

Forecasting as a Tool to Effectively Communicate Pressing
Information: A Look Into Meat Consumption, Climate Change,
and Alternative Food Networks

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It is estimated that cattle are responsible for about 65% of the livestock sector's emissions, which, worldwide, is responsible for between 14.5 percent and 18 percent of the total annual human-driven greenhouse gas emissions. [1] At the same time, global meat production is projected to be 16 percent higher in 2025 than in the base period (2013-15). [2] Not only does the current system raise disconcerting ethical questions on animal treatment, resource use, and public health - afterall, high meat consumption is linked to heart disease, stroke, diabetes, and several cancers, but it is also highly unsustainable and is a leading greenhouse gas emitter. [3]

To help fight climate change and improve public health, it is clear that there needs to be a drastic change in our meat consumption behaviour. This change can be manifested globally by cutting down total meat consumption, replacing meat with alternatives like plant-based proteins and alternative meats, and/or transitioning to alternative, sustainable food systems. All three of the aforementioned approaches must happen simultaneously to communicate a clear, action-driven message: the world needs much less *traditional* meat production. Behaviours that limit the success of the meat industry's business model today must be practiced by both the public and industry leaders themselves to reduce greenhouse gas emissions.

Of the three approaches, the everyday consumer can easily subscribe to cutting down meat consumption and/or replace meat with alternative meats. This subscription is a matter of personal choice: consuming meat produced by large corporations should be perceived as a harmful luxury - its nutritional benefits are far outweighed by its impacts on our and the environment's long-term health. The problem is fundamentally a problem of choice, and the everyday consumer should be making more thoughtful choices with how they spend their money. Afterall, the money spent by everyday

consumers dictates the success or failure of a business model adopted by large corporations, which in return determines their product offerings. Companies will sell products that make them money.

As for the last approach, transitioning to sustainable food systems, the everyday consumer, in a similar manner, can influence the direction to which the food industry transitions to. This direction depends, however, on how strong the public is willing to cut down on meat consumption and/or replace meats with alternatives. In the short-term, the strategy adopted by the largest companies will mainly steer the direction of the industry as they are in control of larger market shares. In the long-term, the most profitable companies will capture a larger market share and steer the industry's direction. Having this important distinction in mind, it becomes easier to see that corporations, as opposed to everyday consumers, have greater control in prompting abrupt change. Since fighting climate change requires abrupt change, the focus of this blogpost is on corporate choices today. Nevertheless, consumer choice still has a crucial role in the short-term as corporations make decisions today based on future consumption projections. As such, when corporations look into making decisions today, they should take into account the following future scenario matrix:

- High Public Divestment From Meat + High Cost of Alternative Meat Production (1st quadrant):

The everyday consumer is **committed** to promote industries that compete with the meat industry and is also committed to cut down their meat consumption to prompt sustainable corporate practices + Companies are **unable** to commercially scale alternative meat production. This future is desirable and will sway companies to look into alternative foods systems.

- High Public Divestment From Meat + Low Cost of Alternative Meat Production (4th quadrant):

The everyday consumer is **committed** to promote industries that compete with the meat industry and is also committed to cut down their meat consumption to prompt sustainable corporate practices + Companies are **able** to commercially scale alternative meat production. This future is desirable and will effectively reduce greenhouse gas emissions in the livestock sector.

- Low Public Divestment From Meat + High Cost of Alternative Meat Production (2nd quadrant):

The everyday consumer is **not** committed to promote industries that compete with the meat industry and is also committed to cut down their meat consumption to prompt sustainable corporate practices + Companies are **unable** to commercially scale alternative meat production. This future is not that different from today and will threaten our long-term livelihood.

- Low Public Divestment From Meat + Low Cost of Alternative Meat Production (3rd quadrant):

The everyday consumer is **not** committed to promote industries that compete with the meat industry and is also committed to cut down their meat consumption to prompt sustainable corporate practices

+ Companies are **able** to commercially scale alternative meat production. This future relies on how willing companies are to offer and market their sustainable products.

We suspect that the most likely scenario could be Low Public Divestment From Meat + Low Cost of Alternative Meat Production (3rd quadrant). This could be the case because alternative meat technology is constantly improving and although there is a considerable ideological and psychological public resentment towards unsustainable industry practices, people are less inclined to convert their stances to consistent real-world behaviour through consumer choice. Furthermore, because the barrier to entry in the alternative meats industry is high (difficult technology), it is likely that many organizations, unions, and smaller companies will feel unsettled about monopolistic behaviours industry leaders would exhibit in a future where consumers want alternative meats. As a result, these organizations, unions, and smaller companies would influence public opinion in favor of current practices, as clearly seen today by non-GMO advocates.

It may be worth considering a future where alternative meats companies fail and there are strong public divestment movements (High divestment + High production costs). Alternative meats are the best substitutes to meats given that people still want to eat meat. However, what happens if alternative meats are not an option when people still want to eat meat? With our assumption of High Divestment, it is permissible to predict that people will refrain from consuming meat produced the way it is today. In this case, the total demand for meat will be greatly reduced.

Moreover, It is very possible that the growth of the alternative meat industry would maintain the current social acceptance towards meat consumption, potentially preventing industry leaders from needing to find innovative and sustainable ways to provide food in general. If large corporations

primarily focus on meeting a public demand for alternative meats, then it is likely that many of the industry's problems now and in the future will be solved in a similar fashion: old product and its alternative. While this problem-solving approach does lead to the adoption of desirable alternatives, it also blinds companies from looking into an innovation strategy that ensures a sustainable and affordable supply of food to everyday consumers. If alternative meat initiatives fail and there is still a strong public divestment from *traditional* meats, then food companies will be incentivized to transition from industrialized networks to alternative food networks (AFNs), the third and potentially most effective approach to combating climate change. In specific, AFNs should be an effective target for large food companies to pursue in a future absence of alternative meat options but with high public pressure.

Alternative food networks are systems outside conventional, industrial agricultural practices and include local, organic, and cooperative models. Of the AFNs, food cooperatives, which are typically consumer cooperatives where members make decisions on food production and distribution, have distinctive benefits that sets them apart from conventional retail. Cooperative grocery stores keep prices more cost representative because surpluses cannot be translated into profits, offer more sustainably sourced products, and have a central role in agricultural markets as they generate a pro-competitive effect in imperfectly competitive markets.[4][5] In addition to that, cooperative grocery stores have very low food losses when compared to most studies of conventional retail. [6] Since conventional food systems operate on economies of scale, a lot of food is wasted in the process.

Eliminating food waste is crucial to fighting climate change: it is estimated that globally 1.3 billion tons of food is wasted every year, creating a greenhouse gas footprint larger than all countries except China and the US, wasting 30% of the world's farmlands, and costing \$750 billion. [7] In the

US, nearly 40% of all food is wasted primarily due to consumers purchasing more food than they need. The majority of food waste, however, occurs before processing distribution, and consumption: 54% of food wasted happens during and after food harvesting.

The losses associated with food waste create an opportunity for leaders in the food industry, even at the retail level, like Safeway for instance, to incorporate cooperative-like models. By doing so, Safeway could increase their profitability and successfully integrate socially responsible values and key community stakeholders to their business model. In a future where public pressure is high and companies cannot offer viable meat alternatives, supermarkets like Safeway will need to incorporate cooperative-like structures at their grocery stores to reduce food waste, strengthen their supply chain, and keep their customers to maintain their operation. Moreover, by transitioning closer to a cooperative grocery, Safeway will attract more customers that align their consumer choices with companies that put the interest of their workers, local community stakeholders, and the environment alongside its shareholders.

There are a countless number of ways Safeway can incorporate cooperative models into its grocery store business. One simple way is by doing business with local stakeholders including farmers and ranchers and sharing profits with them and their own workers. Furthermore, Safeway could dedicate a day of the week to only sell local produce. They could also dedicate a day of the week solely to sell or donate food that would otherwise be wasted. They could partner with local grocery stores and have them connected to their supply chain. Moreover, Safeway could ask their most frequent customers once a month to vote on certain products to add or remove from their shelves to make sure they are aligning with the local community's values. Adding any feature to Safeway's operation that integrates the local communities into profit-sharing and product offering sets it apart from any

supermarket and makes it more likely to operate smoothly in times of strong social demands for more environmentally sustainable and socially equitable practices.

Using cooperative models in Safeway's operation would result in a favorable future scenario where most, if not all, stakeholders are winners. When the public puts pressure on businesses to perform on strict standards, most companies will struggle to test out new models immediately. However, with ample preparation, integration, and careful design, Safeway can beat its competition and stand out as a grocery store that puts the interest of its customers and their beliefs first. Certainly, in the short-run, Safeway would be a loser as they forfeit more profits to profit-sharing, but in the long-run, their operation is less vulnerable to public divestment and can attract a wider customer base. Other industrial supermarkets could be losers as well, especially if Safeway is able to capture their customers through branding itself as the only socially responsible supermarket at its scale. Safeway's solutions meet its own corporate needs of long-term profitability, the needs of the demanding public, and the needs of local community members that want to have an important and rewarding role by partaking in meaningful economic activities while fighting climate change.

References

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Weights:

- Midterm: 30%
- Project: 45%
- Well-being: 25/25% - Thank you so much for a rewarding, engaging, and thoughtful quarter! Much needed in the EE department :) I was able to learn and enjoy the material while focusing on connecting ideas from class to my everyday life and career aspirations. This should be the model for every class.