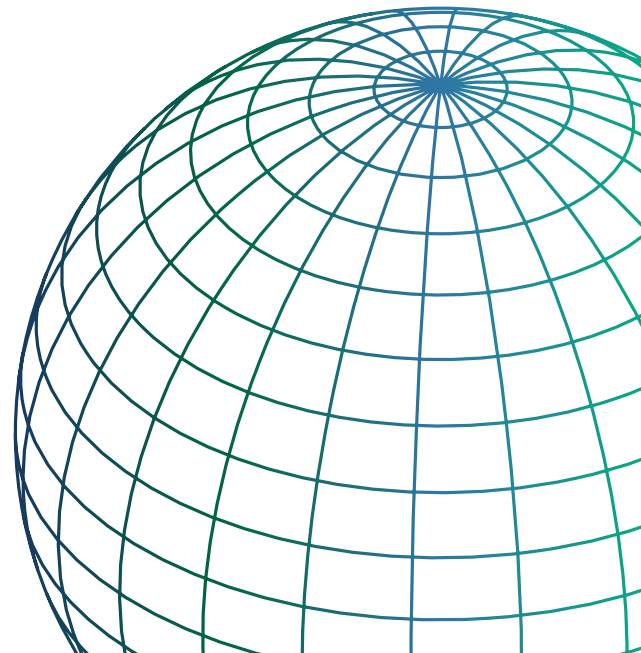# Calculating Your Company's
RATES-OF-CHANGE

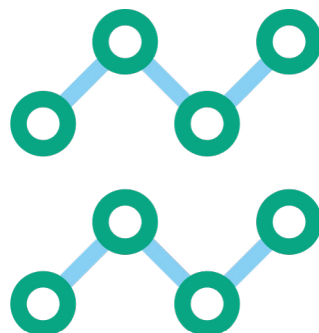A PUBLICATION OF ITR ECONOMICS

This eBook was developed using excerpts from ITR Economics' book, Make Your Move.
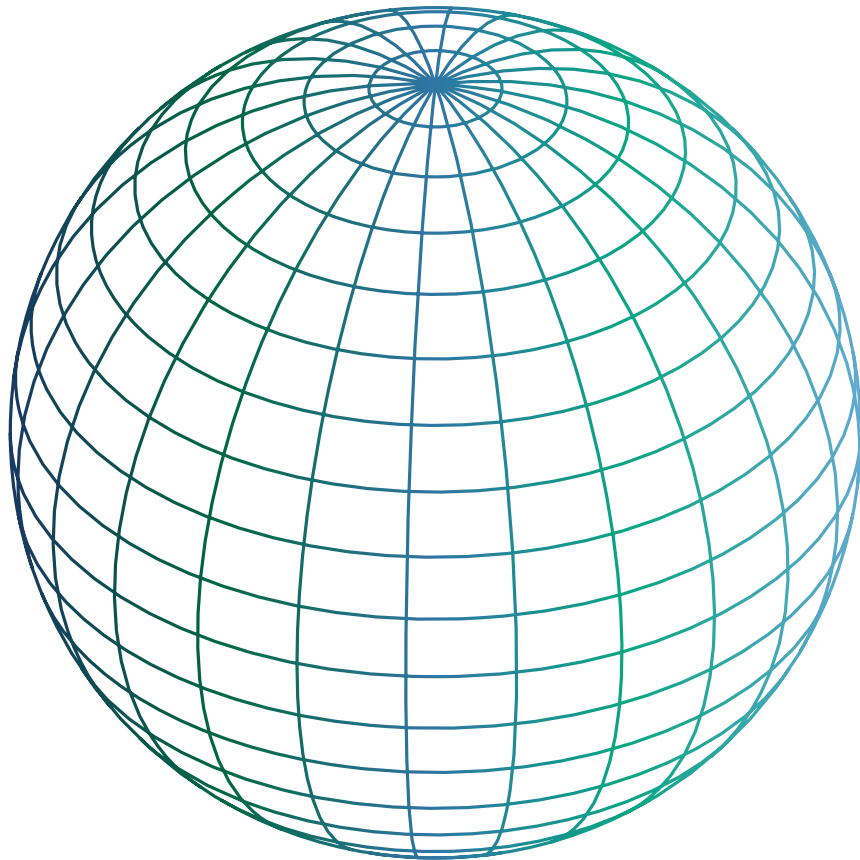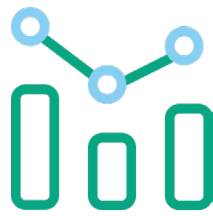
ITR ECONOMICS

Now part of Crowe

TABLE OF CONTENTS

INTRODUCTION

WHY RATES-OF-CHANGE?

Using ITR Economics' Rates-of-Change will assist you in:

- Understanding the importance of business cycles – what they are and how they work
- Pinpointing what phase of the business cycle your business is in
- Understanding leading indicators
- Spotting changes in the business cycle well before they take place
- Taking specific steps to capitalize on those changes and boost your company's bottom line

AN ECONOMIC SYMPHONY

Although economics affects all of us, few understand or know much about it. When the subject comes up, most people's eyes glaze over, and their minds turn off. Their reactions reflect the fact that economics has been presented in terms of mathematical equations (econometrics) and in ways that few comprehend. So most people consider the subject dense, beyond their grasp. As a result, they don't bother to listen or try to understand.

Our approach is to look at the economy as if it were a symphony because both are complex and interactive; both are built on intricate, intertwined layers. Both a symphony and the economy involve numerous players executing different notes, on different instruments, at different times. Yet, they all come together and produce amazing results. Usually, those results are harmonious, uplifting, and even exhilarating, but they can also be dissonant, atonal, and out of synch.

CHAPTER ONE
Data Requirements
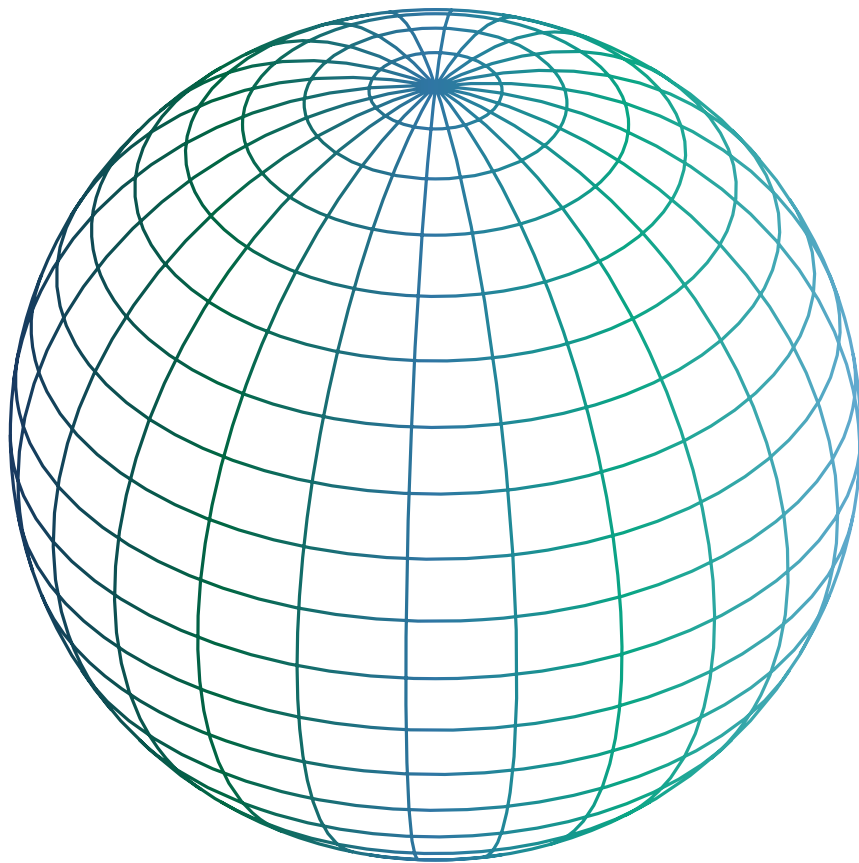
To determine data trends and rates-of-change, you need sufficient historical data. Your business' historical data is the starting point. **We are often asked, "What data should I use?" The answer is twofold.**

- First, use data that is readily available. Most of us have kept records of our sales, orders, or cash received that we can use. To start, work with whatever is easiest to get your hands on.
- Second, if you have choices in what data to use, examine the metric you are most interested in analyzing. Revenues or sales are the most common, but you can use others including orders, backlog, and inventory levels.

Other must-know facts about data requirements:

- Use monthly data for at least a seven-year period because, as a rule, the longer the history, the more accurate the results. Quarterly data can be used if monthly data is not available.
- Many firms will also use a separate data stream for their various business segments or major product lines.
    - For instance, how your OEM sales are faring as distinguished from the figures for your Service Department.

In order to accurately assess your position in the business cycle and to determine when you will be moving through the next turn, your company's raw data must be converted into two tools:
1. Your 3-month moving total (3MMT)
2. Your 12-month moving total (12MMT)

These tools form the bedrock upon which the forecasting process is built. If a company is enjoying solid growth in sales, as evidenced by a rising trend in its 12MMT, the big question becomes, "How long will its 12MMT rising trend last?"

CHAPTER TWO
Calculating Your Monthly Moving Total
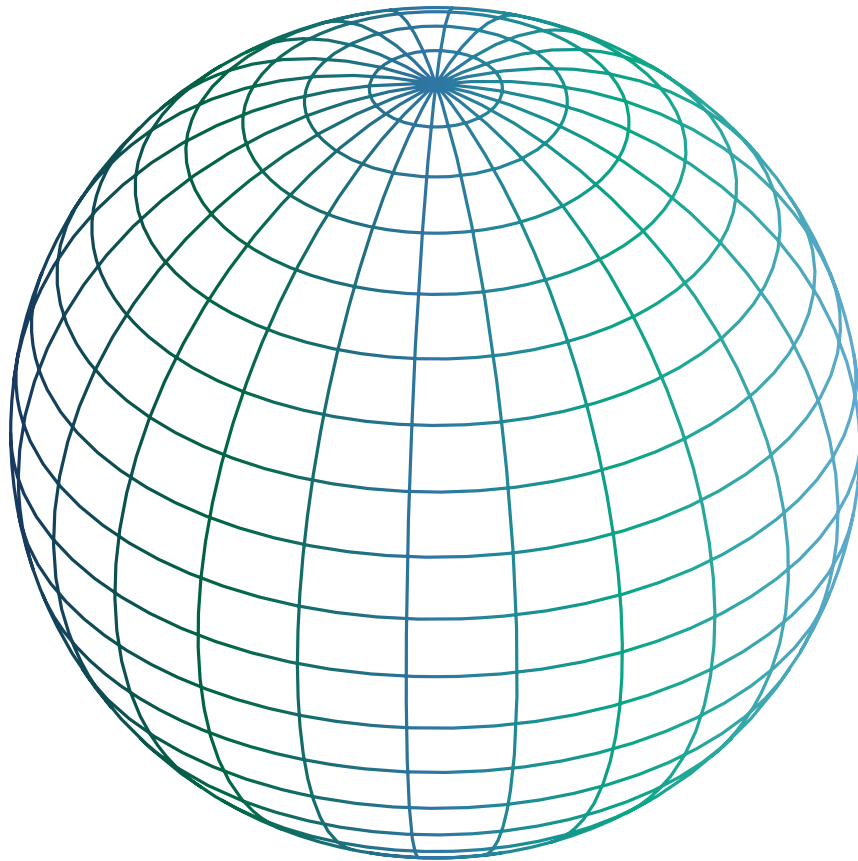
Moving totals are the sum of the monthly total data for a stated number of months. For example, the 3MMT for November would be the sum of the September, October, and November monthly data. When December data becomes available, September is dropped from the calculation and December is added. By doing so, the December 3MMT consists of activity recorded in October, November, and December.

Example: ABM Cor's Sales 3MMT (in millions of $)

January	2009	1.608
February	2009	1.524
March	2009	1.623
	3MMT=	4.755

We use monthly moving totals to smooth out the volatility inherent in the data for a particular month or months.

3MMTs are used to illustrate the seasonal changes inherent to the data series. They are also used to forecast specific product activity on a quarterly basis.

Annual moving totals (12MMTs) go one step further by looking beyond seasonal changes in the data series being collected. They allow us to provide a more accurate overall picture for spotting and forecasting cyclical trends.

The 12MMT depicts the sum of activity for 12 consecutive months. For April 2009, it would be the total derived when adding the figures for March 2008 through April 2009. As the data for each new month becomes available, add it and drop the oldest amount.

Other must-know facts about moving totals:

At times, it's desirable to calculate a 12-month moving average (12MMA) instead of a total (12MMT). Use 12MMAs when it is more logical to think of the data being measured and forecasted in averages.

For instance, we don't think of percentages in terms of their total for the last three months, but in terms of their monthly average. The same is true for prices. It makes more sense to find out how much the average price of a commodity will be in the future than to determine what the total commodity price will be in that same period of time.

A 12MMA is calculated in the same way as the 12MMT, but with an added step – the 12MMT is divided by 12 to reflect the monthly average for the preceding year.

CHAPTER THREE
Rates-of-Change
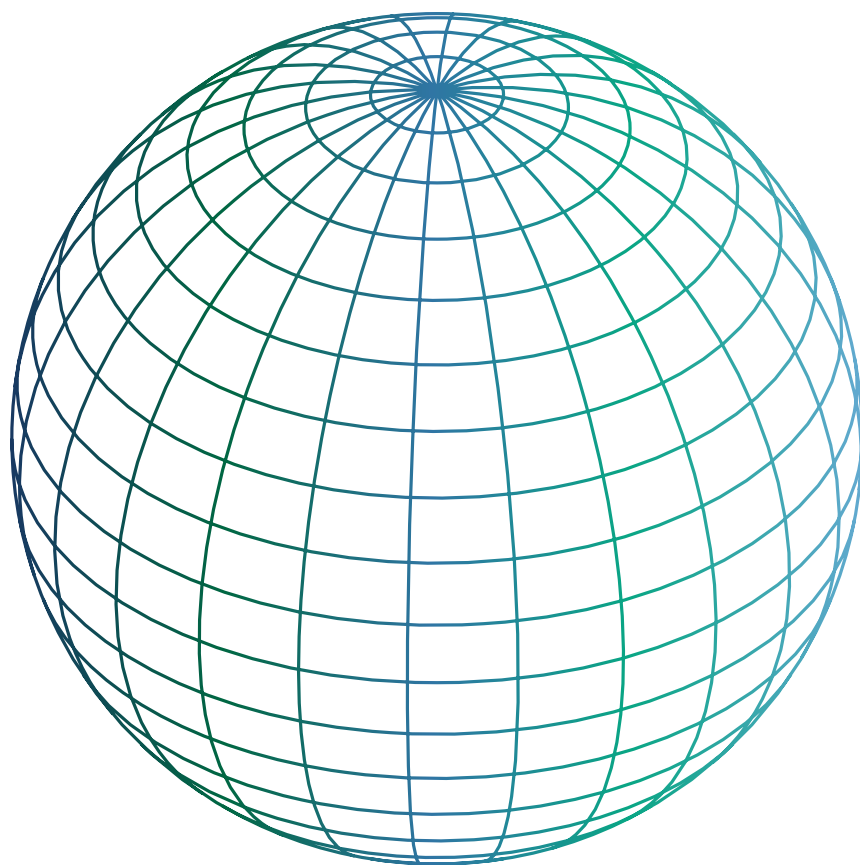
The 3/12 and 12/12 rates-of-change are the tools that have replaced the gold miner's pickaxe. They are your tools for getting the gold. What interests us the most is the direction in which these rates-of-change are taking us.

Rate-of-change comparisons are utilized for:

- Finding where we are in the business cycle
- Anticipating where we will be in the future
- Seeing how we are performing in relationship to our markets and industry
- Using the leading indicators to help guide us through the changes ahead
- Understanding where we are in our company or product's life cycle

Facts about Rates-of-Change:

1. A 12/12 rate-of-change is more sensitive to changes in cyclical status and momentum than is the 12MMT.
   a. It also can be successfully used to anticipate trend reversals, often before the data trend even begins to show signs of weakening or even better, before the data trend shows signs of strengthening from a recession.
2. Keep in mind that the timing estimates for rates-of-change give us valuable insights into inflection points in data trends.
3. The rate of rise or decline that we see in the rates-of-change is often indicative of how steep or mild the recovery or recession will be.
4. Usually, the rate-of-change reflects a change in a data trend before the change becomes apparent in either the 3MMT or 12MMT.

Calculating Rates-of-Change

A rate-of-change figure is the ratio (the simple percentage) of a number in a data series to a preceding number in that data series. When calculating the rates-of-change, the time interval between the numbers being compared is fixed.

When rates-of-change move consecutively in the same direction, it indicates that activity levels are getting progressively better or worse compared to last year. The rate-of-change of a data series illustrates and measures cyclical change and identifies trends.

The most common rate-of-change is the 12/12. As is the case for all rates-of-change, the numerator denotes how much data is involved. The denominator signifies that the time interval is 12 months.

12/12 Rate-of-Change

$$\left[\left(\frac{\textit{April 2009 \quad 12MMT \quad 24.715}}{\textit{April 2008 \quad 12MMT \quad 29.964}} \right) \times 100 \right] - 100 \; = \; \begin{array}{c} \textbf{-17.5\%} \\ \textbf{April 2009 12/12} \end{array}$$
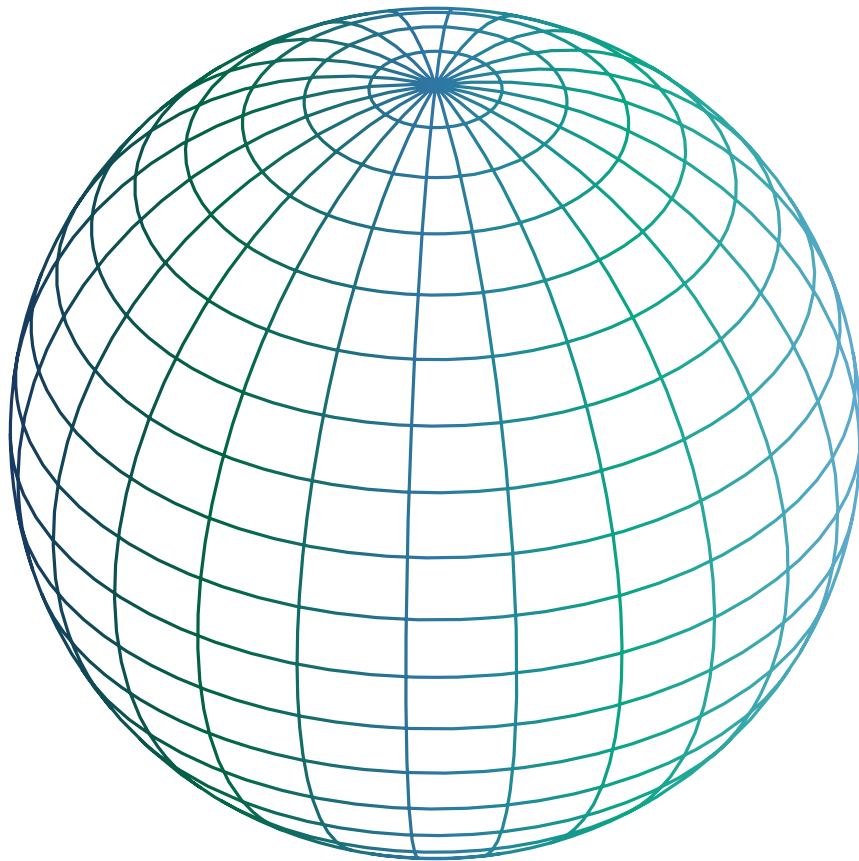
ECO-SENSE

At ITR Economics, our research has shown that a business cycle change can be more accurately observed, measured, and forecasted using rates-of-change as opposed to the actual data.

CHAPTER FOUR
Knowing Your Phase

When you navigate on land or sea or air, you need to know where you are before you can chart an effective course to your destination. When we work with our client companies, we are in the same position. We need to know what phase of the cycle they are currently in so we can use our Management Objectives™ most effectively to maximize our clients' profitability and to make sure they stay in the growth portion of the cycle for as long as possible.

When you have calculated your 12/12 rate-of-change, step back, and look at the numbers. Begin with the most recent results and answer the following questions:

- *Is the 12/12 becoming less negative (heading toward zero)? You are in Phase A.*
- *Is the 12/12 climbing higher and higher above zero? Welcome to Phase B. Enjoy!*
- *Is the 12/12 greater than zero but slipping lower? You are passing through Phase C.*
- *Is the 12/12 less than zero and the number is getting worse? That would be Phase D and it is time we get out of there!*


RECOVERY   ACCELERATING GROWTH   SLOWING GROWTH   RECESSION

ECO-SENSE

It's not unusual for a company to experience more up and down swings than its industry or market benchmarks. So if you have a 6.0% decline when the mark slipped by 12.3%, it may be quite an accomplishment. Your results may reflect a difference in your market share from the beginning to the end of the period, a change in your product mix or differing price movement. Whatever the reason, enjoy it because it means you beat the market!

CHAPTER FIVE
What to Do With This Information
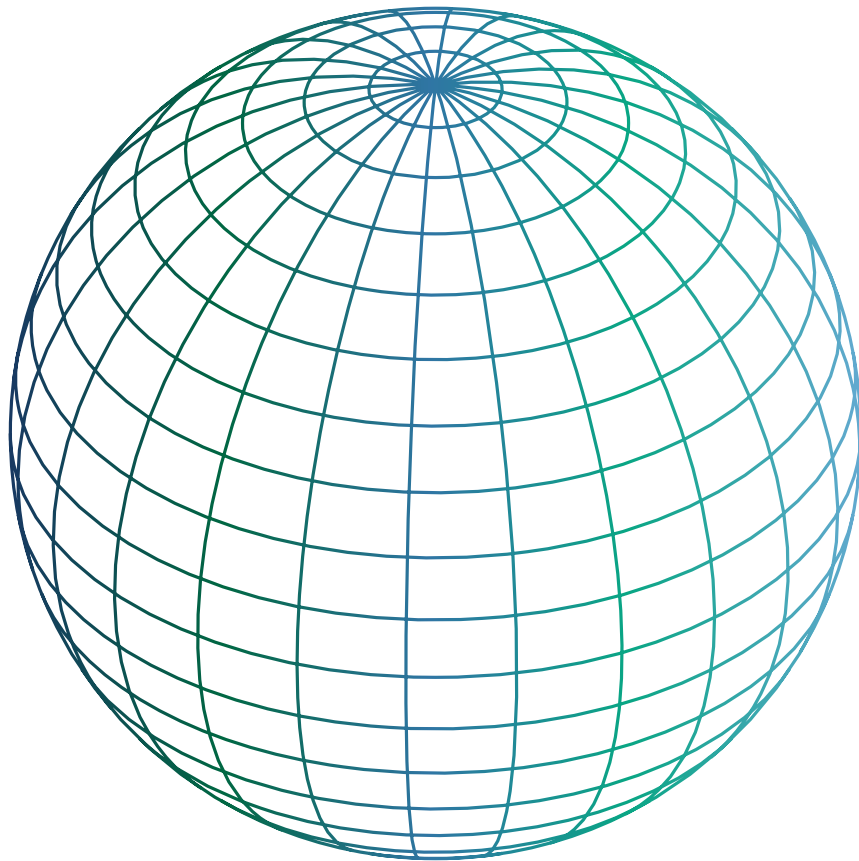
1. *Set up a* <u>*system of leading indicators*</u>*.* Find the indicators that apply to your business and use them to forecast future changes. Include those that we describe in the next chapter and add any others that you have used or that might help.

2. *When two of your leading indicators go up or down, pay attention.* Take notice and look to see whether other leading indicators confirm that a change in direction is real. At ITR Economics, we calculate the probabilities that trends will reverse using shortcuts that we discuss in <u>Make Your Move</u>. When two of your leading indicators tell you that the wind has begun to shift, start planning because planning takes time. Decide which sails must be set and who will be manning the ropes.

3. *When five leading indicators reverse direction, act.* It's usually solid evidence that the economy is turning. Move forward with confidence because the system is telling you that a fundamental shift in the momentum of the economy is taking place. When five leading indicators move in the same way, it's rarely a coincidence. Each indicator that signals a reversal confirms the other indicators and verifies that the economy will shift in a new direction. When five leading indicators agree, have your resources lined up and be ready to implement your plan because change is on the way. Many people will feel their adrenaline pumping because economic conditions are about to get exciting again!

4. *Start making the tactical changes needed to implement your strategic plan.* If it turns out that the shift in the leading indicators is misleading or incomplete, you will not have overreacted. You will have simply flexed the corporate muscles you will need when the change in the business cycle has been either internally or externally verified.

CHAPTER SIX
Strong Indicators
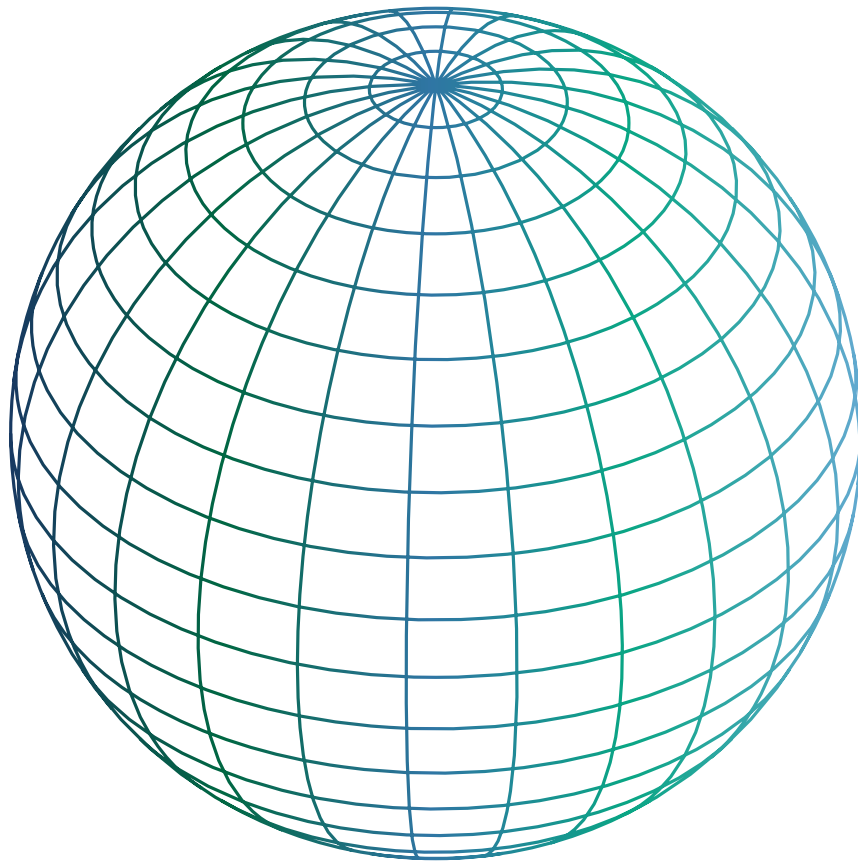
In making our forecasts, we use a number of leading indicators. Here are some of the major indicators we use.

Corporate Bonds

Use the 12/12 rate-of-change: Tracking the movement in corporate bond prices is an outstanding leading indicator that many forecasters overlook.

How it works: If the prices for bonds that are being sold through the exchanges are rising, it means that bond yields are going down, which is good for corporations because their cost of borrowing money will be less. That shows that corporate leadership is not afraid of inflation and the lower interest rates make it easier to invest in new capital equipment and new enterprises.

High interest rates discourage borrowing money. Low interest rates encourage the use of credit.

ITR Leading Indicator™

This important indicator was developed by Brian Beaulieu in the late 1980s and has been modified periodically since. It's a composite index that we've put together to strike a balance between two parts of our economy: consumer and industrial behavior.

How it works: The ITR Leading Indicator shows whether business-to-business activity and business-to-consumer activity are going up or going down. It contains items such as financial indicators (stock market, bond market or money supply), a widely accepted consumer measure (housing starts or retail sales) and new orders for goods.

Institute for Supply Management (ISM) Purchasing Manager's Index

This is a top-notch leading indicator. It takes a different slant from tracking corporate bond prices, which looks at corporate finances, and the ITR Leading Indicator, which examines a mixture of business activities. The Purchasing Managers Index is based on a compilation of statistics based on surveys of purchasing managers. The ISM Purchasing Managers Index is best suited for following the business-to-business side of our economy.

How it works: This Index provides a good composite from the order side of business. It gathers information from purchasing managers and examines whether inventories, prices, order activity, exports, and imports are going up or down, and if delivery times are accelerating or slowing.

US Leading Indicator

Originally compiled by the government, this is now put together and issued by The Conference Board, a private concern. It's a good indicator that is heavily weighted toward the consumer side of the economy.

How it works: Among other items, the US Leading Indicator tracks the number of building permits issued. Other components are money supply, stock market, spread in interest rates, manufacturers' new orders for nondefense capital goods, manufacturers' new orders for consumer goods and materials, average weekly manufacturing hours, index of consumer expectations, index of supplier deliveries (vendor performance), and state initial claims for unemployment insurance.

Orders vs. Inventory Levels

This tracks both the number of orders for products and the level of company inventories.

How it works: When orders are increasing and inventories are declining, it's a good indication that the economy is growing stronger. If orders are going down and inventories are growing, it indicates that we are getting into a recession. We have a ratio that we use to calculate this information called RIO, which stands for ratio of inventory to orders.

Housing Starts

The change in the number of housing starts is a solid indicator that can be easily tracked. Since housing is such a huge part of the economy, the number of housing starts must be included in any leading indicator system for that system's projections to be accurate.

How it works: The number of houses started is collected, and the larger the number the more beneficial impact it has on the economy. As we've mentioned, even though a business has nothing to do with housing, the number of housing starts can affect it because it ripples through the rest of the economy.

Retail Sales

The rate-of-change in retail sales is an extremely important indicator although it doesn't provide much actual lead time regarding changes in the build of the economy. During good times, retail sales account for 67% of the US economy.

How it works: When retail sales are down, the economy will not improve until consumers get back in the game. In trying to forecast change, retail sales is the last piece of the pie that must fall into place for you to know that a trend is real. When retail sales activity increases, you can feel very confident about the recovery and know that a new trend will soon take place.

CONCLUSION
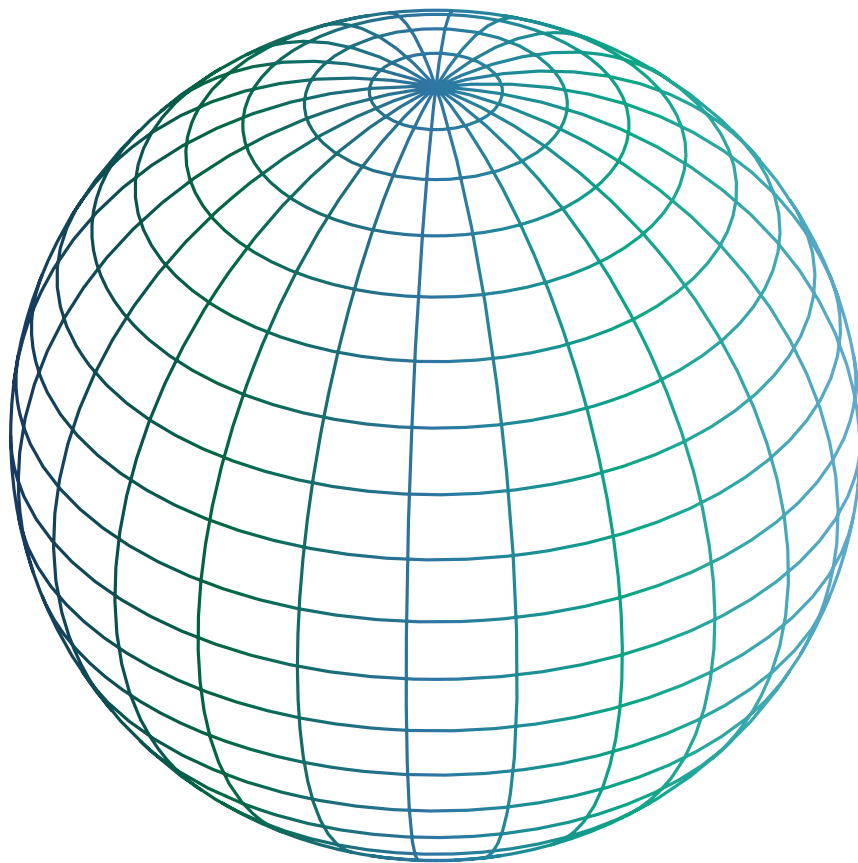
For more information on using this methodology, please refer to our full book, _Make Your Move_. It will further explain how to confirm indicators, Management Objectives™ for each Business Cycle Phase, examples of real-world use of this information, ITR Checking Points™ for the data, and more.

We trust you have enjoyed our eBook, and hope that you begin to utilize the methodology we covered. You must lead by looking ahead and proactively preparing for what is to come!

Top 10 Forecasting Rules

1. Identify the most important data series to be analyzed.
2. Prioritize them. You can analyze the others later.
3. Compute your company's rate-of-change.
4. Determine which of the four business cycle phases your company is in and how long it is likely to be in that phase.
5. Compare your company's rate-of-change with the trends in the overall economy and your industry.
6. Identify which leading indicators you will use to forecast your company's future.
7. Run a Timing Analysis using our Timing Analysis Table referenced in Make Your Move.
8. Review our Management Objectives™ and determine which are appropriate for your company at this juncture.
9. Meet with your team, explain your objectives, lay out your action plan, and describe the process you will take.
10. Get their input and implement.

SO YOU CALCULATED YOUR RATES-OF-CHANGE — NOW WHAT?

If you have questions about your company's data or our methodology, get in touch with us!

We're here to help you use your data to make the best strategic decisions.

You can also learn more at itreconomics.com/methodology.

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