supported.

1.3 Grading the evidence

We label each row of Table 1 (one strategy in one case) in two ways: source (where the evidence comes from) and proof (what the evidence establishes about the gap between knowing or doing and saying).

Source:

A: peer-reviewed analysis of internal industry documents.

B: peer-reviewed analysis of the industry's public statements against scientific evidence.

C: investigative journalism, an official review, or an admission or court ruling.

D: an allegation in a court case that has not yet received a ruling.

Proof:

Direct: the document, admission or ruling itself shows both sides of the gap: what the industry knew or did, and what it said in public.

Indirect: only one side of the gap is visible (for example, a public statement set against the science, with no internal document; or an internal document with no recorded public statement), and we infer the other side.

The two labels are independent of each other. A peer-reviewed analysis (source A or B) can give "indirect proof", and a journalistic report (source C) can give "direct proof". If a piece of evidence has only source D, we call it an "allegation", not a "finding", and we leave it out of the tables.

1.4 Case selection and search

We chose the sectors ourselves. We searched seven: food and beverages, social media, opioids, chemicals, alcohol, talc, and supplements and slimming products. For the first six we found a source that passed the criterion. For supplements we did not (Section 2.7).

Our selection criterion was that the sector should not be tobacco, and that there should be at least a suspicion of an internal document, or of a gap between the industry's statements and the scientific evidence. Sugar is one of the five cases in the original list, and it overlaps with the food and beverage sector.

We also left out oil and climate deliberately. Two of the five cases in the original list (coal and the Marshall Institute) belong to this field, and analyses such as Supran and Oreskes (2017) on ExxonMobil have already shown the gap between what the company said and what it knew. Adding it would not have tested the list on new ground.

For each industry we searched the web (October 2026), combining the industry's name with terms such as "internal documents", "industry documents" and "litigation". We looked for peer-reviewed analyses and reports based on documents. For each case we read the main source, either its full text or the university's or the media's report on it.

We did not record the keywords, so the search cannot be repeated.

We searched for sources and drafted the coding with the help of a language model (Claude, Anthropic). One person, the author, examined the main sources and did the final coding. We have no measure of agreement between coders. In some cases only a secondary report of the document was available (Section 4.6).

With this criterion and these methodological limits in place, the next section presents the cases one by one.

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2. Cases

In this section we present the cases by sector. For each case we say what evidence exists, how it came to light, and which source and proof labels we record for it. Of the seven sectors we searched, six have evidence and supplements do not (Section 2.7).

2.1 Food and beverages

Coca-Cola and the Global Energy Balance Network

An analysis of about 18,000 pages of emails between Coca-Cola and researchers at two American universities, obtained through Freedom of Information Act (FOIA) requests, showed that the academics who ran the Global Energy Balance Network (GEBN) were coordinating with the company (Serodio et al., 2020). The network promoted a message that shifted attention from sugary drinks to physical inactivity. The authors write that Coca-Cola "tried to hide its relationship with the researchers". One researcher wrote in an email, "we do not want to announce the amount of the grant". One manager suggested building a broad coalition so that opponents could not target the network. This case has source A and direct proof. The authors themselves note that the analysis covers only two universities and cannot be generalised to the whole industry.

Philip Morris and processed foods

An author examined previously unpublished internal documents, revealed in the courts and held in the UCSF Industry Documents Library. The author traced the development of a ready-made lunch pack for children, "Lunchables", at Kraft General Foods (under Philip Morris ownership from 1985 to 2007) (Schmidt, 2026). The author concludes that Philip Morris bought several food companies so that its tobacco and food divisions could share laboratories, experts and technical research know-how, and that it applied two tobacco patterns to Lunchables:

First pattern: product development based on pleasure and appeal to the consumer.

Second pattern: a "better for you" redesign, which was first used for the filtered cigarette and led to low-fat Lunchables. This is strategy 20 in Goldberg and Vandenberg's list ("Alter Product to Seem Healthier"), which the original list recorded only for tobacco. This case therefore suggests that a tobacco strategy moved to the food industry.

The full text of the article also quotes executives' statements (Maxwell's 1990 speech and Bible's 1995 speech to shareholders), but only as evidence of strategy and company intent. It reports no statement by the company about the health of Lunchables that is shown to conflict with an internal document. We therefore cannot fully confirm the "knowing–saying gap" criterion for this case. It has source A, but its proof of the gap between knowing and saying is insufficient. The case does not appear in Table 1 and is recorded only as "conditional" (Section 3).

2.2 Social media

Allegations without a ruling in the MDL case (source D)

In the case on child safety on social media (MDL 3047; an MDL consolidates many similar cases in one US federal court), the plaintiffs filed a 235-page document in the federal court of

Northern California in November 2025. It alleges that Meta had internal research in 2019 showing that people who gave up Facebook for a week reported less depression, anxiety and loneliness, and that the company did not publish it. It also alleges that an employee compared this situation with the tobacco companies in an email (The Register, 2025). Meta rejects the allegations and says they rely on "selective quotations".

This allegation has source D and, as far as we have checked, has not yet received a ruling in this case. It therefore appears only in the text and not in Table 1. The allegations are consistent with what had already been published from the Facebook documents (2021), but the 2025 allegations have not yet been tested.

Meta's settlement with the US states on 26 August 2026 is not a ruling, and no admission of fault is reported in it (the media reported an amount of up to about $17 billion; WLOX, 2026; MDL Update, 2026). It also did not resolve the claims of private plaintiffs and schools.

The Facebook documents (source C)

The internal documents of Facebook are another route to the same subject. In September 2021, in its "Facebook Files" series, built from the leaked documents of Frances Haugen, the Wall Street Journal reported on Meta's internal research. A 2019 slide said Instagram made body-image problems worse for one in three teenage girls. Another slide, from March 2020, said that 32% of teenage girls who were dissatisfied with their bodies thought Instagram made it worse. Among teenagers who reported suicidal thoughts, 13% in the United Kingdom and 6% in the United States traced them to Instagram (Wells et al., 2021). The company did not publish this research. In an August 2021 letter to two senators, it wrote that it kept internal research confidential for "frank and open discussion".

In the same year, Zuckerberg told Congress (March 2021) that the research he had seen showed that using social apps to connect with others can have psychological benefits. Mosseri, head of Instagram (May 2021), called its effect on teenagers' wellbeing probably "very small". These statements are not necessarily false, but they do not appear to match what the internal research showed about teenage girls.

The company responded on 26 September 2021. Pratiti Raychaudhuri, head of research, wrote that the research does not show that Instagram is "toxic" for teenage girls. She added that part of it relied on a sample of about 40 teenagers and did not measure causality (Digit, 2021). According to ABC4 News (2021), the company rejected the newspaper's framing, not its figures. It said Instagram had helped girls in 11 of 12 areas of difficulty, with body image the exception, and that in this area 33% of girls found it made things worse and 22% found it helped. We have not seen the original text of the response ourselves. This case is investigative journalism based on internal documents: source C, direct proof, for strategy 4.

The New Mexico ruling (source C)

Another case of this kind has produced a ruling, in New Mexico. On 24 March 2026, after a seven-week trial, a jury in the First Judicial District Court in Santa Fe found that Meta had wilfully violated the state's unfair practices law on two counts: misleading people about platform safety, and "unconscionable" practices, that is, practices that grossly and unfairly exploit consumers' ignorance or inability. The penalty was $375 million. The trial examined Meta's internal correspondence and reports on enforcing the ban on users under 13, on teenage

suicide content and on the role of algorithms. The jury weighed whether the company had disclosed what it knew (PBS NewsHour, 2026; WBUR, 2026; Source NM, 2026a).

The media also reported it as a case about the abuse and exploitation of children and about harm to children's mental health (NPR, 2026). We have not read the exact scope of the claims in the text of the ruling. On 6 August 2026, in the non-jury phase of the trial, the judge ruled on "public nuisance" (a legal claim that a company's conduct harms the public). The judge ordered Meta to pay $567 million, over five years, to a state fund to abate harm to young people (Source NM, 2026b).

The two rulings total $942 million. Meta has appealed and asked to stay enforcement by posting a bond of $1.8 billion (Santa Fe New Mexican, 2026). Both rulings come from a court of first instance and are not final. The case has source C and direct proof (a ruling on failing to disclose what the company knew), with the caveat that it is not final.

What does a legal ruling not prove? The jury ruled on consumer deception and unfair practice, using the legal standard of the "preponderance of the evidence". It did not rule on the causes of psychological harm, and not necessarily by comparing an internal document with a public statement point by point. Law and science use different standards, and our table does not treat legal correctness as scientific correctness.

The Los Angeles verdict

In March 2026 a jury in Los Angeles, in the case of a twenty-year-old plaintiff identified as K.G.M., found Meta and YouTube negligent. The jury found that the two companies knew their platforms could be dangerous to minors and did not warn them enough. It also found deception or malice. Damages were $6 million ($3 million compensatory and $3 million punitive), and the verdict is not final (Associated Press, 2026). The verdict assesses one plaintiff's situation and does not compare statements point by point with documents, so it has no separate row in Table 1.

2.3 Opioids

In 2007 Purdue Frederick pleaded guilty to "misbranding" OxyContin in a way that was "intentionally misleading" (misbranding is a federal offence involving a drug label or advertisement that does not match the facts), and to "defrauding doctors and consumers". Three senior executives pleaded guilty to a lesser offence. According to the testimony of the federal prosecutor for the Western District of Virginia before the Senate (31 July 2007; Brownlee, 2007), the company claimed that OxyContin was less addictive, less open to abuse, and that stopping it suddenly did not bring withdrawal symptoms. No research supported these claims. The company's own research showed that about 68% of the oxycodone in a 10 mg tablet could be extracted for injection, and physician focus groups had shown concern about addiction. The fines were $600 million for the company and $34.5 million for the executives. According to the same testimony, OxyContin prescriptions rose from about 300,000 in 1996 to nearly 6 million in 2001.

According to a New York Times report (by Barry Meier), cited by Frontline (Taddonio, 2018), the company had information from the year after the drug's launch showing abuse, but it kept advertising the drug as "less addictive". Company executives had also told Congress that they

did not know of rising abuse until 2000. This part is investigative journalism, not a court ruling. Purdue says that blaming activities that happened years ago for today's crisis is wrong.

Van Zee (2009) wrote a peer-reviewed article on the promotion and marketing of OxyContin, which he calls a commercial triumph and a public health tragedy. He describes "understating the risk of addiction" as a constant feature of Purdue's advertising. He writes that the company's sales representatives were trained to deliver the message of a risk of addiction "of less than 1%". For this claim the company relied on the work of Porter and Jick, a study done 16 years before the drug's launch that was not about OxyContin. He writes that on 10 May 2007 Purdue Frederick and three executives pleaded guilty to "misbranding" for exactly this claim.

This case has source C and direct proof (judicial admission and official testimony). Because it is a guilty plea, it is stronger than an allegation of source D. The coding of strategy 3 for this case rests on the fact that data on a different drug and different patients was offered in place of data on OxyContin. If someone regards that as only an unsupported claim, strategy 3 drops out of Table 1 and the number of recorded strategies becomes 11.

2.4 Chemicals

C8 (PFOA, from the PFAS family)

An analysis of 39 previously confidential internal documents from DuPont and 3M, dated 1961 to 2006 (Gaber et al., 2023), concludes that the companies knew by 1970 that C8 was highly toxic by inhalation. That was about forty years before the public health community reacted to the danger of PFAS. The documents are held in the UCSF Chemical Industry Documents Library. They came to light through the lawsuit of a lawyer named Robert Bilott.

The authors say the companies' main strategies were "suppressing research unfavourable to the industry" and "distorting public discourse". Examples include a 1961 report on liver enlargement in rats at low doses, and a 1970 memo that called C8 "highly toxic" by inhalation and "moderately toxic" by ingestion. Another is the result of DuPont's pregnancy questionnaire (1980): of eight pregnancies, two infants were born with eye defects. This result was neither published nor told to employees. In the same year, a joint memo from 3M and DuPont (internal communication, not a public statement) called C8 "low in toxicity, like table salt". A 1991 draft press statement about groundwater contamination near the DuPont plant said that C8 at the concentrations found had no "known toxic or harmful effect" on humans. That text was a draft, and the article gives no sign that it was published.

The findings were also not reported to the US Environmental Protection Agency, although the law required it. In 2004 the agency filed two complaints against DuPont for this failure to report, and in December 2005 they reached a settlement: a $10.25 million fine plus a $6.25 million supplemental project. Even after the lawsuits of 1998 and 2002, a DuPont vice-president sent an email titled "Urgent: EPA action needed" (2006), asking the agency to declare at once that "consumer products with the Teflon brand name are safe". Other examples are the "confidential" label on documents and one executive's wish to destroy a memo.

One negative finding reported by the authors also matters: in this archive they found no evidence that the industry funded research favourable to itself or published its results selectively. In this case, then, strategy 5 ("Contribute Misleading Literature") is not recorded,

at least in this set of documents. A reminder for the reader: the article is about C8 and is not generalised to the whole PFAS family. It has source A. Proof is direct for strategies 4 and 21. For strategy 8 it is indirect, because what is documented of the "saying" is an internal memo and an unpublished draft, not a public statement.

Glyphosate

An analysis of Monsanto documents disclosed in the lawsuits over the herbicide Roundup (Krimsky & Gillam, 2018) shows that in 2015 one employee proposed "ghostwriting" parts of a review article (text that one person writes and another publishes under their own name), with independent authors merely signing it. Another employee wrote of having ghostwritten the review article by Greim and colleagues (Greim et al., 2015). We must note, however, that one of the authors of this same article (Saltmiras) is listed with a Monsanto address. The company's involvement in this article was therefore public. What stayed hidden (according to the email's claim) was the role of the lead author in the writing.

The US Environmental Protection Agency cited both articles in its 2016 assessment. In a special issue of the journal, a conflict-of-interest statement said Monsanto had not seen the manuscripts, but the emails show the opposite. The company launched a campaign to retract the article by Séralini and colleagues (Séralini et al., 2012) and tried not to appear as its leader. It also worked with three EPA officials to halt the review of glyphosate at the Agency for Toxic Substances and Disease Registry (ATSDR).

The authors say the emails suggest that the EPA was close to Monsanto's position. They state this as a possibility, not a certainty. The article says nothing about what Monsanto itself knew internally about the toxicity of glyphosate formulations. It has source A and direct proof.

Assessments of glyphosate's carcinogenicity are not uniform, however. In 2015 the International Agency for Research on Cancer classed it as "probably carcinogenic" (Group 2A; IARC, 2015). The same year the European Food Safety Authority (EFSA) concluded that it was "unlikely to pose a carcinogenic hazard to humans" (EFSA, 2015). In its draft 2017 assessment the US Environmental Protection Agency wrote that it is "not likely to be carcinogenic to humans" (EPA, 2017). The Séralini article was also criticised on method, and the journal retracted it in 2013 without reporting any fraud. This article concerns the company's behaviour and does not settle this scientific dispute.

2.5 Alcohol

Public statements

In 2018 Petticrew and colleagues (Petticrew et al., 2018) examined the cancer-related text on the websites and documents of 27 organisations linked to the alcohol industry. Most were public relations bodies and "social aspects" organisations, and a few alcohol producers were among them. One website was unavailable, which left 26. On 24 of these 26 websites, the evidence was either incomplete or distorted to a striking degree. On breast cancer, 21 organisations gave either no information or misleading information. On bowel cancer, 22 did.

The authors distinguish three patterns. In denial or omission, the link between alcohol and cancer is denied or disputed, or is left out selectively. In distortion, some risk is mentioned but its type or size is shown wrongly or vaguely. In distraction, the discussion moves away from

alcohol's independent effect on common cancers, for example by listing other risk factors. Matching "denial" to strategy 24 and "distraction" to strategy 9 is our work, not the authors'.

This case has source B and indirect proof: it shows what the industry said, not what it knew. The unit of analysis is also industry-affiliated organisations, not a single company.

The MACH case

In 2018 the US National Institutes of Health cancelled a trial of moderate alcohol consumption (MACH15) that cost nearly $100 million. An internal review by the institutes found improper interaction between officials of the National Institute on Alcohol Abuse and Alcoholism and alcohol companies (including Anheuser-Busch InBev and Heineken), and it called the "neutrality" process into question. According to the review, the trial design also leaned toward showing a "beneficial effect of moderate alcohol consumption" (Undark, 2018).

This case has source C and direct proof. But the review found improper interaction with officials of the research-funding body, not with a regulator. The case is therefore borderline. The trial's principal investigator says that three external scientific panels and ten ethics committees had approved the design.

2.6 Talc

A Reuters investigation (Girion, 2018) reports that from 1971 to the early 2000s Johnson & Johnson knew that asbestos was sometimes present in its talc and baby powders. At least three tests in three laboratories between 1972 and 1975 had found asbestos, and in one the amount was reported as "relatively high". In 1976, when the Food and Drug Administration was considering limiting asbestos in cosmetic talc, the company said that no asbestos had been found in talc produced from December 1972 to October 1973. It did not mention the earlier positive tests. The report says there are also documents showing the company's efforts to influence regulation and research on talc. Johnson & Johnson rejects this and says thousands of independent tests show that its talc contains no asbestos. The case concerns contamination of talc with asbestos, not the danger of pure talc. It has source C and direct proof (internal documents in a journalistic report).

2.7 Supplements and slimming products

We searched for supplements and slimming products and found no peer-reviewed source or document analysis that passes the criterion of the knowing–saying gap. The reason may be a lack of research or a lack of documents, and the data cannot tell the two apart. This sector therefore has no column in Table 2. We return to its absence in Section 4.2.

With these six sectors, our body of evidence is complete. The next section maps it onto the list of 28 strategies.

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3. Mapping strategies onto cases

Section 2 reviewed the six sectors one by one, on the basis of each case's sources. Here we put the same findings side by side, to see which strategies recur in more than one case and which do not.

Table 1 maps the findings of Section 2 onto the list of 28 strategies, and Table 2 shows the same mapping as a matrix. We call each pair of one strategy and one case a "cell". Only cells for which at least one source meets the article's full criterion (Section 1) appear in Table 1. The conditional status of strategy 20 appears only in Table 2 and is explained below.

Table 1. Strategies recorded in the cases of this article

#	Strategy	Case	Source	Proof	Note
2	Gain Support from Reputable Individuals	Coca-Cola	A	Direct	Funding and cultivating the network's academics
2	Gain Support from Reputable Individuals	Glyphosate	A	Direct	"Presenting" an independent researcher with the help of a company employee
3	Misrepresent Data	Opioids (Purdue)	C	Direct	"Less than 1%" addiction, relying on Porter and Jick's work, which was not about this drug; 2007 plea
4	Suppress Incriminating Information	C8	A	Direct	Non-publication, non-reporting to the regulator, wish to destroy a document
4	Suppress Incriminating Information	Talc	C	Direct	Hiding positive tests from the Food and Drug Administration
4	Suppress Incriminating Information	Opioids (Purdue)	C	Direct	Internal research and focus groups on abuse; 2007 plea
4	Suppress Incriminating Information	Social media (New Mexico)	C	Direct	Failure to disclose what the company knew about child safety; 2026 jury verdict, court of first instance
4	Suppress Incriminating Information	Social media (Facebook documents)	C	Direct	Internal research of 2019 to 2020 on Instagram and teenage girls was not published; executives publicly spoke of benefits or a "very small" effect
5	Contribute Misleading Literature	Glyphosate	A	Direct	Review articles that, according to an employee's email, the company wrote and the regulator cited (Greim et al., 2015; the company's involvement in this article was public)
7	Avoid/Abuse Peer-Review	Glyphosate	A	Direct	False declaration of conflict of interest in the special issue
8	Employ Hyperbolic or Absolutist Language	C8	A	Indirect	"Low in toxicity, like table salt" in the internal memo of 1980 and the draft statement of 1991; no public statement is recorded

#	Strategy	Case	Source	Proof	Note
9	Blame Other Causes	Coca-Cola	A	Direct	Stressing physical inactivity instead of beverages
9	Blame Other Causes	Alcohol	B	Indirect	Listing other risk factors for cancer
14	Obscure Involvement	Coca-Cola	A	Direct	Not disclosing the amount and the company's role
14	Obscure Involvement	Glyphosate	A	Direct	Proposal to ghostwrite a review article for independent authors; hidden leadership of the campaign to retract an article
19	Impede Government Regulation	Glyphosate	A	Direct	Halting the ATSDR review in cooperation with officials
21	Influence Government/Laws	Glyphosate	A	Direct	Company cooperation with EPA officials
21	Influence Government/Laws	C8	A	Direct	Asking the EPA to declare the products safe
21	Influence Government/Laws	Talc	C	Direct	Reported attempt to influence regulation
21	Influence Government/Laws	Alcohol (MACH)	C	Direct	Improper interaction with officials of the research-funding body; borderline, because that body is not a regulator
22	Attack Opponents, scientifically/personally	Glyphosate	A	Direct	Campaign against the Séralini article
24	Inappropriately Question Causality	Alcohol	B	Indirect	Denial or dispute of the link between alcohol and cancer on organisations' websites

A = peer-reviewed analysis of internal documents; B = peer-reviewed analysis of public statements against scientific evidence; C = investigative journalism, official review, admission or court ruling.

Table 2. Strategy-by-case matrix

#	Strategy	Coca-Cola	Lunchables	Meta	Purdue	C8	Glyphosate	Alcohol	Talc
2	Gain Support from Reputable Individuals	Dir					Dir		
3	Misrepresent Data				Dir				
4	Suppress Incriminating Information			Dir	Dir	Dir			Dir
5	Contribute Misleading Literature						Dir		
7	Avoid/Abuse Peer-Review						Dir		
8	Employ Hyperbolic or Absolutist Language					Ind			
9	Blame Other Causes	Dir						Ind	
14	Obscure Involvement	Dir					Dir		
19	Impede Government Regulation						Dir		
20	Alter Product to Seem Healthier		Cond						
21	Influence Government/Laws					Dir	Dir	Dir*	Dir
22	Attack Opponents, scientifically/personally						Dir		
24	Inappropriately Question Causality							Ind	

Dir = recorded with direct proof; Ind = recorded with indirect proof; Cond = conditional. *: the MACH case is borderline (Section 2.5).

Strategies 1, 6, 10 to 13, 15 to 18, 23 and 25 to 28 are not recorded for any case and do not appear in the table.

Two things stand out in Table 2.

First, strategies 4 (suppressing incriminating information) and 21 (influencing government and laws) are each recorded in four cases, and the others in one or two. One of the four cells for strategy 21 (alcohol, MACH) is borderline, however.

Second, "Gain Support from Reputable Individuals" (2) and "Obscure Involvement" (14) appear together in both the Coca-Cola and glyphosate cases: the company used academics and hid its own role. To some extent we expect this, because academic support works only when its funding is not visible. The two strategies are therefore not fully independent. Two cases also cannot make a pattern. This is only a hypothesis for later testing.

A warning about reading the tables:

Most cells come from the glyphosate case (seven cells). The number of strategies per case must therefore not be read as a sign of "severity". It mostly reflects how many documents and studies are available on each case. Three cells are indirect (9 and 24 for alcohol, and 8 for C8). The coding of strategy 24 for alcohol rests only on the fit between the "denial or omission" pattern in Petticrew and colleagues (Petticrew et al., 2018) and the definition of the strategy. Each cell usually rests on one source and has not been confirmed by a second source.

These tables do not rank industries, and they do not estimate how frequent the strategies are or what the present situation is.

Strategy 20 in the food industry: conditional. In the original list, "Alter Product to Seem Healthier" was recorded only for tobacco. Based on the Lunchables documents (Schmidt, 2026), the same "better for you" redesign pattern runs from the filtered cigarette to low-fat Lunchables. But the article cites executives' statements as evidence and does not compare them with internal documents, so the full criterion is not met. For this reason we record the strategy as "conditional" in Table 2 and leave it out of Table 1.

Strategies outside the list. "Manufacturing certainty" (hypothesis) and "designing for craving" (borderline case) have no place in the list of 28 strategies. We discuss them in Section 4.1.

Unrecorded strategies. Of the 28 strategies, 12 are recorded in Table 1 (2, 3, 4, 5, 7, 8, 9, 14, 19, 21, 22 and 24), strategy 20 is conditional, and the other 15 (1, 6, 10 to 13, 15 to 18, 23 and 25 to 28) are not recorded for any of the six sectors. We do not call this a "negative finding", because four explanations are possible for each unrecorded strategy:

- the industry did not use it;

- the industry used it but we found no evidence;

- a source existed but did not meet the criterion;

- or we made no specific search for it in that sector.

We have not separated these four. Goldberg and Vandenberg also warn that the absence of a strategy may reflect only a lack of documents or research.

The only reported negative finding is the absence of evidence for strategy 5 in the C8 documents (this strategy is recorded for glyphosate).

Beyond all this, one point draws attention. According to the original article, strategy 1 ("Attack Study Design") appeared in all five cases of the list, but we recorded it for none of our cases.

We coded the campaign against Séralini only under strategy 22, because our source tells us about the covert organisation of the campaign, not about what objections the company raised to the study's design.

We treat this as a hypothesis, not a finding. Perhaps the type of evidence differs (attacks on study design happen in public statements and in reviews, and are less likely to survive in internal documents), and perhaps our search did not find it.

What this section showed (some strategies recur, most are absent, and each cell rests on one source) has not yet been interpreted. Section 4 discusses the meaning and limits of these findings.

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4. Discussion, borderline cases and limitations

Section 3 showed which strategies were recorded in which cases. This section asks what that mapping shows and what it does not. First we take two things for which the list of 28 strategies has no place (4.1). Then we take two factors that shape the evidence: where the documents were disclosed, and the period they cover (4.2). Next we reach the edge of the framework: public discourse without documents (4.3), and a sector where the gap between knowing and saying is not documented (4.4). Finally we cover what the criterion cannot see (4.5) and the limitations of the study (4.6).

4.1 Two cases outside the list

In our cases there are two things for which the list of 28 strategies has no place: a hypothesis ("manufacturing certainty") and a borderline case ("designing for craving").

Manufacturing certainty (hypothesis)

The list of 28 strategies is mostly about attacking science and sowing doubt: attack study design (1), inappropriately question causality (24), blame other causes (9).

But in several of our cases the industry did not sow doubt. It gave certainty.

Purdue, with no research on the drug itself, said its drug was "less addictive". In 1976 Johnson & Johnson told the Food and Drug Administration that no asbestos had been found in its talc in a specific period, and did not mention the earlier positive tests. In 2026 a New Mexico jury found Meta's statements about the safety of its platforms for children misleading. The Facebook documents show that internal research on teenage girls was not published, while executives spoke of "psychological benefits" or a very small effect of the platform.

In these three companies, a document, plea, ruling or documented report shows that what was said in public did not match what the company knew. The audience was also people who relied on safety claims: doctors, regulators, parents and users. In the C8 case, the internal "like table salt" memo and the draft statement point the same way, but they are not recorded public statements. We therefore do not treat them as evidence for the hypothesis and regard them only as pointing in the same direction.

What the hypothesis is and is not

The claim is not that a strategy is missing from the list. Table 1 already codes these same cases under strategies 3 and 4, and the talc example, which was accurate but incomplete, is strategy 4.

The claim is that the list classifies the "manner" (how), whereas what links these cases is "content" (what): "safety". If the list wants to classify content too, one could call this "manufacturing certainty" against "manufacturing doubt".

Three possibilities exist:

- a second, content-based label on strategies 3 and 4 (a second axis, not a new strategy);

- a subgroup of strategy 13 ("Pose as a Defender of Health or Truth");

- or a new strategy (strategy 29).

The second and third possibilities would hold only if we showed that the safety claim also occurs without strategies 3 and 4. Our evidence fits the first possibility and says nothing about the other two. If a later test shows that the safety claim always comes with strategy 3 or 4, what remains is a second label, not a new strategy.

This pattern is not new, however: tobacco also sold "reassurance". In their supplementary materials, Goldberg and Vandenberg cite "A Frank Statement to Cigarette Smokers" (1954) as evidence for strategy 13 in tobacco (Goldberg & Vandenberg, 2021), and that statement was itself reassurance about safety. Two classic books (Michaels, 2008; Markowitz & Rosner, 2002) may deserve a look from this angle. We have not read them from this angle. Our question is therefore not whether this pattern has been discovered, but whether the list should also have a content axis.

Why only a hypothesis?

First, three companies and sources of varied kinds are not enough for a general claim. In the talc case the company still denies the presence of asbestos, and the Meta ruling comes from a court of first instance.

Second, the court-selection effect: courts punish a false affirmative claim (misbranding, unfair practice), but, in our view, punish sowing doubt or vagueness less often. We have not tested this view against sources. Evidence that comes out of litigation therefore shows reassurance more than its true share, and the pattern may reflect where we looked, not how industries behave.

Designing for "craving" (borderline case)

Schmidt (2026), based on the Lunchables documents, shows that tobacco companies transferred technical knowledge about taste and appeal to food. This is not the same as strategy 20 (redesign to seem healthier, Section 3). Here no doubt is sown and no false claim exists, but the consumer stays unaware of what the product is doing to them. Whether to call this "ignorance-making" depends on the boundary of the concept. If ignorance-making means the gap between knowing and saying (our criterion), this case is still incomplete, because the article

cites executives' statements, not a conflict with internal documents. For now we call it "borderline" and leave the judgement to research that makes this comparison.

4.2 Where the evidence is: disclosure bias

The heterogeneity of the cases in the tables should not be read as a difference in industry behaviour. In all source A and C cases, the document came to light by one of three routes:

- a legal or statutory process (lawsuits in C8, glyphosate, talc and Meta; a criminal case in Purdue; Freedom of Information requests in Coca-Cola; and tobacco litigation documents for Lunchables),

- an official review after media exposure (MACH),

- or an internal whistle-blower (the Facebook documents, 2021).

Each route has its own "bias": a lawsuit occurs only where legal action is possible, and a whistle-blower brings what they took, not what could have been found. The picture in the tables is therefore partly a picture of "where documents came out", not "where things happened". A sector that has had no lawsuit, or whose documents remain closed, looks empty in the table, like supplements in our search. This "disclosure bias" is a methodological point, not merely a limitation: access to documents decides what kind of ignorance-making gets seen and studied. The "manufacturing certainty" pattern may also be partly a product of the same bias (Section 4.1).

The second point is time. Four of the eight cases in Table 2 concern conduct that ended before 2010: C8 from 1961 to 2006, talc from 1971 to the early 2000s, Purdue from 1996 to 2007 and Lunchables from 1985 to 2007.

The other four reach into the 2010s and after:

Coca-Cola and the Energy Network (emails that came out in the 2010s), glyphosate (emails of 2012 to 2015), alcohol (public statements in the 2018 study, and MACH, cancelled in 2018), and, for Meta, the New Mexico ruling (2026), which covers only statements on child safety.

The allegations about mental-health research in the MDL case, as far as we checked, have not yet received a ruling either. The Los Angeles verdict in the K.G.M. case and the documents published in 2021 are separate matters, and the 2026 settlement with the states is not a ruling on them. In the C8 case the gap between the conduct and its disclosure runs to several decades. Our documents therefore say more about what industries did yesterday than about what they do today. Answering "what do industries do today" is mostly a job for ongoing cases and information requests, and until those cases conclude, they often remain allegations.

4.3 Public discourse without documents: Twitter and processed foods

An analysis of the tweets of nine prominent accounts of the Australian processed-food industry, including trade associations, found seven strategies in food policy and health debates (Hunt, 2021). One of them was "ignorance claims", used to distort the policy narrative (67 tweets):

- stressing complexity and "maybe other things" (36),

- misdescribing the outcome of policies (21),

- reposting content from front groups (8),

- and arguing that the policy has rarely been applied elsewhere (2).

This article does not fit our criterion: it has no internal document and does not test the statements against scientific evidence. It only describes what the industry says in policy debate. It therefore does not appear in Table 1.

Two points remain.

First, the industry's public discourse today has strategies like those in the list, but without testing against reality we cannot call them ignorance-making: stressing complexity can also be a correct claim.

Second, this article uses "ignorance claims", but in its full text, as far as we read, neither "agnotology" nor Proctor's name appears. This agrees with the finding of the earlier article that research on industrial ignorance continues outside this word.

4.4 Positive thinking

We deliberately left the "positive thinking" and "self-help" industry out of the tables. This sector earns money and affects people's minds, but we have no internal "they knew and said" document. What exists is criticism by scholars, such as Ehrenreich's 2009 book on the relentless promotion of positive thinking (Ehrenreich, 2009). That criticism is serious, but it does not show that the industry knew something and did not say it. This case shows how far our framework goes: where there is no documented gap between knowing and saying, a claim of ignorance-making must be made with more caution.

4.5 What the criterion cannot see: strategic ignorance

The criterion of the "knowing–saying gap" works only where an organisation has produced knowledge and then not said it. A company that deliberately does not test, so as to have no document, stays hidden from this criterion. The literature on "strategic ignorance" (McGoey, 2012) and "undone science" (Frickel et al., 2010) addresses this. The bias in Section 4.2 concerned documents that were never disclosed. This one concerns knowledge that was never produced. This may be why sectors such as supplements are empty in our search. We do not know.

4.6 Limitations

- The cases are our selection, and we cannot generalise from them to all industries.

- Much of the evidence consists of media reports or court files, not peer-reviewed analysis. The source and proof labels in Table 1 show this.

- The number of cells does not indicate severity. It reflects how much research exists and where documents were disclosed (Section 4.2). Most of the evidence concerns the conduct of past decades.

- Allegations without a ruling (source D) are not confirmed findings until a court rules, and they do not appear in Table 1.

- We did not measure the effect of the strategies on public belief.

- In some cases we saw only secondary reports and did not read the original documents ourselves (Section 1.4).

- The search was not systematic or repeatable.

- One person did the coding, and we have no measure of agreement between coders (Section 1.4).

- The list of strategies comes from Goldberg and Vandenberg (2021), and we are not independent of it. The authors themselves do not regard it as a systematic review and do not treat the strategies as equal in weight, whereas our tables count strategies.

- Court-selection effect: evidence from litigation shows some patterns (such as reassurance) more than others (Section 4.1).

- The criterion does not see strategic ignorance (Section 4.5).

- Each cell usually rests on one source, and we have examined the companies' replies only as far as the sources report them.

We have not examined the content of two classic books (Markowitz & Rosner, 2002; Michaels, 2008) for the claim of industrial reassurance, and we offer them only as a point for further examination.

These limitations set the boundary of the article's claims. The Conclusion sums up what we can say within that boundary.

Conclusion

This article asked what happened after tobacco: have other industries also made ignorance, and what is the evidence? We had three questions.

1. **In which industries other than tobacco is there documentary evidence of the "knowing–saying gap"?**

In all six sectors: food and beverages, social media, opioids, chemicals, alcohol and talc. In five sectors the evidence comes from an internal document, an admission or a ruling. In alcohol, it comes mostly from comparing public statements with science.

2. **Which of Goldberg and Vandenberg's 28 strategies appear in these industries, and is there also a strategy outside the list?**

Twelve strategies were recorded under the full criterion. Suppressing incriminating information (4) and influencing government and laws (21) recur most often. Outside the list we saw two things.

One is a hypothesis, not a finding: "manufacturing certainty". In several cases the industry did not sow doubt but gave certainty, and a list that classifies only manner does not see this content axis.

The other is a borderline case: "designing for craving", the transfer of technical knowledge on taste and appeal from tobacco to food. By our criterion this is not full ignorance-making, because its evidence does not show a conflict between statements and internal documents.

1. **Where is there no document, and what does this void mean?**

Fifteen strategies were not recorded for any case, and we found no source for supplements. We cannot read this void as "no behaviour". Our evidence comes from places where litigation, a court case or a whistle-blower brought documents out, and it mostly concerns the past. The void therefore says more about access to documents than about industry behaviour.

The cases are our selection, so these answers do not generalise to all industries. But the answer to the opening question is clear: what exposed tobacco, the document, has also shown a documented gap between knowing and saying in six other sectors. We can see ignorance-making only where documents have been opened, and wherever documents stay closed, our ignorance about ignorance-making continues.

AI Use Disclosure

The original manuscript was written in Farsi (Persian) by the author. Claude (Anthropic) was used to assist with locating sources, preparing draft coding of the cases against the 28-strategy list, critically reviewing the text, and rewriting passages at the author's request. The author examined the main sources (except where only secondary reports were available; see Sections 1.4 and 4.6), carried out the final coding alone, and reviewed and edited all text. The English version was produced through AI-assisted translation and adaptation using Claude; the author checked it against the Farsi original to ensure that the theoretical and conceptual content is faithfully conveyed. The author remains solely responsible for the accuracy of the claims, interpretations, and source attributions. The language model is not an author of this article. The Farsi manuscript is available from the author upon request.

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