

The Signal Economy: How to target new revenues through predictive analytics

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You may have had an opportunity to catch one of my presentations on The Signal Economy at a recent conference or symposium, or browsed through my presentation slides online. You may have gotten a general grasp of what “signal” means and how a world filled with data being generated online every day by trillions of sensors, mobile devices and Web publishing tools is creating what I call “The Signal Economy” – the generation, collecting, organizing and analysis of signals that drive economic activity predictively at unprecedented scale.

Well, that all sounds great at first blush, I assume, otherwise you’d probably not be reading this right now. But what does it really mean to people who are involved in the hard day-to-day work of trying to drive their organization’s revenue streams towards more profitable goals? Is The Signal Economy just another buzz phrase dreamed up by an industry analyst, a fad that will pass away, or is it really a new opportunity for considering how to organize your operations for greater success?

My argument that I’ll outline in this paper is that The Signal Economy is far from a fad and is in fact a huge economic opportunity for any organization. I will address most specifically organizations that have a stake in their success through creating and using media and business information sources as a key component in driving their operations. This means not only publishers and media companies, but also any organization that uses information from inside and outside their organization to drive critical decision-making for delivering products and services. In other words, if you’re in pretty much any professional role, listen up – The Signal Economy is about you. You’re either creating signal or consuming signal – or you should be if you want money and success to flow your way.

1. A Wall Street tale

For many years, I worked for companies that provided financial information services to global institutions in the New York City area and around the world. I first worked in Manhattan’s financial district in the late 1980s, a very interesting time for both finance and financial information services. We still threw out real ticker tapes from office building windows during parades, but much of what was getting tossed out to the streets below was actually shredded paper from computer printouts. Floor brokers at the New York Stock Exchange and other major trading centers were crammed with computer monitors and electronic trading was becoming a standard feature of securities trading operations, but still there were people who knew how the markets were doing just by listening to the mechanical clatter of the digits changing on a data wall display.

A “seat of the pants” sense of what to do in financial markets, supplemented by careful reading and analysis of financial reports – human-scaled signal – was being displaced in that era by a new kind of

securities trading. Using computer analysis of reams of market information, personal computers could create and execute strategies for buying and selling securities before most people had even had a chance to look at a stock price or news on a computer monitor. The signals were still coming from people, but machine intelligence had been able to digest them and act on them in financial markets before people had a chance to take action. These techniques have been refined through the years, but even in that earlier era of computer technologies, the implications were clear: computer analysis of massive amounts of market signals was the road to profitability in finance. This simple but powerful fact changed not only an entire industry, but also changed how the entire world formed and accessed capital. The winners: the organizations that could gather, signify and act on the best signals available from anywhere. The losers: everyone else.

Now, your industry may not be on Wall Street, High Street or even on a street, but the simple fact is that in a world that connects everything to everyone all the time, signal is king. Trillions of sensors and data points from computer analysis of online information are telling us about what's happening in the world right now and stored pretty much forever for a pittance in online computer servers – the “cloud”. The “aha” moments that are going to drive your organization's innovation and outputs are locked in that information and the potential “ahas” are changing moment by moment. Thought that you knew where everything could head most profitably? Oops. It all just changed.

If you're in the publishing business, no doubt you've used the old phrase “content is king” for a long time or dabbled with a newer idiom “context is king”. Well, I'm not saying that those ideas are completely obsolete, but if you're using them as the cornerstone of your marketing and product strategy, you're building garages and buggies while your competitors using the concept of signal are building skyscrapers and rocket ships. It's not what you publish or where you publish that matters so much as how aware you are of what *might* provide value next.

Want to “skate to where the hockey puck is going?”. Well, what happens when there's a skating rink being filled with hockey pucks constantly and goals are shrinking, expanding and multiplying like crazy? Which ones are going to make it to the goal – and which goals should you hit? If you're not in the business of sorting out hockey pucks and goals in real-time, then you're not going to be in business for very long in The Signal Economy.

That's the reality of decision making in an era of signal. The Signal Economy is real, it cuts across every market and world economy and, as Cisco Systems has pointed out, it's an economic opportunity that will scale to more than \$14.4 trillion over the next ten years. It's not just a matter of sorting through “Big Data” or being an “agile enterprise”. Having lots of data or moving faster means nothing if you don't know where to aim, how and when. Having a “business intelligence dashboard” means nothing if the most important warning lights pop up through analysis of events, trends, organizations and opportunities that aren't even on your radar today. The Signal Economy is what happens when you have to make decisions based on everything connecting and mattering all at once.

2. What IS signal?

The concept of signal seems obvious enough, perhaps, but let's review what I've covered in my presentations for a moment and focus on how the dictionary definition of signal relates to the greater picture of The Signal Economy. The dictionary says that “signal” is “A gesture, action, or sound that is used to convey information or instructions”. That's really important to think about when we consider how we approach information. When people want a signal, they are looking for clear status and action indicators

that are derived from the interpretation of information, a simple and definite communication about the implications of that information. What should I do next? Signals give us the answer. Proceed through the intersection. Launch the rocket. Buy the stock. It's highly-actionable information at the right time at the right place that we get in a way that helps us to do the next right thing. There are lots of information sources that give us data, graphs, images, reports and other useful things. But there are very few sources that actually give us a very clear and simple sense of what to do next.

Individual signals add up to broader signals that have more impact. A sensor embedded in the soil of a farm might create signals via a wireless data network as to when to water the field for the local farmer. But add that data to a global database of soil conditions flowing in from similar sensors all over the world in real-time, and all of a sudden you start creating signals about potential hot spots of drought, flooding and so on that exist right now. A report on a company's financial performance is composed as a human-readable document so that people may have some general information about a company and its performance. But that's just one way of looking at that document. The text, images and data in that report can also be analyzed by computer software to extract key information that the software can then use to form inferences and to identify implications from the document's information. This "semantic software" doesn't just extract data – it looks at the data as the human mind would, designed to draw inferences using the structure and real-world context of the document's language, data, and images to understand the document's focus and intent. All of a sudden a document that was produced for human-reading becomes a new source of signals about corporate strategy that can be summarized, signified, and packaged in new ways that may not resemble anything like the original report.

Of course, all of these things have been true to some degree for many years. And that's rather the point of The Signal Economy. What's been happening at scale in limited arenas of the global economy is now becoming the underlying defining environment of the global economy. The Internet and very affordable data communications of all kinds are combining with highly-affordable and pervasive sensors and data analysis tools to make the whole world's every breath, heartbeat, sight, motion and word an input into computer analysis that can drive decision-making far more rapidly and effectively than ever before in all economic sectors. It's not just that the Web is everywhere. It's that everything connected to everyone has changed everything about how efficiently and effectively we can make choices about what to do next.

3. What IS The Signal Economy?

That's The Signal Economy – the generation, collecting, organizing and analysis of signals that drive economic activity predictively with unprecedented scale, speed and accuracy. And the implications for The Signal Economy are enormous. It's not just that The Signal Economy has sped things up a lot in decision-making. As the automated trading services of Wall Street started to do a generation ago, the ability to sense which ideas are going to have economic benefit right now changes fundamentally how money is made by whom in the world. The old world of mass planning for mass markets by massive organizations with massive staffs of experts is about to undergo a sea change.

Like the tiny teams of hedge fund managers who took over billions of dollars in financial market opportunities from giant investment institutions, the ones who are best at gathering, signifying and executing strategic decisions based on the best, broadest and most revealing signals from any and every source of information will win in The Signal Economy. Your old world said, "Develop a hypothesis, test it with data, build something for it, sell it, see how it does". The Signal Economy says, "The world is telling us something right now that nobody else understands as well as we do right now. Let's offer some responses right now and see how they grow".

The Signal Economy doesn't wait for experts to review your data to tell people what to do. The Signal Economy makes your experts part of a team who focus on understanding how data is pointing us towards valuable hypotheses that are worth testing in the marketplace right now. The old economy focused on whale-sized signals and chasing them down over long periods of time. The Signal Economy focuses on organizing minnows of signal into sustainable opportunities now through signal-driven technologies that will add up to whales soon enough as you learn how to listen to the signals.

4. The “5 Ses of Signal”

Where do we get the information that drives signal for The Signal Economy? There are 5 major areas of innovation that are worth your focus – Sensors, Social, Semantics, Scale and Services. Let's take a look at how these “5 Ses of Signal” are changing things.

4.1. Sensors – A world that IS data

We've had sensors providing data for computing about as long as we've had computers. But today sensors are everywhere and recording more data available to more services than ever before. In the billions of smart phones in the world today, for example, there are typically at least seventeen separate sensing devices – a touchscreen, a camera, a motion detector, a compass, a GPS satellite coordinate receiver, wireless communications used for location setting, a microphone, and so on. Data from these sensors is streaming constantly into Web services of various kinds, creating a rich tapestry of knowledge about the world as it is right now. Store that data, and the world begins to come alive and power all sorts of valuable Web services.

But today's sensors are about a lot more than just smart phones. Wearable computing devices will add medical and health information via biometric sensors transmitted wirelessly to a smart phone or computer, and internally-ingested sensors and cameras are turning our own bodies into an “inner space” of data that can be transmitted globally for analysis and services. Sensors in industrial and agricultural settings provide a wealth of information about processes, conditions and actions in these environments. Satellite and drone-carried cameras provide detailed imagery for a wide range of uses that used to be available just to powerful world governments. Home appliances such as home thermostats sense who's moving in and out of rooms to fine-tune climate control. Automobiles have become rolling electronic sensor platforms, informing us about both the world around them, the autos themselves, and who's driving them. All in all there are trillions of sensors telling us about the world right now. It isn't so much that there's a lot of data about the world – in a very real sense, practically every square inch of the world IS data, informing us about itself for everyone moment by moment. If your information isn't in context with this information, then it's not in The Signal Economy.

4.2. Social – What we see is what you need to get

Social media is nothing new at this point, and if you've read my book *Content Nation: Surviving and Thriving as Social Media Changes Our Work, Our Lives and Our Future*, you understand that social media is about how people influence markets and the world as a whole with their curating and creation of content. More importantly for The Signal Economy, though, what everyday people capture and create through their content generates a type of signal that is invaluable in many ways for understanding the world. Trends can be quantified, places seen up close that were never seen before, real-time news events

captured anywhere in the world and broadcast to a global audience, and opinions and ratings provided ideas about products and services long before a traditional marketing department has even bothered to think about what the next trend might be. In the business world, social media is also a key contributor to what people consider to be important at any given point in time, as professionals share information about their career status, their business connections and their organizations for the benefit of colleagues everywhere. To you it may be just chatter, but for the people with the right tools, social IS signal just waiting to be listened to.

4.3. Semantics – How we listen to the world has changed

All of this data swirling around the Internet would be just noise if we weren't able to make sense of it rapidly. That's where The Signal Economy has come into its own – using software that can provide human meaning and patterns to mounds of information that used to be just data stored in huge server computers. Semantic software is one of the key components of this new environment, software that's evolved in the years after the 9/11 attacks in the U.S. to make sense of patterns in human voice, text, data sources and digital images. We now have software that can “read” text and understand the focus and intent of millions of people – or of just a few special people out of billions. Image processing can do the same now from photographs and videos, enabling not only the rapid recognition of identities of people from facial patterns, but also the ability to understand images in terms of human values such as aesthetics and personal relationships. Raw data sources can be scanned by semantic software and create human-oriented communications such as news stories that are written in a style that most people would think came from a human being. So it's not just that we can get data that indicates the status of something that produces a number – in The Signal Economy, often the signal has very human value in both what it's sensing and how it's communicated.

4.4. Scale – Global computing resources tool up for signal

The progress in computing technologies continues to grow at exponential rates, most recently enabling huge databases to be created at a fraction of the cost of just a few years ago. Gigabytes give way to terabytes to petabytes, exabytes, and more scale information being created and stored at this every day. All of that would pose a huge challenge if the processing services weren't there to make sense of it very quickly. But fortunately, so-called “cloud computing” resources enable huge arrays of computers to process this information on a global basis, using “big data” information services to organize this information rapidly for analysis and transformation into useful information. It's not just that we have enormous information processing capabilities for processing signals with semantic understanding of real-world problems – pretty much anyone can access these sorts of services very cost-effectively via the Web. Major enterprises still have some key advantages in managing their own information services, but increasingly as the world itself becomes the database, the scale of computing in The Signal Economy means that organizations have to be ready to be part of that global information network, not only to listen to it, but also to contribute value to it.

4.5. Services – Responsive marketing for immediate markets

The net result of all of this technology creating signal is an ability to understand both global markets and very personal and localized business opportunities more rapidly and more effectively than ever

before. A bevy of marketing and fulfillment services are more responsive at more levels of the economy than ever before. Have an idea for a new kind of fashion statement? On an online service like Kickstarter, you can “shop” the idea, and people can fund its production and delivery – even before you have a business plan, market research or test marketing in place. The signal is the willingness to fund your efforts, and often the product itself is produced by signal on highly-scalable 3D fabrication and printing equipment. Google’s new line of Android Wear wearable computers was conceived of, designed, and produced by a core team of no more than five people using 3D production technologies that will be able to scale up to millions of highly-customized devices – the same equipment used to develop the prototypes. So whether you’re an entrepreneur with a new idea or a multi-billion corporation, anyone can now leverage services in The Signal Economy to create markets faster and more tailored to individual needs than ever before.

5. What The Signal Economy means to you

So that’s The Signal Economy in a brief form – the ability to sense, evaluate and respond to real-world opportunities long before traditional business methods have had a chance to go out to lunch, much less to think about them. It’s a fast-moving world in which being able to listen globally in a very human way is as important as having greatly talented staff with great production capabilities. If you’ve built a moon rocket that’s waiting to launch in a few months when your markets have changed their minds and want a scooter right now instead, what do you do? If the opportunity to retain a major customer rather than lose them hinges on having a very tailored and valuable response to them while they’re on a service call to your customer response center, what do you do? If you’re working on a blockbuster drug and you need to find collaborators on that project now rather than later who are willing to share information and ideas, what can you do?

In the traditional economy, the response to these sorts of questions was probably, “Not much that we can do, is there?”. But in The Signal Economy, this is where the real money is being made. Gathering, understanding, and responding to signals enables more and better products and services to reach the right people at the right time more often than ever before. Before, we had hypotheses about markets, we probed markets with research and data collection, we validated those hypotheses and then we sent off the results to our organizations’ experts in their offices to come up with ideas as to how to translate all of this data into responses to markets from our organizations. Often the results looked like those little cartoons in coffee break rooms all over tech organizations of the tire swing that a customer wanted that had been transformed into a useless and dangerous over-engineered mess. The Signal Economy is about getting our experts out of their ivory towers and listening collaboratively to your markets with everyone who can understand signals to test out hypotheses on a small scale in the real world very rapidly – and often, to turn the successful tests into real scalable markets as rapidly as possible using today’s signal-driven platforms for creating products and services.

Listening to and responding to markets is no longer an occasional practice – it’s a constant practice. Responding to markets is no longer a matter of business cycles – it’s the cycle of today’s opportunities that may never come again. Building market models is no longer a matter of simply getting a survey sample – it’s interpreting signals being generated in real-time by markets everywhere and applying the analysis from semantic tools to see what the market as a whole is doing. It’s all using very advanced technology, but in many ways these advances have brought us back to the “old school” of marketing – listening to our customers in real-time and analyzing both current and historical communications and

actions with semantic analysis tools, and responding to them rapidly and in tailored ways that are personal, personable and highly-valuable for building high-margin repeat business at any scale. It happens in the markets and bazaars of many nations around the world every day as it has for thousands of years, with the semantic sensors of the human consciousness at their disposal. Now the sights, sounds, temperature, motion and emotion of the world itself is like those bazaars, telling us how to respond rapidly and humanly at scale – before someone else does.

6. How to win in The Signal Economy

So this has been a brief look at The Signal Economy and what it could mean for your organization. It's where much of the growth in industry is headed in the next several years. If your growth is stalled, then chances are pretty good that you're not tuned into The Signal Economy or are only tuned in to some aspects of it. It's not just a matter of scanning social media, or gathering data – it's a resetting of how business is done at many fundamental levels, just as the securities industry had to reset many of its fundamental functions to keep up with technology that could detect and respond to market opportunities faster than ever before. And as with Wall Street, an organization of any size can become a big winner in The Signal Economy – if they build for success in it in several key ways.

Here are a few key takeaways that you may want to consider in preparing your organization to respond to the opportunities presented in The Signal Economy:

- **Rethink what data is important to your operations.** It used to be that business intelligence tools required access to “golden source” databases of well-curated information organized into “dashboards” with key metrics that described how an organization was performing in relation to stated goals. Well, that's all well and good, but in The Signal Economy, listening to the world and making sense of it is often far more important than just the data that you've hand-picked for relevance. What data is there “in the wild” that should be harvested and listened to more carefully? What patterns can be analyzed on an ongoing basis in existing sources that can “tell a story” better as your awareness of existing conditions evolves? In The Signal Economy, often it's not a matter of moving the needle as much as continually choosing where and how far the needle should point. With a world of signals to use for your decision-making, hitting the target isn't a matter of finding the middle of a straw-stuffed circle – it's a matter of finding opportunities on the move in the brush, and hitting them through the trees before they disappear.
- **Invest in systems that are analyzing signal predictively.** It's one thing to be analyzing data and finding semantic patterns in it; it's quite another thing to be using semantic analysis tools to point towards opportunities to investigate with specific recommendations. Think of the “Google Now” service, for example, which crunches through signal that indicates a person's interests, interactions and activities and then pops up information that's likely to relate to something that they're about to do or that might be of the most interest to them right now. What you waited for – or hoped for – from your best managers on an occasional basis in the best of your meetings should be coming out regularly from your analysis of signal and informing your whole organization about what's likely to happen next – and how you may want to respond to it. Focus not on just the objects defined by signal, then, but also the verbs, the adjectives and so on – the full grammar of focus and the intent revealed by signal.
- **Organize your experts to explore hypotheses driven by signal.** In many organizations, people wait for market or scientific research to determine where and when it's best to deploy key experts

in their organizations for investments in marketable outcomes. But in The Signal Economy, often the answers come from engaging your experts in looking at the signals on a more permanent basis, just as hedge funds were formed by experts who found the best ways to listen to financial markets from unexpected sources. It wasn't a matter of their expertise looking at the same old data – it was applying that expertise collaboratively to try out new ideas rapidly. The “fast fail” culture of startup companies can be amplified by great signal gathering and analysis to run with not just one or two ideas, but to get really good data to signify the shifting potential of a much broader range of opportunities and to respond to them with more timely experimentation and prototype products and services. Some organizations maintain a “skunk works” or “tiger team” group of people dedicated to these sorts of operations, but increasingly that variation has to become the theme of an organization's efforts in The Signal Economy, where the exceptions are the new rule for profitable operations and client satisfaction. This may mean compensating and building the loyalty of independent talent more effectively than before – and it will be well worth it.

- **Build product platforms that your customers and partners can tune with signal.** We've had organizations adopting lean management and staffing structure for many decades, now, with outsourcing and smaller management teams supported by heavy investments in data gathering used widely. But in many ways these are just ways to make existing mass-market organizations more profitable without challenging the general pattern of what they make and how they make it. Think of companies like General Motors and Ford and new initiatives like OSVehicle, which are turning their vehicles into rolling electronic platforms into which highly-customized and innovative components, products and services can be integrated with or without the manufacturer's direct involvement. There is a wealth of innovation available in your supply chains and in the minds of your tech-equipped customers, and increasingly the tools of The Signal Economy will enable them to meet demands before you can. Enable them, listen to their signals – and use their lessons to decide how best to respond to innovation opportunities.
- **If you can make one customer happy by listening to signal, you can make the world happy.** Both on the Web and in the new world of on-demand scalable materials fabrication, the ability to target and respond to individual needs with high-quality products and services is becoming the baseline for meeting market demands. Given this baseline, why not become an expert on signal-driven products and services that can meet those highly targeted needs profitably and scale them as they become trends before someone else does? The “weak signals” from a small group of people satisfied with a particular product or service may just be the beginnings of a huge market trend – allowing the “long tail” of small opportunities to build profitability as they grow, not just after you've decided to develop them into major markets. This may mean that you've produced fewer mass-market “hits” along the way, but you'll have made a lot of money along the way from efforts that got to market before those potential hits even got out the door, limiting your competition's potential for market growth – and building loyalty and demand for your version of it when you get around to it. In The Signal Economy, a market of any scale is a significant market if it can be serviced in a timely and profitable manner. Your research is now your market, your market your research.

The important thing to realize from all of this is that The Signal Economy is not some fluffy cloud on the horizon – signal is raining money right now in many industries, and chances are someone's making it rain with signal in your own industry right now. If you're not tuned in to The Signal Economy,

someone else is going to be your industry's rainmaker sooner rather than later. Make it rain signal in your organization now!¹

About the author

John Blossom is one of the most widely recognized content industry analysts, providing thought leadership to executives in search of new approaches to rapidly changing markets for publishing and technology products and services. Mr. Blossom founded Shore Communications Inc. in 1997, specializing in research and advisory services and strategic marketing consulting for publishers and content service providers in enterprise and media markets. Mr. Blossom's engagements have included strategic marketing consulting for major corporations and startups as well as speaking engagements at major conferences and advisory services for senior industry executives. Mr. Blossom is the author of the book *Content Nation: Surviving and Thriving as Social Media Changes Our Work, Our Lives and Our Future*, published by John Wiley & Sons, Inc., in January 2009, and speaks frequently at industry and corporate events on publishing in enterprise and media markets.

Mr. Blossom has been interviewed frequently by the business press and has been quoted in many major news and trade publications and media outlets, including *The Wall Street Journal*, *Financial Times*, *Information Today* and *EContent Magazine*.

¹This paper is based upon a presentation given at the 2014 NFAIS Annual Conference in Philadelphia, PA, USA on February 24, 2014. The slides can be accessed on the NFAIS Web site at: <http://www.nfaiss.org>.