

When Transparency Hurts Customers: The Case of Post-Sales Process Trackers*

(Forthcoming, LSE Business Review)

Harish Guda

Milind Dawande

Ganesh Janakiraman

Managing the waiting experience of customers helps improve their satisfaction. To achieve that, many customer-facing organisations such as Uber, GrubHub, Domino Pizza, and even the Internal Revenue Service use process trackers. Information about the progress of orders helps customers resolve uncertainty about their wait times. However, Harish Guda, Milind Dawande, and Ganesh Janakiraman write that by being transparent, service firms create references — expectations about anticipated delay — that, if unmet, can hurt customer satisfaction.

The *process view* of a firm – namely, the consideration of the firm as a process that transforms inputs to outputs through a collection of value-adding tasks performed by resources – is arguably one of the most fundamental ideas in Operations Management (OM), and is taught to MBA students across the world. Such business processes are ubiquitous, both in manufacturing and services. Conventional performance metrics for processes, such as cycle time, flow time, resource and process utilization, bottleneck capacity and throughput, form the core of business process optimization.

In customer-facing processes, an often ignored metric is how transparent should a service firm's post-sales process be? For example, consider the post-sales process at Domino's Pizza. The post-sales process begins after a customer places an order online. The various tasks in this process are: preparation, bake, box and quality check, and delivery. Conventional business process optimization focuses on fulfilling the customer's order as quickly as possible through costly investments, e.g., hiring more workers, installing more ovens, etc., to smoothen bottlenecks, increase throughput and decrease

*This blog post is based on the paper "The Economics of Process Transparency" by Harish Guda, Milind Dawande, and Ganesh Janakiraman, *Production and Operations Management*, Forthcoming, 2023.

wait/flow time. While such process improvements increase customer satisfaction via lower wait times, customer satisfaction can also be improved without any costly investments via a better management of their waiting experience, by sharing information about their anticipated delay.

One popular tool that service firms use to provide information about the progress of a consumer's flow-unit is a *process tracker*. For example, Domino's Pizza provides real-time information about the status of a customer's order using a "pizza tracker" (Figure 1). Such process trackers are increasingly commonplace in many customer-facing industries,



Figure 1: Pizza Tracker at Domino's Pizza

e.g., [ride-hailing](#), [food delivery](#), [last-mile delivery](#), and even in [governmental agencies](#), e.g., [the Internal Revenue Service](#). Domino's pizza tracker – dating back to 2008 – is credited with boosting sales and revenue and establishing itself as the United States' [leading](#) pizza chain.

The value of such process trackers might seem straightforward. Information about the progress of customers' orders helps them resolve uncertainty about their waiting times. Service firms, e.g., [Uber Eats](#), strive to provide as much real-time information about a customer's order as possible, as the following quote suggests.

“In the case of food delivery, people intuitively understand the difficulties that arise when you're trying to get hot food from a restaurant in the real world and drive it from point *a* to *b*. By acknowledging some of that complexity, and being transparent about it, we can increase people's confidence a lot.

We obviously want to strive for as much accuracy as possible . . . the information we give our eaters is our best representation of what's going on that

we can possibly give them.”

— Andy Szybalski, (Former) Global Head of Product Design at Uber Eats.

However, by being transparent, service firms create references – expectations about anticipated delay – that, if unmet, can hurt customer satisfaction. For example, the ever-changing estimates of wait-times (also called estimated time of arrival, or ETA) is a source of dissatisfaction for customers as the following quotes suggest:

“First it was supposed to be 6:15. Then the time jumped to 6:28. Soon, the kids grow restless. The spouse points out that ordering in was a bad idea all along. It’s 6:45 and the Pad Thai still hasn’t arrived. What time was it supposed to get here? The new estimate is saying 6:53, but I swear I set the table almost 40 minutes ago. Anyone who has used Uber Eats on a busy night knows how it can feel like the interface is gaslighting you.”

— Customer complaint about [Uber Eats’](#) interface.

“I was fine with the way pizza used to work where they’d say it’d show up in 45 minutes and it would take an hour.”

— Customer complaint about [Domino’s Pizza](#) tracker.

As these quotes suggest, it remains unclear whether information provision via process trackers add more value than they hurt customer satisfaction.

Recent work in Behavioral Economics suggests that agents, e.g., customers, realize utility from news about their anticipated consumption, called [belief-based utility](#) (or news utility). Beliefs create an anticipation of future consumption, and directly affect current well-being. In this realm, two common economic forces are [loss aversion](#), the tendency to prefer avoiding losses to acquiring equivalent gains, and [diminishing sensitivity](#), the tendency to be diminishingly sensitive to gains and losses. These two forces constitute the core of [prospect theory](#) in the pioneering work of [Kahneman and Tversky](#). In the context of information about wait times, gains (resp., losses) correspond to a decrease (resp., an increase) in the anticipated wait time relative to a reference. Loss

aversion to news about wait time is equivalent to belief fluctuation aversion. Diminishing sensitivity to news about wait time is equivalent to greater psychological impact if the customer is informed of a change in anticipated wait via multiple congruent pieces instead of a one-shot update.

Our analysis provides the following insights. In the presence of loss aversion alone, not sharing real-time information about a customer's order (via process trackers) is beneficial. In the presence of loss aversion and diminishing sensitivity, if low delays are likely, then sharing information is beneficial; otherwise, not sharing information is preferred. This is because diminishing sensitivity suggests that providing multiple smaller pieces of good news dominates providing the same news in one-shot. Thus, if good news, i.e., low delays is likely, then process trackers improve customer satisfaction. However, if bad news, i.e., long delays is likely, then diminishing sensitivity suggests that providing bad news in one-shot is better than providing multiple smaller pieces of bad news.

From a managerial standpoint, consider processes whose task durations have a right-skewed distribution. That is, the tasks in these processes are usually quick and less prone to delay shocks. For such processes, we find that firms benefit from sharing real-time information via process trackers. On the other hand, the tasks durations of processes where tasks are prone to delay shocks, e.g., frequent disruptions to resources, are likely to follow a left-skewed distribution. Our results predict that firms that manage such challenging processes will be hurt if they share real-time information via process trackers. For a given process, a manager can assess whether the task durations in their process are left- or right-skewed, e.g., using historical data on task durations.

Another concern that might arise is in processes where managers have discretion over the sequence in which tasks are performed, e.g., in processes where tasks have little dependence on each other. Our analysis shows that the decision to share information does not depend on the sequence in which tasks are performed.

Author Biographies



Harish Guda is an Assistant Professor of Supply Chain Management at the W.P. Carey School of Business, Arizona State University. His research interests are at the interface of Technology, Service Operations Management and Marketplace Design (in particular, the Platform Economy).



Milind Dawande is Mike Redeker Distinguished Professor of Management at the Naveen Jindal School of Management, The University of Texas at Dallas. His research interests are broadly in Supply Chain Management and, in particular, Discrete Optimization Models in Manufacturing and Operations, and Socially Responsible Operations Management.



Ganesh Janakiraman is Ashbel Smith Professor of Operations Management at the Naveen Jindal School of Management, The University of Texas at Dallas. His research interests are in inventory theory and applications of mechanism design and stochastic, dynamic optimization.