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The Limitations of Forecasts and Plans on Decision Making

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The Limitations of Forecasts and Plans on Decision Making

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Foresight's Issue 68 special feature "Does Forecast Accuracy Even Matter?" explored the limitations of forecasting on decision making and questioned whether forecast accuracy translates to business value. Its contributors highlighted the importance for forecasters and planners to develop more understanding on how their work is connected to decision making.

Forecasts and plans have an intimate connection. If we take the Oxford dictionary as a guideline, a forecast is *a calculation or estimate of future events*, and a plan is *an intention or decision about what one is going to do*. The "intention" highlights that nothing might happen. A forecast merely provides input to subsequent calculation, insights, or plans. Plans might lead to recommendation, which might lead to business decisions and actions. A forecast or plan might indeed *not* lead to a decision or action at all.

A decision is a *conclusion or resolution reached after consideration*. This implies there needs to be some reasoning, trade-off, and judgment involved. Cassie Kozyrkov, Chief Decision Scientist at Google, defines a decision as "any selection between options by any entity" (2019) – emphasizing the need to have multiple options to choose from, and opening the door to the possibility that a machine might as well make that decision.

According to the authors of the book *Decision Quality* (Spetzler and colleagues, 2016), a decision is only made when resources are irrevocably allocated to the execution of the decision. Without this, multiple forecast and planning options – as advanced as they may be – remain calculations, maybe insights or, at best, recommendations.

Decision making is therefore taking an action when there are alternatives, or, as a human, taking responsibility for the action taken by another entity (the machine).

According to the authors of the book *Decision Quality* (Spetzler and colleagues, 2016), a decision is only made when resources are irrevocably allocated to the execution of the decision. Without this, multiple forecast and planning options – as advanced as they may be – remain calculations, maybe insights or, at best, recommendations.

A forecaster can indeed make a decision by analyzing significantly different forecast algorithms and different internal and external data sources. Based on these alternatives, the forecaster takes action to change the settings for the best forecast. A decision is made. However, once this new forecast algorithm and data run periodically as an input to a subsequent process, it becomes an operational procedure and stops being a decision. Decisions are only made in the subsequent process.

These are all rather unsettling observations for the role forecasters and planners play in decision making. Their hard work might not even lead to a decision. If it does, they often don't have the authority to assign resources to make that decision a reality. Or a machine could simply make the decision for them. And if a decision was made, the quality and impact of that

decision is often unknown to the forecaster. This leaves the forecaster mostly out of the business-decision loop.

MACHINE-BASED DECISIONS

In their contribution to the *Foresight* special feature, Boylan and Syntetos (2023) state that the accuracy of the statistical forecast may be irrelevant if it is not being used to inform any decisions or actions. They argue that this can occur, for example, when inventory decisions are determined solely by make-to-order. Kolassa (2023) shows more generally that the relationship between forecast accuracy and improved business decisions in an operational environment is far from clear, and dependent on context.

I've previously separated decisions in operational, planning, strategic, and cultural judgment choices (van Hove, 2021), and argued that many of the short-term decisions in the supply chain can be automated – and largely will be (van Hove and Regeer, 2021). They are automated by including the short-term forecast as part of an intelligent agent that makes automated operational decisions such as order changes, stock movements, safety-stock settings, order quantities, and replenishment.

These intelligent agents will be checked by humans on making accurate decisions first, and only secondly checked on the accuracy of the inputs, like a forecast. Add to this that we start to see self-learning and self-maintaining forecast models as inputs to these intelligent agents. This again leaves the forecasting practitioner in a slightly precarious position in the value chain of short-term decision making.

HUMAN-BASED DECISIONS

Luckily, complex planning, strategic, and cultural decisions won't be automated, but they need to be augmented with insights and recommendations (van Hove, 2020). Humans continue to lead in these types of decisions, and this is where the forecaster and planner have an opportunity to play a more visible role in decision making.

These types of decisions, which are often made in an Integrated Business Planning (IBP) cycle, will require long-range forecasts and probabilistic estimates to create insights and make plans. Such insights and plans include product life cycles, market movements, business growth, risk management, consumer trends, foreign-exchange movements, and P&L predictions.

The forecaster is uniquely positioned to provide explanation and trust in the math beneath the scenarios that lead to a decision. Being in the room with the executives and providing these insights gives the forecaster a prominent role in the business decision.

Although for these high-impact decisions a great forecast is still merely an input and the decision is made by the executives in an IBP meeting, a high-quality decision should have multiple options and scenarios to choose from.

This is where forecasters can shine – by providing different probabilistic models leading to multiple scenarios that managers can choose from. The forecaster is uniquely positioned to provide explanation and trust in the math beneath the scenarios that lead to a decision. Being in the room with the executives and providing these insights gives the forecaster a prominent role in the business decision.

CONCLUSION

Boylan and Syntetos suggested that it is better to start examining organizational metrics than forecast accuracy. However, organizational metrics will only be influenced positively when we make consistent, good-quality decisions over time.

Although we have discussed and analyzed Forecast Value Added (FVA) for over a decade, hardly any focus has been given

to decision making. It's time to develop a better understanding of decision value added, decision quality, and decision impact.

A focus on decision making will not only benefit a business, but it might also be an opportunity for forecasters and planners to reposition themselves and take a more prominent role in that decision making.

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