



# Public health – much harder than rocket science

---

White Paper - January 2019



PHILIP MORRIS INTERNATIONAL



PHILIP MORRIS INTERNATIONAL

## Contents

Introduction: Public Health in the 21st century	4
Growing Public Interest in Health	8
The Perceived Importance of Nine Leading Public Health Issues	12
Consumers, Corporations and Authorities in Public Health Issues	22
Public Health—Issues in Five Specific Areas	26
Air Pollution	26
Mental Health	31
Alcohol Consumption and Binge Drinking	36
Healthier Food and Obesity	39
Smoking	42
Conclusions and Implications	46
Appendix: Methodology	49



People think that rocket science is really difficult. It's a benchmark for high intelligence. If somebody is having trouble with a problem, they may be taunted with a breezy: "Come on, it's not rocket science." But compared with the public health challenges now facing the world, rocket science is a cinch. The first liquid-fueled rocket made a brief flight of less than three seconds in 1926 and by 1969, barely more than 40 years later, rocket science took astronauts to the moon.<sup>1</sup> These days, small teams of scientists and technicians all over the world routinely launch rockets. By comparison, today's public health challenges are vastly more difficult than a moon shot. People know perfectly well which behaviors and habits are bad for health, but they carry on with them anyway.

As with many public policy issues, there are plenty of comments along the lines of "they should just do this thing," or "why don't they do that thing"? This is because the problems look simple from afar, but closer up they're actually far from simple.

---

**If there were quick fixes to today's public health issues, nobody would be obese, nobody would smoke cigarettes, nobody would create**

---

1 [https://www.grc.nasa.gov/www/k-12/TRC/Rockets/history\\_of\\_rockets.html](https://www.grc.nasa.gov/www/k-12/TRC/Rockets/history_of_rockets.html)

air pollution, nobody would drink too much alcohol or get addicted to opioids.

Today's public health problems have arisen and persist because experience has shown they're not amenable to simple solutions. For example, in the United States the prohibition of alcohol in 1920 opened the way to bootlegging and organized crime, which kept the population well supplied with alcohol—illegal alcohol. Several decades later the “War on Drugs” aimed to suppress drug supplies. As it turned out, it has resulted in global smuggling, organized crime and mass incarceration to little effect. Quite the reverse, in fact. Narcotics appear to be more easily available than ever.<sup>2</sup> Not so simple after all.

This paper takes a brief look at the some of what makes the public health issues of our time so tough to tackle: the interplay of consumers, corporations and authorities.

Indeed, the paper only touches the surface of what are complex interactions, which experts in relevant industries have studied and certainly understand in more depth. Matters raised are the ones where concerns have been dealt with in the media or by public authorities and where public debate exists.

---

2 <https://www.drugabuse.gov/publications/research-reports/relationship-between-prescription-drug-abuse-heroin-use/increased-drug-availability-associated-increased-use-overdose>



We believe that tapping the ingenuity and self-interest of corporations such as ours will be an essential part of addressing the complex societal problem of smoking, as well as some of the other public health issues covered in this paper. As long as consumers don't have the desire to abstain from using risky products or fundamentally change their behaviors, it will be incumbent on corporations to offer new, significantly less harmful products that are acceptable enough to consumers so that those who would otherwise continue the harmful behavior switch to them completely instead.

## **Introduction: Public Health in the 21st century**

Through most of history there was no concept of public health as we think of it today. There was life and there was death, and they were matters of luck beyond anybody's control. Life was vulnerable to the big threats of infectious diseases, deadly violence, famine, accidents and natural disasters such as floods and earthquakes. Indeed, there were times when neither individuals nor communities had much idea what caused them or how to keep those threats at bay. In the absence of scientific understanding, they relied on potions, charms, prayers and sacrifices. Even just a century ago, in 1918, the world was powerless to counter a global influenza epidemic that infected around 500 million people (around one-third of the world's population) and killed at

## Public Health—Much Harder than Rocket Science

least 50 million people.<sup>3</sup> For another 30 years, infected injuries and infectious diseases were major killers, until antibiotics came on the scene in about 1945.<sup>4</sup>



Now in the 21st century, those big threats of the past are minor considerations in most developed countries. While there remains a disparity between developed and developing countries, in the global view of public health, these threats account for relatively little morbidity and mortality compared with the past. Thanks to advances in education, sanitation, medicine, food security and

---

3 <https://www.cdc.gov/features/1918-flu-pandemic/index.html>

4 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5354621/>

technology, people in most countries can expect to live healthier and a lot longer than their ancestors. There are still risks of mass killer pandemics, as evidenced by alerts over SARS, H1N1, MERS and Ebola,<sup>5</sup> plus an alert over an as-yet unknown Disease X: “Disease X represents the knowledge that a serious international epidemic could be caused by a pathogen currently unknown to cause human disease.”<sup>6</sup>



Still, to date, today’s global public health issues haven’t involved acute events that suddenly cut millions of lives short. The big public health issues of the 21st century are not the stuff of dramatic feature films. Rather, they are chronic problems that gradually creep up. They

---

5 <https://www.who.int/csr/disease/ebola/ebola-6-months/myths/en/>

6 <https://www.who.int/blueprint/priority-diseases/en/>



## Public Health—Much Harder than Rocket Science

afflict people over a span of years, like the proverbial frog in cold water that gradually boils, and the frog doesn't notice until it's too late. Unlike the life and death health problems of old, most of today's public health issues are not a matter of bad luck. Rather, they involve more or less deliberate choices and interactions of three types of actor.

First, there are people in general. Virtually all of the world's 7.2 billion population have a stake in public health as citizens, consumers and, sooner or later, patients. Our life circumstances, the lifestyles we develop and the choices we make all end up affecting not only our own health but also the health of those around us. Then there are corporations and organizations competing to sell the products that we use. And, finally, there are the authorities that formulate and enforce regulations to govern the actions of corporations and consumers.

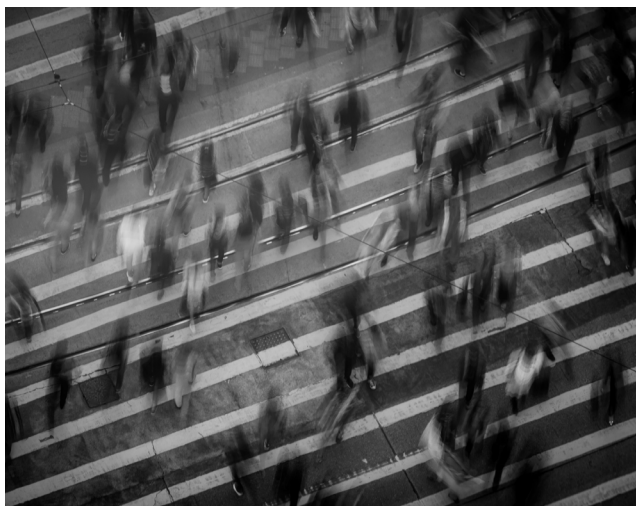
---

**It's the infinitely complex interactions of these three—citizens, corporations and authorities—that combine to make public health issues so difficult to tackle effectively.**



## Growing Public Interest in Health

One of the big pluses of promoting public health is that people are interested in it. Or rather, they're particularly interested in their own health, especially after their youthful sense of immortality has been eroded by the wear and tear of adult life. In addition to official health provisions, consumers spend their own money on non-prescription medical goods. Across the 35 OECD countries, per capita voluntary spend averages almost \$240 a year and is particularly high in Switzerland (\$764 equivalent), Canada (\$572 equivalent) and the United States (\$365).



Health and illness are hot topics. It's no accident that medical dramas on TV have been a programming mainstay for decades. Nor is it a coincidence that

## Public Health—Much Harder than Rocket Science

health-related news items proclaiming “new research shows ...” have become a regular staple in people’s media diets. Now there’s a constant all-you-can-eat supply of health-related information for concerned consumers to binge on. Anyone who can get online has ready access not only to medical videos, but also to health information and products from all over the world. There’s everything from official health portals, statistics and guidance, through commercial offerings to news publications, blogs and informal interest groups.

The availability of health-related information is shaping and shifting public attitudes. In the past, people tended to be fatalistic and passive. They consulted their doctors as the undisputed experts, believed their medical opinion without question and accepted ill health and disease as inevitable conditions of life. Now people seek out other expertise and opinion. They suspect that ill health and disease are not inevitable.

It’s increasingly common for many people to consult the internet before they consult a doctor when they notice a symptom—whether it be a cough, a skin lesion, an unfamiliar sensation or some other twinge.

After all, it’s a lot quicker and easier to check things out online than to go through the process of getting a medical appointment. It appears that in some countries, primary care professionals have become used to dealing with patients who show up at consultations bearing printouts of their own online research and



their own DIY diagnoses.<sup>7</sup> And while professionals and authorities are certainly encouraging people to be more proactive in looking after their health, there are growing concerns that “Dr. Google” is causing people to be unnecessarily anxious. It has long been observed that academic medical training can give rise to “medical student syndrome,” a form of “illness anxiety disorder.” As students learn about the symptoms of various medical conditions, some become convinced that they too have the symptoms. Similarly, as consumers investigating symptoms online can lead to what is being called “cyberchondria” or “compucondria.” According to a study on the subject in the *Journal of Anxiety Disorders*, “individuals who are more health anxious than others search online for health information more” and what they find tends to make them more anxious.<sup>8</sup>

There’s no doubt that thanks to education, public health campaigns and the media, people now have far more theoretical knowledge about health than previous generations had. They are more health conscious, know more technical terms, are aware of more disease conditions and know more about the behaviors that are good or bad for health. But how much does this knowledge translate into the practice of healthier behavior? How much do people apply what they learn? How much is it like people getting immersed in cooking shows on TV and learning about new techniques and

---

7 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5290294/>

8 <https://www.sciencedirect.com/science/article/abs/pii/S0887618516301864>

## Public Health—Much Harder than Rocket Science

ingredients, yet doing less cooking themselves and instead eating more ready meals and more fast food?

---

In other words, when people get more information about a health-related issue, to what extent do they make a consistent effort to adapt their own behavior accordingly and to what extent do they expect to find easy, off-the-shelf fixes?

In a world where there seems to be a gadget or an app for every need, in a tech-led world where “death is an engineering problem,”<sup>9</sup> how much do people expect there to be quick, easy and convenient off-the-shelf technological fixes for health problems? How much do they see health as their own responsibility, and how much do they see it as the responsibility of corporations and governments?



## The Perceived Importance of Nine Leading Public Health Issues

With such questions in mind we were interested in exploring people's attitudes toward some of the most prominent public health issues of our time, including smoking. So we commissioned Ipsos Hong Kong Limited to conduct a 31-country survey with over 10,000 respondents. Among other questions, the survey asked respondents to rate their level of concern about nine issues:

- Obesity
- Alcohol consumption and binge drinking
- Healthier food products (e.g., with less salt, less sugar, less saturated and trans fat)
- Smoking
- Air pollution
- Mental health
- Sexually transmitted diseases
- Unwanted pregnancies/family planning
- Opioid abuse

We asked respondents to rate how important they believe it is for government to dedicate time and resources to dealing with the nine listed health issues, on a scale of 1 (not at all important) to 4 (very important), with 2 being "not very important" and 3

## Public Health—Much Harder than Rocket Science

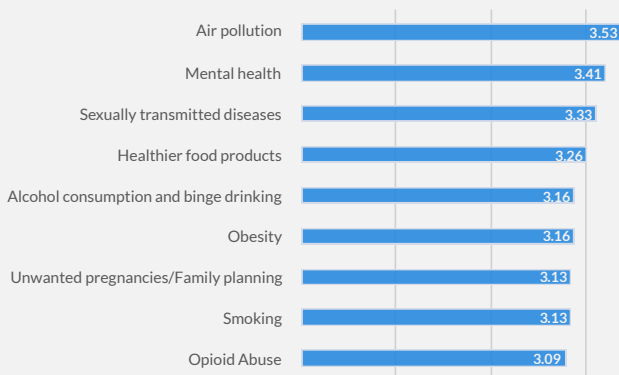
indicating “somewhat important.” Respondents could potentially rate all nine equally as “very important.” They were not asked to rank the issues, nor to make trade-offs between issues. As a consequence, it emerged that all nine of the health issues were rated in a narrow band averaging means between 3.09 and 3.53. This could be interpreted as meaning that respondents found them all important. It is therefore advisable to look at the relationship between the ratings rather than the absolute numbers.





Respondents rated **air pollution** as the most important public health issue of all topics surveyed. Their mean rating of 3.53 (on the 1-to-4 scale) reflects the fact that a very substantial 65 percent of respondents rated it “very important.” Public data indicates the reasons for concern. The World Health Organization estimates that 91 percent of the world’s population lives in locations where air quality exceeds WHO guideline limits and that every year, 4.2 million people worldwide die as a consequence of outdoor air pollution and another 3.8 million die of indoor air pollution.<sup>10</sup>

### How important for government to dedicate time and resources to ...



1=not at all important 2=not very important 3=somewhat important  
4=very important



## Public Health—Much Harder than Rocket Science

Respondents (56 percent) perceived **mental health** as “very important” with a mean of 3.41. The WHO estimates that one in four people around the world will be affected by mental or neurological disorders at some time in their life. Currently some 450 million are suffering from such disorders,<sup>11</sup> including 350 million people with depression.<sup>12</sup> The WHO estimates that worldwide 50 million people are affected by dementia, with nearly 10 million new cases every year.



**Sexually transmitted diseases** were a big source of concern, rating third place with a mean of 3.33 driven by 52 percent who scored this issue “very important.” According to WHO figures, more than 1 million sexually transmitted infections (STIs) are acquired every day

---

11 [http://www.who.int/whr/2001/media\\_centre/press\\_release/en/](http://www.who.int/whr/2001/media_centre/press_release/en/)

12 [http://www.who.int/mental\\_health/advocacy/en/](http://www.who.int/mental_health/advocacy/en/)



worldwide, yet the majority of STIs have no symptoms or only mild symptoms that may not be recognized as an STI.<sup>13</sup> These days HIV/AIDS doesn't prompt the blind panic it caused in the 1980s and 1990s before effective therapies had been developed. Nevertheless, it's still a major global public health issue, having claimed more than 35 million lives so far. In 2017, 940,000 people died from HIV-related causes globally. There were approximately 36.9 million people living with HIV at the end of 2017 globally, with 1.8 million of those becoming newly infected in 2017.<sup>14</sup> Less high profile, but no less concerning is the spread of the human papillomavirus (HPV), the most common viral infection of the reproductive tract. There are 100 types of HPV, of which at least 13 are potentially cancer-causing. Worldwide, cervical cancer is the fourth most frequent cancer in women.<sup>15</sup>

Of the nine public health issues rated in the survey, the most ambivalent is probably **healthier food products** (e.g., those with less salt, less sugar, less saturated and trans fats). This issue rated a mean of 3.26 with 47 percent of people finding it "very important." The World Health Organization reports that an estimated 600 million—almost one in 10 people in the world—fall ill after eating contaminated food, and 420,000 die every

---

13 [https://www.who.int/news-room/fact-sheets/detail/sexually-transmitted-infections-\(stis\)](https://www.who.int/news-room/fact-sheets/detail/sexually-transmitted-infections-(stis))

14 <https://www.who.int/news-room/detail/14-11-2017-who-welcomes-appointment-of-new-executive-director-of-the-global-fund>

15 [https://www.who.int/news-room/fact-sheets/detail/human-papillomavirus-\(hpv\)-and-cervical-cancer](https://www.who.int/news-room/fact-sheets/detail/human-papillomavirus-(hpv)-and-cervical-cancer)

## Public Health—Much Harder than Rocket Science

year,<sup>16</sup> and it's possible that some respondents were thinking of this type of food problem that causes acute illness and occasionally death. However, the statement in the survey specified ingredients that are legal and are deliberately and explicitly included in many processed foods. For decades now the media and popular culture have been full of conflicting opinions about how food ingredients factor in cancer, cardiovascular disease and autoimmune conditions.





**Alcohol consumption and binge drinking** is a significant concern at a mean of 3.16, with 43 percent finding it “very important.” WHO estimates that more than 3 million people worldwide died as a result of harmful alcohol use, which is blamed for more than 5 percent of the global disease burden as well as injuries, accidents and suicides.<sup>17</sup> In fact, the WHO says the harmful use of alcohol is one of the leading risk factors in population health worldwide and has a direct impact on many health-related targets of the Sustainable Development Goals.<sup>18</sup>

**Obesity** also rated a mean of 3.16, with 40 percent finding it very important. The WHO reports that overall, about 13 percent of the world’s adult population (11 percent of men and 15 percent of women) were obese in 2016, and the prevalence of obesity nearly tripled between 1975 and 2016. The WHO says that obesity is implicated in cardiovascular disease, diabetes, arthritis and some cases of cancer.<sup>19</sup>

**Unwanted pregnancies and family planning** came relatively low in important public health issues with 3.13 mean score and 41 percent scoring it “very important,” although ratings varied substantially between countries. High importance ratings were turned in by some of

---

17 <https://www.who.int/news-room/fact-sheets/detail/alcohol>

18 [https://www.who.int/substance\\_abuse/publications/global\\_alcohol\\_report/en/](https://www.who.int/substance_abuse/publications/global_alcohol_report/en/)

19 <https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight>

## Public Health—Much Harder than Rocket Science

the developing countries in the survey: South Africa (3.55, 66 percent), Philippines (3.61, 70 percent), Serbia (3.69, 74 percent), Mexico (3.56, 68 percent) and Colombia (3.71, 77 percent). Low importance ratings were registered by Japan (2.77, 18 percent), Germany (2.68, 20 percent), Italy (2.87, 24 percent), U.K. (2.88, 24 percent) and Australia (2.76, 21 percent)—all developed countries with low birth rates. The World Health Organization notes that 214 million women of reproductive age in developing countries who want to avoid pregnancy are not using a modern contraceptive method.



**Smoking** was given a lower priority by respondents ranking government time and resources dedicated to public health issues, with a mean of 3.13 and 43 percent rating it “very important.” The World Health Organization says that the tobacco epidemic is one of the biggest public health threats the world has ever



faced, killing more than 7 million people annually. In WHO's estimation, more than 6 million deaths a year are the result of direct tobacco use.<sup>20</sup>

Survey respondents ranked **opioid abuse** lowest on the list, with a mean of 3.09 and 45 percent rating it “very important.” As an issue covered in the media, the term “opioid abuse” is relatively new and technical. It has been far more common to talk either in general terms about drugs, narcotics and substance abuse, or about specific types of drugs such as heroin, opium, cocaine, crack and crystal meth. In talking about substance/ drug abuse as a health topic,<sup>21</sup> the World Health Organization divides the subject between alcohol and other psychoactive substances. It estimates that 275 million people worldwide use illicit drugs and 31 million of them suffer from drug use disorders. “Opioid abuse” has been primarily an American health issue referring to prescription opioid abuse,<sup>22</sup> which is estimated to have caused 183,000 overdose-related deaths in the United States between 1999 and 2015.<sup>23</sup> Some other high-income countries have experienced problems with prescription opioids for pain relief, but we are seeing epidemics of dependency and a large toll of overdose deaths mainly in the U.S. and Canada.

---

20 <https://www.who.int/news-room/fact-sheets/detail/tobacco>

21 [https://www.who.int/substance\\_abuse/en/](https://www.who.int/substance_abuse/en/)

22 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5993682/>

23 <https://www.who.int/bulletin/volumes/95/5/17-020517/en/>

## Public Health—Much Harder than Rocket Science



For the purposes of this paper, we will not look further at three of the issues outlined above. We are eliminating analysis of sexually transmitted diseases and unwanted pregnancies because corporations' products and services cannot reasonably be regarded as significant factors in the matrix of these public health issues. We will not look further at opioid abuse, either, because it's only in a few countries that legally produced products have begun being considered in regard to this issue. In the rest of the world, opioid abuse is generally confined to an illegal narcotics problem.

In this paper we focus instead on the remaining six public health issues listed in which corporations and their products can reasonably be regarded as relevant. We will in fact treat two of these public health issues—food health and obesity—as aspects of one underlying cause.



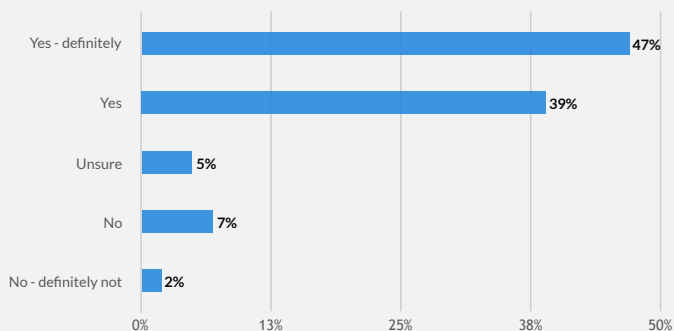
## Consumers, Corporations and Authorities in Public Health Issues

Each of the public health issues analyzed in this section of the paper is a product of a process of trade-offs between consumers, corporations and authorities.<sup>24</sup>

**Consumer** demand on a massive scale is a driver of these public health issues.

Consumers want corporations and authorities to give them access to a constant supply of attractive and quality-assured products at affordable prices with limited personal restrictions on how they use the products.

### Consumer goods companies have an obligation to continually research and innovate their products in the interest of public health



24 This phrase is inspired by the phrase “The Game of Bank Bargains” coined by Charles W. Calomiris and Stephen H. Haber in their Book “Fragile by Design”



## Public Health—Much Harder than Rocket Science

They want corporations and authorities to ensure that those products and services don't expose them to unexpected health risks arising from product faults, adulteration or contamination. And they want corporations to work hard at developing products in the interests of public health, as indicated by survey responses on this topic.



The great majority of survey respondents (86 percent) agreed that consumer goods companies have an obligation to continually research and innovate their products in the interest of public health. Of that great majority, almost half the sample (47 percent) agreed emphatically (“Yes—definitely”). Yet while they may think that corporations have an obligation to work hard on such products, not to mention on other corporate social responsibility fronts, many consumers feel no corresponding obligation to buy or use such products. Consumers appear to want options without obligations. Research on this topic has indicated that even though



consumers say they care about this issue, many do not consistently follow through when it comes to shopping habits.<sup>25</sup>

---

**While people may hold corporations and authorities accountable, it appears they also expect the freedom to live as they want and to use products as they want, even if that involves them incurring health risks.**

**Corporations** are in the business of anticipating and meeting consumer demand in a competitive environment. To stay in business, they have to keep innovating; they have to keep modifying their products to ensure that they stay in line with consumer expectations. They want consumers to prefer their products over those of the competition. They want consumers to reward their efforts by developing an emotional bond—“brand loyalty”—with them. And they want authorities to provide a stable legal framework for them to do business—“the rule of law”—that allows them to invest, compete and innovate.

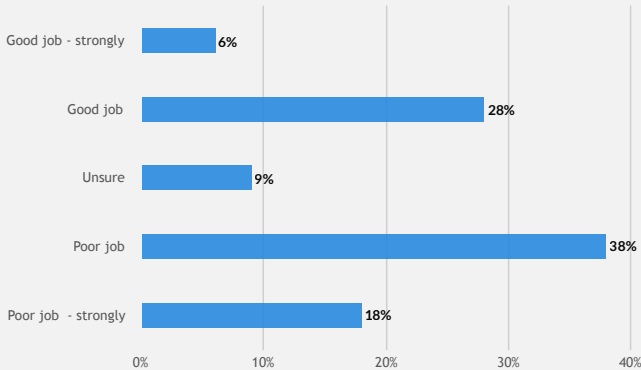
---

25 <http://spendmatters.com/2016/02/15/ethical-sourcing-do-consumers-and-companies-really-care/>

## Public Health—Much Harder than Rocket Science

**Authorities** are there to look after public health, both through the medical system and through regulations that help to ensure consumer protection—but they don't have unlimited room to maneuver. They need to balance the costs of fostering public health against the resources that they can muster. They need to discharge their public health duties effectively, so that both citizens' exposure to health risks and healthcare burdens are minimized, and they avoid public criticism and legal liability. At the same time, they must achieve this without interfering too much in the private lives of citizens and in the business of corporations. Consumers expect authorities to give them information about, and access to, products that can ultimately foster public health. However, our survey indicates that the world's citizens are not greatly impressed with how authorities have done on this score. Well over half of respondents (56 percent) rated authorities as doing a poor job.

**Generally speaking, do you believe authorities in this country have done a good job or a poor job ensuring everyone has access to the latest innovations and advancements that can improve public health?**





In theory, authorities could greatly improve public health by implementing radical measures at a stroke, simply banning products and behaviors that lead to public health issues. The inevitable outcomes of this approach are discussed above—take the example of alcohol. In practice, most authorities are generally neither able nor willing to take such steps to reduce these public health risks. They are constrained by budgetary needs and by having to balance political, lobbyist and media pressure. And most governments still believe in a degree of consumer sovereignty and responsibility.

## Public Health—Issues in Five Specific Areas

In this section of the paper, the issues are covered in the order of importance given by survey respondents.

### **Air Pollution**

Our survey respondents scored air pollution as the most important public health problem. While we may think it's a modern problem, it's actually been an issue ever since humans have used fire. The walls of caves that were inhabited many thousands of years are covered with thick layers of soot from fires that prehistoric people used for cooking and heating. The lungs of mummified bodies from the Paleolithic era are frequently black

## Public Health—Much Harder than Rocket Science

with soot.<sup>26</sup> In ancient Rome, air pollution was known as *gravioris caeli* (heavy heaven) or *infamis aer* (infamous air).<sup>27</sup> Still today, indoor air pollution is a major problem in traditional and poor dwellings that don't have sufficient ventilation to remove cooking smoke and fumes.



However, it's outdoor air pollution that now makes the news, prompting dramatic images and causing public health problems all over the world. And it's largely related to the huge increase in fossil fuel consumption. In 1800, when the Industrial Revolution had barely started and coal was the only fossil fuel in use for heating, cooking and industry, global fossil fuel consumption is estimated to have been 97 terawatt

---

26 <http://www2.sci.u-szeged.hu/eghajlattan/akta03/005-015.pdf>

27 <http://environmentalhistory.org/about/airpollution/>



hours (TWh). A century later, in 1900, crude oil was starting to join the energy mix, and global fossil fuel consumption had increased to 5,972 TWh. Another century later, in 2000, consumption was 86,844 TWh—split between gas (27 percent), crude oil (44 percent) and coal (29 percent). And in just 16 years, by 2016, consumption rose another 40 percent, to 132,051 TWh.



Air pollution that impacts health is arguably the visible aspect of a less perceptible but even bigger problem caused by burning fossil fuels: rising levels of CO<sub>2</sub> in the atmosphere. Still, while some people may not believe that increased CO<sub>2</sub> is causing climate change—or may not care much—it's hard for them to ignore air pollution, so that's what prompts calls for action. However, it's hard for consumers, corporations or authorities acting alone to take effective action to reduce it. Short of living “off the grid,” we are all significant energy consumers. Virtually every aspect of modern life requires energy consumption, and most of that energy is still derived

## Public Health—Much Harder than Rocket Science

from burning fossil fuels: power generation, transit, transportation, construction, heating and cooling. Even if the share of renewables in meeting global energy demand grows by one-fifth in the next five years, to reach 12.4 percent in 2023,<sup>28</sup> it still leaves a lot of air pollution from fossil fuels.

In the survey, consumers rated it very important for government to dedicate time and resources to tackling air pollution. However, initiatives by governments and authorities to reduce harmful emissions typically involve new regulations that increase costs for corporations and/or consumers. Higher costs tend not to score so well in practice. For example, governments may seek to incentivize fuel economy by increasing tax on, or reducing subsidies for, automotive fuels. But this can trigger serious resistance, as various governments around the world have discovered—most recently in France with the “gilets jaunes” protests. On a more local level, it can be easier for cities to take steps.

In Europe, more than 200 cities in 10 countries have implemented low emission zones (LEZs) where the most polluting vehicles are either banned or have to pay an access fee.<sup>29</sup> Many cities aren't so accommodating. Paris doesn't have an LEZ, but the administration of Mayor Anne Hidalgo has been busy reducing the scope for internal combustion vehicles in the city with the aim

---

28 <https://www.iea.org/renewables2018/>

29 <https://www.theaa.com/european-breakdown-cover/driving-in-europe/european-low-emission-zones>



of eliminating them entirely by 2030.<sup>30</sup> However, this policy has stirred up much political and voter opposition. In the United States, the administration of the fast-growing city of Nashville, Tennessee, proposed a \$5 billion transit plan to deal with its gridlock and pollution. Voters rejected the plan emphatically by a two-to-one margin.

The net-net for now is that citizens don't like the air pollution caused by traffic in general, but they do like the comfort and convenience of their own car whenever possible. And they don't like paying more, in cash or inconvenience, to tackle pollution.

---

**So after decades of being a major cause of air pollution, it's likely to be automotive corporations that provide part of the solution to the dilemma with electric vehicles—especially if authorities provide incentives for consumers to buy them and use them.**



## Public Health—Much Harder than Rocket Science

### Mental Health

You can readily detect air pollution, measure it with instruments and identify where it comes from. You can scientifically test the ingredients of food products, you can measure blood alcohol levels and liver function indicators. You can see obesity, smoking and opioid abuse, and measure their medical effects scientifically. It's not so transparent with mental health, which in the survey emerged second only to air pollution as the public health issue requiring government time and resources. Of all the public health issues covered in the survey, mental health is the most subjective and the most intangible.





Neurological disorders such as vascular dementia and Alzheimer's have a clear physiological basis, although it's still not clear what causes them. But the situation is even less clear with conditions that are now regarded as mental and mood disorders such as depression, ADHD, obsessive-compulsive disorder, anxiety disorder and PTSD—some of the many conditions covered in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), the international bible for mental health professionals.<sup>31</sup> With many of these conditions, such as ADHD and depression, there's continuing disagreement about whether they are newly emerging disorders or just normal patterns of human behavior that have been medicalized.<sup>32</sup> And in either case, are they becoming objectively more problematic, or are societies becoming more sensitive and responsive to them? And again, in either case, are there factors in modern life that tend to cause more mental health problems?

There are many potential—and likely potentially confounding—factors leading to these problems. For the purposes of this paper, we will only mention one, which to us does not seem necessarily intuitive, is new and appears to be generating debate among consumers, corporations and authorities. Screen-based interactive technologies have gone from being hailed as dream devices to increasingly being cast as potential nightmares. In a zeitgeist characterized by free-floating

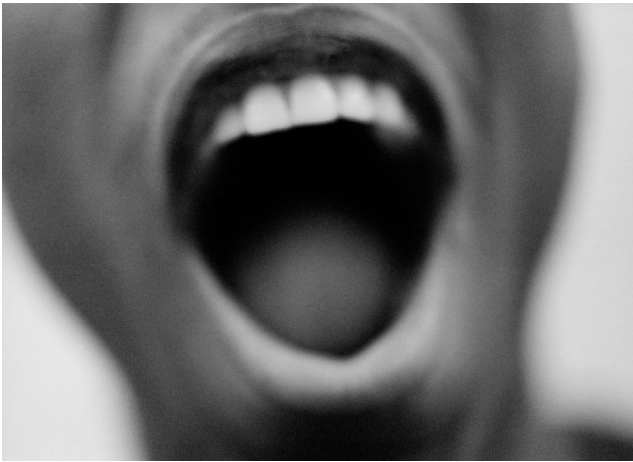
---

31 <https://www.psychiatry.org/psychiatrists/practice/dsm>

32 [https://www.researchgate.net/publication/299750844\\_Is\\_ADHD\\_a\\_'real'\\_disorder](https://www.researchgate.net/publication/299750844_Is_ADHD_a_'real'_disorder)

## Public Health—Much Harder than Rocket Science

anxiety, tech is a powerful newcomer with huge impact and unknown long-term implications. A lot of discussion about it now has tones of the moral panics that swirled around other new technologies in their day—the telephone and TV in particular.<sup>33</sup> Tech accelerates, amplifies and spreads information about whatever people find compelling, which now includes scare stories about tech. It's still early days—the world has been living with smartphones and social media for barely 10 years.



The various branches of the tech industry have understandably been intent on driving development, breaking new ground and shipping products fast. The industry has barely had time to draw breath, let alone look around and worry. Still, as it matures fast, it is reflecting on its effects and asking deep questions

---

33 <https://boingboing.net/2018/01/23/panicked-parents.html>



of itself.<sup>34</sup> <sup>35</sup> Both inside the industry and outside there's now an appetite for researching the effects of technologies that are used by over 2.5 billion people worldwide.<sup>36</sup>



To date, internet addiction disorder and technology addiction disorder are not included in the DSM, but they are being increasingly discussed and taken seriously by mental health professionals.<sup>37</sup> Suspected symptoms listed include depression, feelings of guilt, anxiety, isolation, agitation, mood swings, fear and loneliness.

---

34 <https://www.ft.com/content/a3ea16f6-7edd-11e8-bc55-50daf11b720d>

35 <https://www.recode.net/2018/7/8/17541986/transcript-glitch-fog-creek-ceo-anil-dash-software-too-embarrassed-kara-swisher-podcast>

36 <https://www.statista.com/statistics/330695/number-of-smartphone-users-worldwide/>

37 <https://www.psycom.net/iadcriteria.html>

## Public Health—Much Harder than Rocket Science

This is one area of mental health where tech corporations are beginning to take notice. They face a difficult paradox: Their products and business models are attention-based. Whatever they do to help consumers cut down their screen time reduces the very thing that generates the bulk of their cash—consumers’ attention. Individual tech companies that get their revenue from advertising can’t afford to make their products less compelling because other tech companies will step in with more compelling products. Unless something substantial changes, the whole tech ecosystem effectively depends on successfully competing for consumers’ time and attention.

For their part, consumers for their part may be more or less concerned about the impact tech use has on them and their families. But as with any habit, it takes a lot of determination to control them, especially when the devices can be justified by the functional benefits they provide (“just checking my email/stock portfolio/step count/calorie allowance”).

As for governments and authorities, even if they could devise regulations to deal with the various forms of unhealthy use of tech, it seems likely they would be virtually impossible to enforce in the online world where borders count for little. Rather than regulating the products, one current strategy is to help consumers deal with their tech-use issues. For example in South Korea, one of the most wired countries in the world, the government sponsors about 200 counseling centers and hospitals with programs on “internet addiction” and has



trained more than 1,000 counselors.<sup>38</sup> For the most part, however, tech overuse treatments are offered by private providers rather than by health authorities. While tech overuse issues may be increasingly recognized as a public mental health challenge, it faces competition for government resources from more established problems such as narcotics, alcohol, smoking and gambling.

## Alcohol Consumption and Binge Drinking

Unlike digital technology, alcohol consumption has a long, long history. There is evidence that people have been fermenting grain, fruit juice and honey for 9,000 years—since 7,000 BCE.<sup>39</sup> In fact, since fermentation happens naturally in the wild, alcohol consumption probably predates civilization. Some academics (and plenty of non-academics) believe that alcohol helped prehistoric humans become more creative and fostered the development of language, the arts and religion.<sup>40</sup> According to the Drunken Monkey hypothesis, primates that learned to take advantage of fermenting fruit had access to more calories and were more likely to mate successfully.<sup>41</sup> However, it's one thing for people (and animals<sup>42</sup>) to occasionally take advantage of natural

---

38 <https://www.cnn.com/2017/08/29/us-addresses-internet-addiction-with-funded-research.html>

39 <https://www.drugfreeworld.org/drugfacts/alcohol/a-short-history.html>

40 <https://www.nationalgeographic.com/magazine/2017/02/alcohol-discovery-addiction-booze-human-culture/>

41 <https://www.nationalgeographic.com/magazine/2017/02/alcohol-discovery-addiction-booze-human-culture/>

42 <https://www.nationalgeographic.co.uk/animals/do-animals-get-drunk>

## Public Health—Much Harder than Rocket Science

fermentation, which provides a limited seasonal supply of weak alcohol and a light “buzz.” It’s quite another when they have year-round access to mass-produced supplies of high-strength alcohol.



There are significant health effects from alcohol abuse. As highlighted earlier in this paper, the World Health Organization says that the harmful use of alcohol can be directly blamed for more than 5 percent of the global disease burden as well as injuries, accidents and suicides.

One of the key factors in this public health problem is the notion of “harmful use of alcohol.” In many cultures, drinking alcohol is a normal, unremarkable part of adult life. It is deeply embedded in social traditions and rituals, to the extent that in some cultures, someone deliberately not drinking alcohol may feel the need to explain why: typical reasons given are religion,



antibiotics, pregnancy, being a designated driver or being a recovering alcoholic. It's widely regarded as normal and even amusing that people occasionally drink "a little too much" and behave erratically. For most people it's very unclear how and when this "normal" use of alcohol becomes "harmful use of alcohol."



From the perspective of consumers, alcohol is mostly not a problem. It's legal, it's socially endorsed and encouraged and it's a source of pleasure, with a huge range of product variations to appeal to all tastes and all occasions. It offers scope for conviviality, cultural exploration and connoisseurship. The only downsides that consumers may complain about are loss of control and hangovers. Certainly, a substantial proportion of our survey respondents found that alcohol consumption and binge drinking were important public health issues. However, there are few signs of media panic over the issue—far less than there is over air pollution, mental health or obesity.



## Public Health—Much Harder than Rocket Science

From the perspective of corporations, alcohol is a dynamic ever-changing market with endless scope to satisfy consumer demand—all legally, and often with an aura of prestige.

Authorities are the odd ones out. Unlike consumers and the alcohol industry, they have long been concerned about the public order and problematic effects of alcohol, prompting them to regulate alcohol sale and consumption through regulation and taxation. They are also concerned about the long-term health effects of alcohol consumption. A massive study of alcohol use from 694 sources in 195 countries and territories from 1990 to 2016 concluded that alcohol consumption is more harmful than previously advocated in health guidelines and that “Policies that focus on reducing population-level consumption will be most effective in reducing the health loss from alcohol use.”<sup>43</sup>

### Healthier Food and Obesity

The Healthier Food and Obesity public health issues are not identical, but they are closely related. While there is still discussion about the effects of dietary salt and various types of dietary fat—trans fats and saturated fats—there is widespread consensus in most countries that high intake of dietary sugar is implicated in obesity. Whatever controversies there may still be about the effects of other food ingredients, nobody is advocating

---

43 [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(18\)31310-2/fulltext#secsectitle200](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(18)31310-2/fulltext#secsectitle200)

that food and drink should contain more sugar. Nobody is advising people to consume more sugar. On the contrary, people are being advised to consume less sugar.<sup>44</sup>



Around the world, health authorities' opinions on this are consistent. The World Health Organization says excess sugar causes unhealthy weight gain and obesity, which are major risk factors for a number of noncommunicable diseases, including type 2 diabetes, cardiovascular diseases and certain types of cancer.<sup>45</sup>

In theory, consumers and corporations are also aware of all the advice to cut sugar consumption, but in practice

---

44 [https://www.who.int/elena/titles/guidance\\_summaries/sugars\\_intake/en/](https://www.who.int/elena/titles/guidance_summaries/sugars_intake/en/)

45 <https://www.who.int/elena/titles/free-sugars-adults-ncds/en/>

it's easier said than done.

---

Despite corporations providing healthier options, consumers tend to like sweetness—absent regulations that limit or penalize sugar content—that's what corporations focus on providing to satisfy consumer demand.

With global sugar consumption at around 177 million tons<sup>46</sup> and world population at around 7.7 billion,<sup>47</sup> that averages out at around 23 kilos (50 pounds) of sugar per head a year. However, there are wide variations between countries from the United Arab Emirates with 214 kg per person per year, through Brazil (51 kg), Australia (48 kg), the U.S. (34 kg) and the U.K. (30 kg) to China (11 kg) and Afghanistan (1kg).

A few national health authorities have taken steps intended to address this public health issue. In 2018, the U.K.—like Mexico, France and Norway—introduced a sugar tax on soft (non-alcoholic) drinks, with the level of tax determined by sugar content by volume—although

---

46 <https://www.foodingredientsfirst.com/news/sweet-survey-who-are-the-worlds-biggest-sugar-consumers.html>

47 <http://www.worldometers.info/world-population/>



there are no additional U.K. taxes on high-sugar foods such as cakes and cookies.<sup>48</sup> With soft drinks, at least, reducing sugar is clearly the direction. For some years now corporations have been offering low- and no-sugar alternatives to their “classic” full-sugar original products.

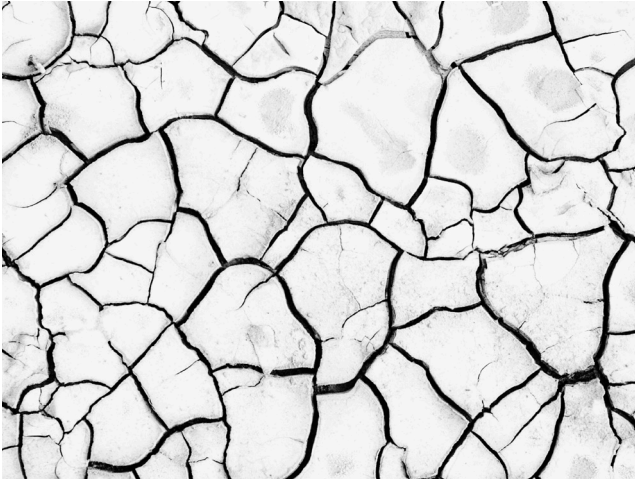
## Smoking

Of the public health issues examined in this paper, smoking is probably the most unequivocally recognized as being addictive and harmful for health. Neither consumers, corporations nor authorities have any illusions about the ill effects of smoking. So why are there still cigarettes in the world?

If consumers are serious about not smoking, why don't they simply quit or never start? If authorities are serious about dealing with smoking, why don't they simply make cigarettes illegal? And if tobacco companies are serious about cigarettes being harmful then why don't they simply stop producing cigarettes?

Overall, the trend continues to be declining smoking prevalence and initiation. But there are still many adults who start smoking or don't stop—just as there are many consumers who continue to engage in other risky or unhealthy behaviors despite knowing they shouldn't.

## Public Health—Much Harder than Rocket Science



Government actions over the last several decades show that they are keen to prevent people from smoking. The trend has long been for authorities to pursue a “squeeze” strategy of making it more difficult for consumers to buy and smoke cigarettes. By ratcheting up the tax on cigarettes, they aim to discourage smoking by making it increasingly expensive. By placing strict limits on cigarette advertising and pack branding they aim to make cigarettes a much less attractive proposition. And by banning smoking from enclosed public places (e.g., bars and restaurants) they aim to reduce the scope for people to smoke in such public environments.

To date, only one major tobacco company—Philip Morris International—has declared flat-out its intention to build its future on products that are a better alternative to cigarettes for the large population of existing adult smokers who would otherwise continue to smoke.



Indeed, their vision is that these products will one day replace cigarettes in their portfolio. Why only one company? Almost two decades into the 21st century, why is this such a challenge? An individual company could, in theory, simply decide to stop cold. But this would do nothing to address the public health issue because other companies would rush in to take up the slack.

So there's a sort of stalemate.

---

## Authorities are not going to force corporations and consumers to quit cigarettes overnight.

In fact, according to WHO estimates, by 2025 there will be roughly 1 billion people who smoke, more or less the same number as today.<sup>49</sup> And as long as cigarettes remain legal and consumers continue smoking them, tobacco companies will continue to supply cigarettes. One company is intent on creating new products that satisfy smokers but are less harmful alternatives to continued smoking.



In the game of trade-offs, the smart move for corporations is surely to focus on developing these products for men and women who would otherwise continue to smoke. Certainly among the smokers in the 31-country survey (n=4,547), 80 percent said they would consider switching to less harmful alternatives to cigarettes if they were legal, met quality and safety standards, and were as conveniently available as regular tobacco products. A similar 80 percent said they would be more likely to consider switching to less harmful alternatives to cigarettes if the government provided clarity on the health risks of these products compared to cigarettes and other combustible forms of tobacco.



## Conclusions and Implications

This paper has focused on five public health issue areas that are in some way driven by deep-rooted consumer behaviors. A major cause of air pollution is “fossil fuel addiction.”<sup>50</sup> Compulsive use of interactive technology is emerging as a potential risk factor in mental health problems. Sugar consumption is implicated in food health and obesity. Alcohol use and binge drinking involve behaviors that fall somewhere along the continuum of ingrained habit, craving and addiction. And smoking, beyond doubt, is addictive and harmful, despite the pleasure that it brings to many consumers.

These have evolved into public health issues through the back and forth of feedback between consumers and industry. Corporations work hard to create products that satisfy consumer needs, and consumers respond to the best products by using them. Some consumers may become concerned about negative consequences of using the products, and they may even try to cut down, give up or go through a “detox.” But that takes a lot of effort, and consumers are mostly okay with having their needs met—few fundamentally change their behavior long term. When asked, as in the survey, they may express concern about public health issues, but that doesn’t mean they’re concerned enough to change their own behavior. Corporations have to pay attention to consumers’ opinions, but it’s how they respond to



## Public Health—Much Harder than Rocket Science

consumers' behavior that is most imperative. They may aspire to have consumers' long-term interests at heart and create their products accordingly, but that will benefit nobody if they produce well-intentioned products that don't meet consumer demand.

Unhealthy lifestyle habits represent a major challenge for public health authorities. Typically, their primary focus is on treating acute medical needs (e.g., trauma, organic disease conditions) that require medical expertise and therapies. The weight of professional healthcare training delves deep and narrow into clinical specialties such as immunology, endocrinology, oncology, rheumatology and gastroenterology. It's no criticism of public health authorities to say that society has not yet worked out effective approaches for dealing with public health issues that are caused by legal dealings between corporations and consumers. With the best will in the world, health authorities on their own cannot muster the same focused commitment to understanding and influencing consumer behavior as corporations can. They don't stand or fall by their ability to understand consumers and shape their preferences. They don't have to provide credible products and services in order to survive.

By contrast, corporations have to be experts in consumers and markets. They are equipped to work with authorities to tackle some of the public health issues that their products have created. Consequently, authorities should be finding more ways to work with corporations and tap into their resources. They need



to devise effective carrot-and-stick incentives for corporations to direct their ingenuity and self-interest into creating meaningful solutions. This is already happening in the automotive industry to tackle air pollution. The automotive market is being shaped by citywide bans in Europe on the most polluting engine types such as diesel, and by tax breaks on low- and zero-emission vehicles.<sup>51</sup> In the food and drink industry, sugar taxes and media concern about sugar are prompting corporations to reformulate their products with reduced sugar content.<sup>52</sup>

From a moralistic perspective it may seem perverse for consumers and health authorities to expect businesses to help. How can they be trusted to devise solutions to the health problems relating to their products? Indeed from a purely pragmatic perspective, it would be perverse not to involve them. A lot of consumer behavior is emotionally driven. The challenge for authorities will be to take an evidence-based approach to foster healthier consumer behavior— to identify the most effective mix of regulations and behavioral science nudges.<sup>53</sup> Most corporate behavior is highly rational. With the right discussion and oversight, corporations can be reliable partners in helping to tackle some of today's public health issues.

---

51 [https://www.marklines.com/en/report/rep1792\\_201812](https://www.marklines.com/en/report/rep1792_201812)

52 <https://www.foodnavigator.com/Article/2018/01/03/2018-and-beyond-Five-mega-trends-set-to-shape-the-food-industry>

53 <http://behavioralscientist.org/nudge-turns-10-a-special-issue-on-behavioral-science-in-public-policy/>

## **Appendix: Methodology**

The survey questionnaire was designed by Philip Morris International and conducted online by Ipsos Hong Kong Limited. Fieldwork was carried out Sept. 4-19, 2018, yielding a sample of 31,002 respondents from 31 countries: Argentina, Australia, Austria, Brazil, Bulgaria, Colombia, Czech Republic, Egypt, France, Germany, Greece, India, Indonesia, Italy, Japan, Malaysia, Mexico, New Zealand, Philippines, Poland, Romania, Russia, Serbia, Singapore, Slovakia, South Africa, South Korea, Spain, Ukraine, U.K. and U.S. For each country the questionnaire was fielded in the local language.

Sampling aimed for a general population of adults from each country, screened to be no younger than the market legal minimum age for purchase of cigarettes, e-cigarettes and other tobacco- and nicotine-containing products. The mean age of the whole sample was 44, with the oldest mean, of 51, in Japan and the youngest, of 37, in Egypt.

The results were tabulated with a margin of error  $\pm 0.6$  percent at the 95 percent confidence interval.

This paper draws on the results of PMI's proprietary September 2018 survey as well as third-party data.



**Trademarks:**

Trademarks and service marks in this report are the registered property of, or licensed by, the subsidiaries of Philip Morris International Inc., and are italicized or shown in their logo form.

**Photography:**

[unsplash.com](https://unsplash.com/) / [pexels.com](https://pexels.com/)

## **Public Health—Much Harder than Rocket Science**



PHILIP MORRIS INTERNATIONAL

**PHILIP MORRIS INTERNATIONAL  
MANAGEMENT SA**

Avenue de Rhodanie 50  
1001, Lausanne  
Switzerland

**Contact:**

Marian Salzman  
SVP Global Communications  
Email: [Marian.Salzman@pmi.com](mailto:Marian.Salzman@pmi.com)  
Mobile: +16463611837

**Web Site:**

[www.pmi.com](http://www.pmi.com)



