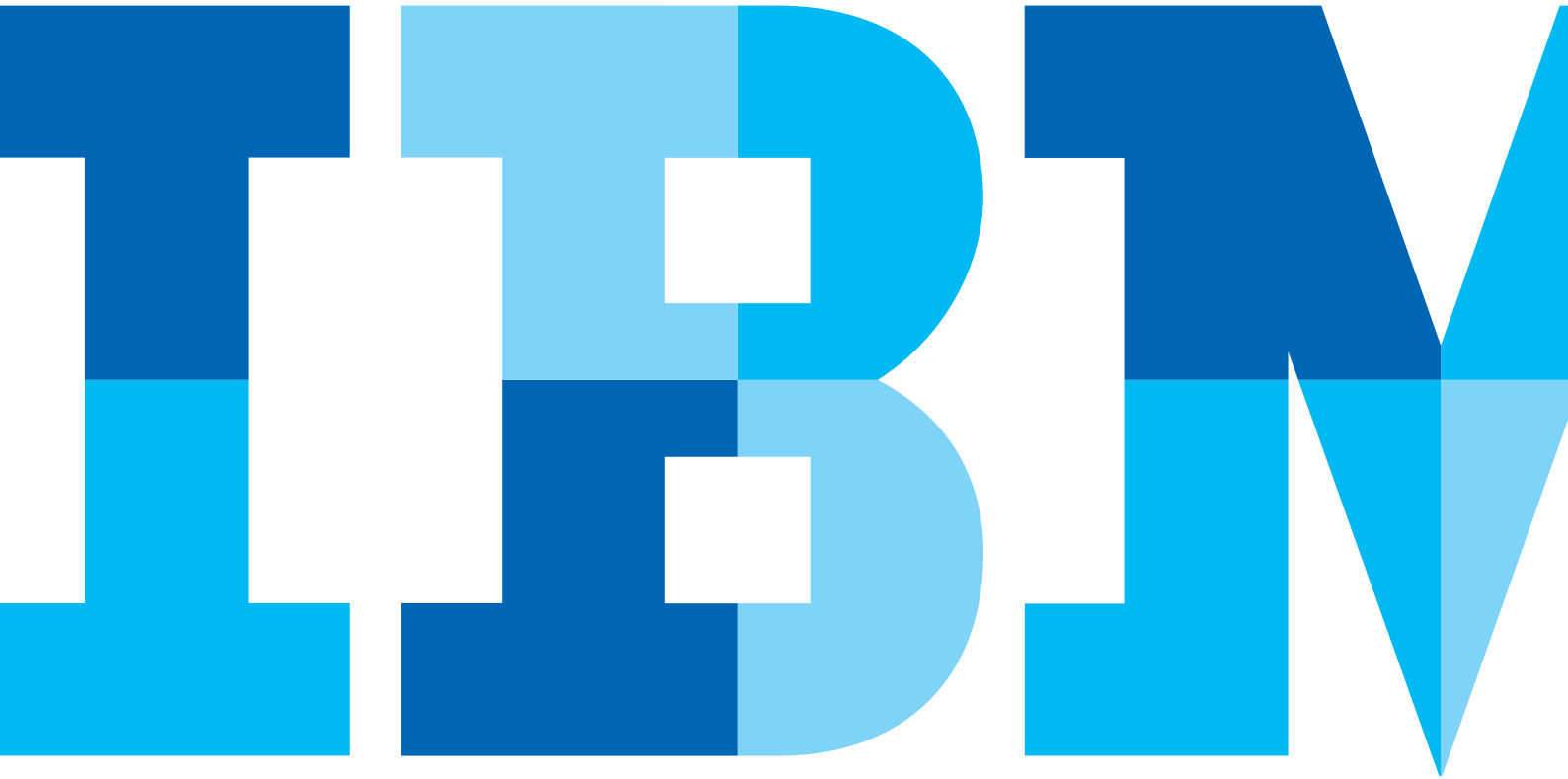


# Business Forecasting: Six Design Principles for Healthier Forecasts



## Executive summary

Achieving hardy performance over the long term requires businesses to develop healthy forecasting processes. Forecasting health can be developed, or restored, by adhering to the six principles presented in this paper.

Finance managers whose organizations are just beginning their journeys to healthier forecasting processes should consider reading the first installment in this *Business Forecasting* white paper series. That paper, “Seven Symptoms of Forecasting Illness,” examines prevalent maladies that commonly plague traditional budgeting and forecasting activities.

The successful implementation of a rolling forecasting approach requires consideration and execution of the following six principles:

- Understand the characteristics of a healthy forecasting process
- Recognize the impact of reaction times
- Treat each system appropriately
- Take vital signs
- Understand variations within the body
- Live healthfully

This paper provides a case example of successful rolling forecasts in practice and examines the nature and requirements of each of the six business forecasting principles.

## Key takeaways

1. Traditional budgeting and forecasting practices frequently fall short of improving performance health; in many cases, traditional budgeting and forecasting practices actually contribute to performance woes.
2. Eliminating unhealthy forecasting practices is a must, but it is not sufficient; finance managers can, and should, develop a regimen of healthy forecasting practices that support the achievement of strategic objectives.
3. The implementation of the six business forecasting principles identified in this paper can help finance managers create and implement a forecasting process that aligns with, and enables the execution of, corporate strategy.

## Introduction

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*If you focus on results, you will never change.  
If you focus on change, you will get results.*

-- Jack Dixon (Author of historical fictional novels)

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The first step to better health is recognizing what ails you.

As any elite athlete knows, the key to superior performance depends on more than the elimination of detrimental habits. A healthy regimen should be implemented and followed.

The same holds true from a business perspective, particularly in the realm of forecasting, planning and budgeting.

The previous entry in this *Business Forecasting* white paper series, “Seven Symptoms of Forecasting Illnesses,” showed finance managers how to detect and remedy seven different problems that commonly plague forecasting processes. This paper builds on that foundation by examining the six design principles of robust business forecasting:

- Understand the characteristics of a healthy forecasting process.
- Recognize the impact of reaction times.
- Treat each system appropriately.
- Take vital signs.
- Understand variations within the body.
- Live healthfully.

## Future ready

Much of the discussion in this white paper, as with the other papers in this *Business Forecasting* series, is inspired by *Future Ready: How to Master Business Forecasting* (Wiley, 2010). The book’s premise is a straightforward one: When making decisions, organizations cannot rely solely on information about what has happened. Instead, companies also need information about what its managers believe *might* happen – information that is generated through the process of forecasting. To date, the bulk of business forecasting practices have ranged from ineffective to downright crippling. No company, and no individual, can predict the future with complete certainty. Therefore, the objective of business forecasting should be to become “Future Ready.” Companies can do this by systematically and rationally assembling information that gives managers forward visibility regarding likely outcomes as well as the potential losses and opportunities (i.e., the risks) associated with these outcomes.

## How the principles pay off

By adhering to principles listed above, companies can strengthen their daily performance over the long-term. Tw telecom, for example, recently relied on these principles to make good on a resolution the company issued entering the recent recession: avoiding employee layoffs.

A Beyond Budgeting practitioner since 2004, tw telecom is a leading provider of managed networking solutions to a wide array of businesses and organizations throughout the United States.

“We would take it as a bit of a failure if we had to lay people off, because this would mean that we aren’t planning properly,” Mark Peters, executive vice president and CFO of tw telecom, says of the company’s resolution. “Never say ‘never,’ but being able to avoid large layoffs is a real advantage because it means that we’ve avoided the disruption in productivity and morale they cause, plus we’ve retained the capacity to ramp up quickly once we return to higher growth with a stronger economy.”

Tw telecom replaced a highly detailed, spreadsheet-intensive annual budgeting process with a six-month rolling forecast, in large part, because of management’s frustration with the exercise. “You spend three months doing [the traditional budget] ... and, inevitably, by the time you’re done, it’s old news,” Peters adds. “It doesn’t provide a foundation for an agile company.”

So, tw telecom focused on change. Because managers throughout the organization were accustomed to holding their sales and operations employees responsible for achieving a specific budget number, Peters and his team continually communicated the value of adaptability over accountability; specifically, they emphasized the futility of holding people accountable to numbers that were outdated by the time they were produced through the traditional budgeting process.

The sales pitch worked—as did the larger change effort. The company now completes a rolling forecast four times a year, and this process requires less time than the previous annual

budgeting exercise. The time-savings frees up corporate finance to invest more time to help run the business from a strategic perspective rather than fretting over insignificant budget variances.

“We’ve followed this rolling forecast method since the end of 2004, so we have a rhythm going,” says Peters. “The accuracy improves every single time; you get much more precise. And the pain level is so much lower.”

Companies and managers who want to reduce their own forecasting-related pain can start adhering to the following six principles.

## Principle 1: Understand the characteristics of a healthy forecasting process

Business forecasting can improve an organization’s overall health by identifying the actions necessary to move from the current situation (that is, reality) to a better future (that is, the achievement of a strategic objective or target).

Although it makes sense to plan before enacting an improvement program, the original plan (traditionally defined as the “budget”) frequently—and quickly—becomes outdated because of changes in underlying business conditions. This is why it makes more sense to forecast where performance is going. By doing so, organizations can use that information to identify the corrective actions necessary to better ensure that future performance achieves strategic objectives.

When developing a forecast, managers should distinguish between a “forecast” (where you *think* you will be) and a target (where you *want* to be).

Too often, a gap exists between a forecast and a target, at least until the appropriate corrective decisions and actions take place. Even then, however, this gap is likely to reappear, even in the most stable business environments.

For these reasons, managers should understand the qualities that define a healthy forecast. A healthy forecast is:

- **Timely.** If a company's performance shows warning signs, a rough-and-ready forecast delivered quickly is much more valuable than a painstakingly detailed forecast that arrives too late to drive corrective action.
- **Actionable.** Too much detail, or the wrong details, can limit the forecast's effectiveness. Only include details that are relevant to decision-making. Also, keep in mind that forecasts should contain different information than budgets contain. Forecasts typically provide much more information about projects and initiatives (for example, the impact of a new product launch) and much less detailed information about "business as usual" (for example, overhead costs).
- **Reliable.** As noted above, a forecast does not require precision to deliver value. That said, the forecast must be accurate enough to support decision-making. In practice that means the forecast should be free of bias. This can be defined as any outside influence that affects or taints the result, such as overestimating expenses and underestimating revenue in situations where incentive compensation is linked to profit margin, while describing an acceptable range of performance variation. For example, a sales forecast is considered reliable if it falls within the range of safety stock established in production plans. Obviously, the more accurate the sales projection, the more precise production can be in its own plans. If these plans are unbiased, then the number and range of over shooting and undershooting over a meaningful period, such as four to six quarters, will be approximately equal. Reliable forecasts are "good enough" for management to act with confidence.
- **Aligned.** When addressing multiple health issues, doctors take time to evaluate the interaction of different medicines and treatments. The objective is to make sure that the medications are safe when delivered in combination. Addressing the performance health of a company requires a similar approach. Within companies, different treatments or medicines equate to the competing versions of the truth that various organizational groups often promulgate for self-serving reasons. These motivations and multiple performance projections can cause highly negative reactions. Companies should settle on a single treatment when creating forecasts and, when the need arises, for re-forecasting also.
- **Cost-effective.** While every process needs to be cost-effective, this quality marks a critical, and often misunderstood, specification that warrants an explanation. First, evaluating cost requires valuable soul-searching about the fundamental purpose of forecasting. For example, if forecasts are not driving decisions, finance managers should question why the activity takes place at all. Second, the cost effectiveness evaluation begins with a process that addresses business needs and then transitions into a focus on reducing the cost of this process through standardization and automation. This is where confusion often arises in the form of well-intentioned but misplaced attempts to achieve greater cost-effectiveness through the use of spreadsheets as a supporting tool. Developing forecasts by using spreadsheets, exclusively, often gives rise to costlier issues down the road. Spreadsheets deliver value as a personal productivity tool, but they frequently fail, sometimes dramatically, to support business processes that require dynamic cross-enterprise collaboration. Spreadsheets often transform finance and planning managers into data drones who spend the vast majority of their time gathering, synthesizing and cleansing data and the vast minority of their time conducting valuable analyses. The most cost effective forms of automation that support a healthy forecasting process tend to be those that are designed to serve this specific purpose.

## Principle 2: Recognize the impact of reaction times

Doctors routinely measure their patients' reaction times for good reason. The patients' performance improves with quicker reactions; speedier reflexes help athletes sidestep injuries; more responsive immune systems help everyone avoid illnesses.

In a similar vein, time marks a critical health factor in designing and running a business forecasting process.

If a business had perfect information and could react instantly, forecasting would be unnecessary. Because this is not the case, two questions must be asked. First, how far ahead does the company need to forecast? And, second, how frequently should the forecast be conducted?

Regarding the forecast horizon, the answer depends on how long it takes to enact a decision. A typical example of this is found in the training beginning drivers receive. Drivers' education students are taught the mathematical formula for determining how many feet that their car will travel before the car's brakes will bring them to a safe halt. This is a function of how fast they are traveling, how quickly they recognize danger, how long it takes the brain to signal the foot to move from the accelerator to the brake, and how quickly the vehicle's braking system takes to bring the car to a stop. A deeper understanding also includes the complexities of the existing road conditions, the condition of the car's tires, the weight of the vehicle and other more detailed data.

Back in the business realm, this illustration explains how companies benefit from a rolling forecast horizon. A company's unique structure, decision-making processes and responsiveness among other factors all should influence the type of forecasting that is required. If an important steering decision—the launching of a new product, for example—takes 12 months, then the business requires a 12-month view into the future. However, a traditional year-end financial forecast, in which the forecast horizon shrinks as the end of the year approaches, fails to provide the 12-month view into the future the launch of the new product requires. In this way, the traditional, year-end financial forecast resembles the act of passing another car on a blind turn: the driver, like the company's managers and executives, have no view into the possible outcomes of their decision.

Regarding forecasting frequency, the answer is “it depends” on how quickly business conditions (and the strategic objectives they influence) change.

A driver needs to forecast more frequently during rush-hour freeway traffic than she does on an empty country road. For example, Southwest Airlines updates revenue forecasts daily while updating aircraft ownership costs (leases, depreciation, etc.) only once every quarter.

	Economic Relevance	Variability	Speed of response	Update Frequency	Forecast Horizon
Revenue	High	High	High	Daily	Quarter
Labor Costs	High	Low	Medium	Twice monthly	Six months
Fuel Costs	High	High	Medium	Weekly	Quarter
Maintenance Spending	Medium	Medium	Medium	Twice monthly	Six months
Advertising Spending	Medium	Medium	High	Monthly	Six months
Aircraft Ownership Costs	Medium	Low	Low	Quarterly	Year
Airport Rates and Charges	Medium	Medium	Low	Weekly	Six months
Other Operating	Medium	Medium	Medium	Twice monthly	Quarter

Figure 1. Forecasting horizons and frequency, as illustrated in the Southwest Airlines example, depend respectively upon the length of time needed to enact a decision and the speed at which business conditions can change.

As any driver who cares about her health knows, visibility on the road ahead is crucial. Accounting-period ends should not determine the timing of forecasts.

### Principle 3: Treat each system appropriately

Understanding personal health requires an understanding of how the body works. This explains why scientists and doctors organize the complex human body into more manageable systems according to the major function (digestive, circulatory, nervous and so on) that they perform. Each system performs a specific function; however, the systems also interact with each other. When combating diseases or identifying ways to optimize health, doctors need to understand why and how different bodily systems are malfunctioning or performing sub-optimally, how the systems may not be supporting each other, and what can be done to correct the problems.

Business forecasters face a similar challenge.

Any forecast requires a model, which is a set of assumptions about the way the world works. This can be a statistical model, one that extrapolates the future based on the past, or a causal factor model, which describes the future based on the identification of key trends. (The later technique is often referred to as driver-based or mathematical modeling.)

If the future is like the past, these kinds of models can be very effective. However, the world can be too complex and business frequently changes too fast for these highly structured approaches to provide much accuracy.

For these reasons, business forecasting frequently relies on judgment: where the “model” resides in the head of an expert or a larger number of people who understand the business and/or who have a sharp understanding for what takes place in the market. Yet, human judgment is prone to error and managers frequently feel pressured to adjust forecasts to avoid nasty surprises or to avoid “sounding defeatist.” Consequently, judgmental forecasts are prone to bias.

With forecasting models, the objective should be to understand the range of methodologies available, choose appropriately and take steps to mitigate weaknesses. For example, an organization might find a statistical model appropriate to produce a baseline or “business as usual” volume forecast, and informed judgment to estimate the impact of decisions that alter the course of affairs (such as price changes).

#### **Principle 4: Take vital signs**

The most health conscious among us tend to measure their vital signs regularly. They closely monitor their weight, cholesterol level and blood pressure. Athletes vigilantly monitor their caloric and protein intakes as well as their heart rates while training.

These measurements are tracked over time to give us a more comprehensive picture than a snapshot offers. Repeated measurements help filter out the bias that can be introduced by daily variations, such as neglecting to count the calories in the bowl of ice cream that followed dinner.

A similar routine exists for healthy forecasting processes. After all, if a company relies on a forecast to make decisions, the way the forecast is generated should be free of bias.

Unfortunately, very few businesses take straightforward steps to monitor their forecasting processes for evidence of bias so that they can quickly eliminate any bias when it is detected.

Businesses that do attempt to monitor for bias often measure the wrong things at the wrong time. Forecasting errors need to be identified quickly before decisions informed by the forecast have taken effect. This is where forecast accuracy can sometimes be confusing. For example, you need to be aware of the actions being taken because of forecast advice. If a passenger warns you that you may be headed toward a collision you will likely move to avoid that collision. Does that make the warning (a type of forecast) wrong or inaccurate if the collision wasn't definite? Keep in mind that the act of forecasting has the power to change future results.

Companies also need to forecast frequently because it is important to distinguish between inevitable unsystematic error (variation) and systematic error (bias).

A sequence of four errors with the same sign (positive or negative) is required for confidently distinguishing bias from the effects of chance. (This process can be captured in run charts, which are discussed in the next white paper, “Five Advanced Practices for More Robust Forecasting,” in this series.) The common business practice of using only quarterly forecasts to steer toward an annual target makes it impossible for managers to identify and correct a biased forecast before their company's performance hits a wall.

## Principle 5: Understand variations within the body

One of the only certainties about the future is that any forecasts about the future are likely to be wrong.

Internal debate about the forecast should not focus on whether or not a particular projection is correct; rather, discussions should focus, constructively, on how components of the forecast might turn out to be inaccurate and, even more important, if that situation occurs, how the company might respond to these circumstances.

Specifically, it is important to distinguish between “risk,” which can be defined as variations around a trend and “uncertainty,” which is caused by discontinuities. For example, a risk would be the likelihood that a forecast of 5 percent economic growth actually turns out to be lower or higher than 5 percent (say, 4.5 percent or 5.2 percent). An uncertainty indicates a much more drastic and, usually, unforeseen outcome: the possibility of credit markets freezing up for even the most financially sound companies during early 2009 is an example of uncertainty (as is the possibility of Greece’s economy collapsing). The latter might be the result of management intervention, but an intervention of the scale that brings about a significant shift in a trend is difficult to forecast accurately. Frequently, the discontinuity is brought about by an external factor such as a change in the market or the actions of a competitor. Uncertainty is important because it invalidates the forecast. Therefore, we need different strategies for managing uncertainty.

Large banks’ over-reliance on risk models that neglected to account for important sources of uncertainty represented a major cause of the recent global economic crisis. By following a “business as usual” approach, many financial institutions found themselves unprepared for the rapidly deteriorating economic conditions. These companies did not seem to understand the speed of the business world around them.

Market risks screamed for attention but information systems did not provide quick quantification of exposures. As a result, panic and paralysis led to government intervention around the world, which in turn helped contribute to massive declines in shareholder value for numerous companies.

Yet for all the losses, a handful of firms reaped huge rewards. These firms clearly understood the potential uncertainties and took advantage of opportunities they presented.

Whatever form an organization’s ignorance of the future takes, it is important to develop the capability to spot and diagnose deviations from forecast quickly, and to create a playbook of potential responses that help the company adapt to these variations without enduring unnecessary pain.

## Principle 6: Live healthfully

Forecasting qualifies as neither art nor complex science. The process mainly consists of applying modest amounts of knowledge, in a disciplined and organized fashion.

A successful process, like a healthy diet, produces optimal results. Building a good process involves taking the right steps in the correct order (selecting the right food from the right range of food groups), in a consistent manner (sticking to the diet over time). Elements responsible for bias (junk food and other unhealthy lapses) should be designed out of the process (restructuring or rebalancing the diet), the results of the process continuously monitored (the dieter’s weight, cholesterol level and so on) and minor flaws corrected as they become evident.

As with dieting, temperament represents an important technique. Blaming people for failures when the process is at fault is a sure way to encourage unhealthy, even dishonest, forecasting practices. Efforts to improve forecasting processes can be undermined by behaviors associated with adjacent business processes such as traditional budgeting.



### Traditional Budgeting's Three Failings

The following three flaws indicate why traditional budgeting should not be part of a healthy planning and forecasting diet:

1. Traditional budgeting confuses targets and forecasts. Bias in forecasting often results from a strong desire to avoid gaps between targets and actual performance, either because a shortfall is interpreted as poor performance or a “lack of commitment” or because submitting an over-target forecast triggers a target increase.
2. Traditional budgeting is hamstrung by the financial year-end. Traditional budgeting is simply incompatible with the use of rolling horizons built around decision-making lead times because its reach stops – immediately and finally – at the fiscal year-end, to which every activity is linked to, for better or (usually) for worse.
3. Traditional budgeting constrains adaptability. Most importantly, by fixing budgets on an arbitrary annual cycle, the traditional budgeting process constrains an organization’s ability to respond ... which therefore undermines the value of forecasting. Appropriate, timely action cannot be taken because the department involved “hasn’t got the budget” to respond to changing conditions that arise in the marketplace.

## Conclusion

As the historical novelist Jack Dixon notes, focusing on change delivers results.

By centering forecasting-improvement efforts on the principles described in this paper, finance managers can help drive a shift in their enterprise’s understanding of business forecasting as well as the changes in perspectives, practices, politics and processes required to replace traditional approaches to budgeting with a rolling forecast.

Companies such as tw telecom, that already have made this leap offer ample motivation for making the shift.

“We’ve been agile,” Peters says of tw telecom’s forecasting capabilities, which helped the company achieve its pre-recession resolution of avoiding workforce reductions. “In an environment that’s so competitive and with recessions that can be pretty severe, things change so rapidly that if you’re looking at a budget that was created two to three months ago, much less nine months ago, [traditional budgeting] is useless. Investments are higher or lower, something has changed, and your view has changed. The economy and the marketplace have inevitably changed as well.”

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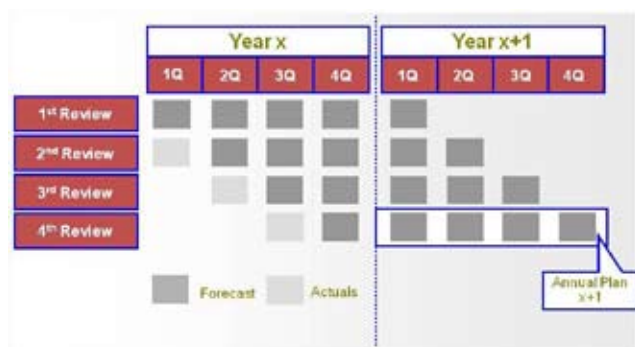


Figure 2. Moving from the behavior of annual financial activities into a more dynamic environment, companies are increasingly adopting the rolling forecast such as a 5-quarter forecast. In many cases, rolling forecasts are updated quarterly or monthly, facilitating reduced cycle time with more rapid reaction, realignment and readiness throughout the organization.



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#### End Notes

All mentions of tw telecom information derive from Steve Player's May 5, 2010 article for Business Finance, "Where Only the Agile Survive." <http://businessfinancemag.com/article/where-only-agile-survive-0505>

All mentions of Southwest Airlines derive from Steve Morlidge and Steve Player's book, *Future Ready: How to Master Business Forecasting* (John Wiley, 2010).

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