The Science, *Not Art*, of Business Intelligence

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EXECUTIVE SUMMARY

The intelligence process starts with management articulating the need for information that will allow it to make a critical decision. As our case study demonstrates, effective business intelligence results not from luck, but from a systematic process. The intelligence analyst deduces a target's most likely actions or intentions using a hypothesis-based approach. This approach allows the analyst to form and test a theory about the target's actions. Testing a set of hypotheses causes the analysis to identify, plan, and seek out market signals that betray a competitor's actions. By implementing the intelligence plan, the analyst is able to collect the necessary facts to deduce a competitor's actions, allowing his or her company a decisive advantage in the marketplace. © 2001 John Wiley & Sons, Inc.

While no great general goes into battle without knowing the size, composition, location, weaponry, and tactics of the enemy, many captains of industry do. Many executives embark upon costly competitions for vital business without considering the enemy's capabilities and possible strategies. Just as in combat, this lack of intelligence frequently leads to defeat. This was a key finding of a strategic benchmarking survey of 24 aerospace and defense (A&D) companies (see O'Guin, 1994). The study uncovered a direct relationship between a company's knowledge of its competitor's approach and its success at winning contracts.

However, most companies gather competitor information in an ad hoc manner—they take what they can

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get, when and where they can get it. They think of business intelligence as an unaffordable luxury and its practice as a mystical art of dubious repute. As a result, their haphazard collection of data fails to provide insight of much value. However, the companies with the highest success rates at winning new business have found that business intelligence is not a mystical art, it is a science whose ethical practice readily impacts a company's top and bottom lines.

The winners use business intelligence methodically to collect and organize information about the external world. They systematically develop intelligence that reveals their competitor's strategies, provides performance benchmarks, and illuminates changing customer preferences and needs. Business intelligence systems allow companies to anticipate and adapt to changing market conditions by providing them with early warning of emerging technologies, new regulations, market entrants, and other forces.

The following disguised case study illustrates how business intelligence (BI) professionals systematically collect and analyze information that affect critical business decisions. This article shows how the BI professional plans, collects, and analyzes information to enable a company to compete successfully.

Business Intelligence—The Framework

Providing executives with knowledge or foreknowledge of a competitor's (or customer's, or regulator's) actions does not happen by accident. A compelling business case results from a carefully constructed and executed business intelligence plan. This plan follows a familiar framework—the scientific method. After studying the universe, the scientist reasons both deductively and inductively, searching for an explanation of his or her observations, and develops a series of hypotheses to explain the behavior of nature. The scientist then constructs an experiment or series of experiments to test the hypotheses. The collection of this data either confirms or denies the hypotheses.

Business intelligence (BI) follows the same process. When management needs to understand a target's actions, it tasks the business intelligence professional for answers. From their observations, the BI analyst develops a series of hypotheses regarding the target's actions. But the BI professional lacks the luxury of staging a controlled experiment (however attractive it would be to put your competitor's executives in a maze searching for a piece of cheese). So, the professional must observe how the target organization interacts with the external environment. These interactions broadcast signals that reveal a target's intentions. For example, to introduce a new product, a company conducts market studies, files for trademarks, hires key skills, contracts for laboratory test time, installs new equipment, develops advertising, designs new packaging, and lines up launch customers. Each of these actions creates subtle signals in the marketplace.

The BI professional seeks out a set of signals consistent with their hypotheses covering the various marketing, technical, product line, manufacturing, and service options open to the target. The presence or absence of these signals indicates whether or not the hypothesis is true. The professional crafts an intelligence plan to prove (or, by default, disprove) each hypothesis through planned, proactive, and focused data collection of these signals. After seeking out and analyzing this data, the professional synthesizes and packages the accumulated evidence into an intelligence product that allows management to reach a decision and take action.

Implementing the intelligence plan consists of the following steps:

1. *Determine the business decision that you must make.*
2. *Identify the specific questions you need answered to reach a decision.*
3. *Develop specific hypotheses about the answer to each question.*
4. *Identify the signals the target would emit if the hypothesis were true.*
5. *Identify sources that would see these signals.*
6. *Develop data collection plan to contact those sources and look for the anticipated signals.*
7. *Collect the data.*
8. *Analyze the data, reach a conclusion and report your findings.*

To illustrate this process, we will describe each step and then how it was implemented in a case study.

➢ *Step 1. Determine the business decision you must make*

Intelligence is "actionable" information. It is information, about the external environment, which management requires to make an effective business decision. It is not "nice-to-have," it is "must-have" information. Intelligence can focus on a competitor, customer, regulator, teammate, acquisition candidate, market, or any other external influence. Therefore, the first step in any

intelligence project is defining the business decision management must make.

> **Case Study: Freebird's Global Pursuit**. Recently, an electronics manufacturer used business intelligence to determine the competition's offering for a large aircraft contract. The company, which we will call FreeBird, was competing for the navigation system on a new passenger aircraft being developed by Global Aerospace. The navigation system provides the air crew with the aircraft's position, flight path, arrival times, and other navigation information. The system integrates a guidance computer and cockpit display with such sensors as a rate gyro, Global Positioning System (GPS) receiver, and inertial measuring unit (IMU).
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> *Freebird's business decision was: What strategy should they propose to win the Global contract and still achieve an attractive financial return?*

➢ ***Step 2. Identify the specific questions you need answered to reach a decision***

For each critical business decision, an intelligence analyst must define exactly what information will be required to take decisive action. Complex questions with many dimensions must be dissected into a set of discrete, specific questions. Therefore, the intelligence professional breaks down the information requirements into manageable questions with discrete answers.

> **Case study:** FreeBird knew that its principal competitor, AirLink, would also bid on the contract. While the Request for Proposal (RFP) was scheduled for release more than a year in the future, Freebird needed to craft its win strategy and begin developing and positioning its solution. Freebird's executives knew that effective win strategies are based on selecting a solution which is clearly differentiated as superior to the competition on those factors most important to the customer.
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> *Foreknowledge of AirLink's approach would allow Freebird to select an effective win strategy which: (1) emphasized its strengths, (2) minimized its weaknesses, (3) highlight the AirLink's weaknesses, and (4) neutralized AirLink's strengths. Therefore, Freebird's management needed discrete answers to the following questions:*
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> - *What are the customer's most important values?*
> - *What technical solution will AirLink propose?*
> - *What price will AirLink bid?*
> - *How will they structure their offer with financing, design assistance, etc.?*

The rest of the article will focus on the techniques used by Freebird to decipher AirLink's solution.

➢ ***Step 3. Develop specific hypotheses about the answer to each question***

For each specific question, you analyze your observations of the target and their available alternatives. Using this data you develop a hypothesis about what you think the target is doing or will do. You consciously try to avoid your own prejudices by viewing the customer and market from the target's perspective. A good strategy is to pick the competitor's most aggressive or threatening option to you as your hypothesis. From brainstorming of this type, you develop a set of hypotheses about the target's likely actions, then devise ways to test each hypothesis.

The greater your initial knowledge of the target, the more accurate and detailed your initial hypotheses can be. However, experience has shown that having correct initial hypotheses are unnecessary and, in practice, usually wrong. The hypotheses, correct or not, lead you to identify a comprehensive set of signals, and the sources who will see them. If the intelligence plan is executed effectively across a broad spectrum of sources, your sources will spot signals of every major competitor action, even those that are unanticipated. Uncovering conflicting data may disprove some of your hypotheses and lead you to formulate new hypotheses and retest them. This iterative process leads you to develop an accurate picture of the competition's strategy without its foreknowledge.

In addition, the hypotheses can and are developed at multiple levels: The top-level hypothesis determines whether or not a competitor is developing a product and subsequent analysis examines the various possible features of the new product.

> **Case study:** To develop a hypothesis, Freebird assessed AirLink's strengths and weaknesses versus the customer's most important values. They found that Global's most important values for the navigation system were:
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> - *light weight*
> - *navigation accuracy*
> - *low life-cycle cost*

In addition, this new program was putting a severe strain on Global's engineering staff and they would probably welcome any approaches that reduced their engineering content.

Historically, AirLink sold individual components that were renowned for their outstanding field reliability. AirLink's customer, the aircraft manufacturer, integrated these components into a navigation system. AirLink's high reliability resulted in a low life-cycle cost, but to achieve Global's required navigation accuracy, AirLink would have to propose a solution that included some of their larger and heavier sensors.

From this assessment, FreeBird identified two alternative strategies for AirLink to satisfy Global's needs: (1) continue to offer individual components but repackage them to reduce their weight or (2) integrate the various components using software into a smaller and lighter assembly.

AirLink had few successful programs based on software integration (source: their Annual Reports and marketing literature, bidders conferences, *Commerce Business Daily* contract listings, and copies of past contracts obtained through the Freedom of Information Act [FOIA]). However, they had recently told a Wall Street financial analysts meeting of their initiative into this higher value-added segment of the business (source: industry analyst). In addition, AirLink had recently hired a senior vice president with a software integration background (source: local paper).

Freebird's management believed that an integrated solution would be Airlink's most formidable offering. Not only would this approach significantly lower the system's weight, but also it had the added benefit of reducing the workload on Global's already thin engineering staff. Therefore, based on their observations, Freebird would test the hypothesis that AirLink was developing an integrated navigation system for the Global contract.

➢ *Step 4. Identify the signals the target would emit if the hypothesis were true*

No organization functions in isolation. Every action an organization takes emits signals into its environment. These signals potentially betray the target's intentions, if systematically collected and analyzed. However, most of the time these signals are drowned out by the background noise in the market. The intelligence plan tasks your employees to seek out these signals. The presence or absences of signals are facts. By piecing these facts together, the intelligence analyst assembles the puzzle that is the competitor's offering.

The search for meaningful signals starts by identifying all of the actions the target would be taking if your hypothesis were correct. Typically, you use a brainstorming meeting with your internal functional experts—marketing, sales, engineering, human resources, quality, service personnel, purchasing, manufacturing, and facilities for this process. In many cases, it is productive and appropriate to involve outside partners in this effort—trusted consultants, teammates, supplier representatives, etc.

Each expert provides his or her perspective on the competitor's situation and possible actions. As you attempt to identify the competitor's actions, it is helpful to use your own company as a model. If your company were developing an integrated navigation system, what actions would you have to take? Then, consider how your target is different. The greater your initial knowledge of the target's capabilities and processes, the more focused and precise the list of potential actions will be. Using this approach, you identify all of their critical configuration choices the target can make in developing their solution. These key product, technology, supplier, distribution, and manufacturing choices shape their offering to the customer.

> **Case study:** If AirLink were developing a new product some actions would be obvious. They would conduct market studies, develop advertising, and float their new product ideas by the customer. However, developing a new product is a complex undertaking. For the analyst to systematically and comprehensively identify all of the actions required, Freebird's technical experts decomposed an integrated navigation system engineering project into its work breakdown structure. By breaking the product into discrete tasks (shown in Figure 1) it is easier to identify the actions AirLink must take. Freebird identified the following signals for AirLink's introduction of an integrated navigation system.
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> ⬭ *AirLink would have to buy a GPS receiver. Currently AirLink does not sell any products requiring a GPS receiver. In addition, if AirLink bought a GPS receiver for this purpose, they would try to procure it without its housing since it would be integrated into a single sensor assembly with its own packaging.*

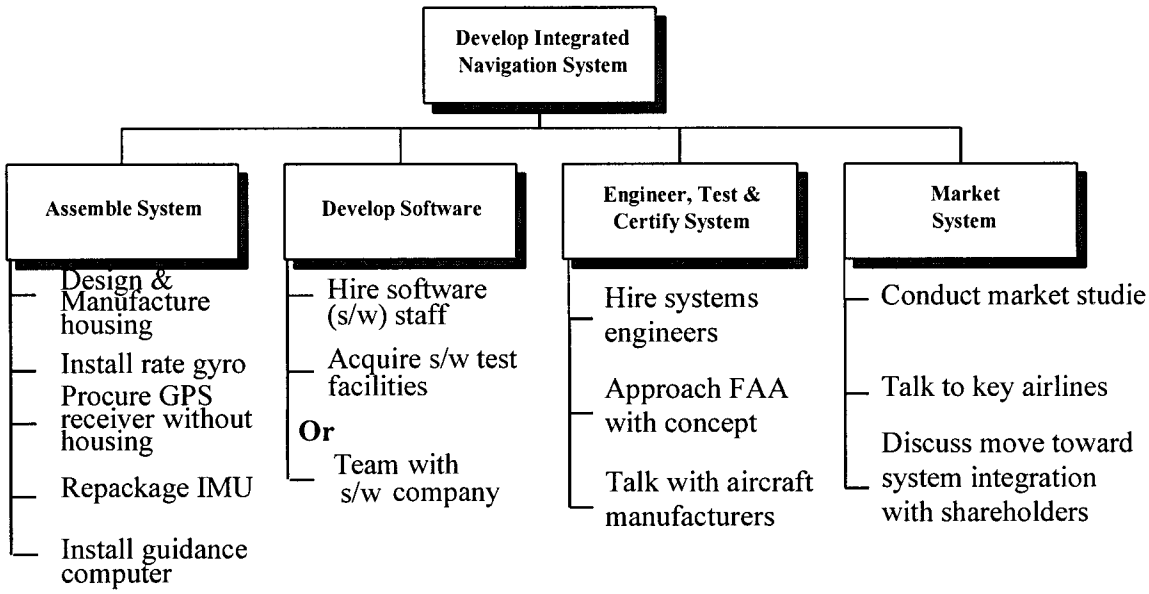


Figure 1.

Work breakdown structure of an integrated navigation system project.

- *AirLink would also have to repackage its Inertial Measuring Unit (IMU) to fit into the integrated sensor assembly.*
- *Given AirLink's limited software capability, they would either have to team with a software integration company or significantly enhance their current capabilities. Each of these actions would give off clear signals. Developing internal software capability, on the other hand, might emit different signals, including hiring new staff, buying or building a software integration test facility, and applying for a higher Software Engineering Institute (SEI) certification rating.*
- *To conduct the necessary trade studies, simulation and other system engineering activities, AirLink would need to hire some senior systems engineers with navigation experience.*

Once you identify the actions the target must take if they are following your hypothesis, you identify the corresponding signals these actions would emit into the marketplace (see Table 1). An action may result in one or more signals. For example, to build a new software integration test facility creates a large number of signals from acquiring property, to filing building permits, to procuring test equipment. However, engineering a new sensor assembly maybe done entirely in-house with existing resources and emit no signals to the market place.

➢ ***Step 5. Identify sources who would see these signals***

After identifying the hypothesis' signals, you brainstorm with your team to identify sources that would see these signals. Suppliers would see components being bought. Key customers would see marketing studies being conducted. The Environmental Protection Agency might see new production processes being installed, and so on.

Many times it is your own internal experts who see the signals. Your sales force hears of competitor marketing studies and picks up the competitor's product literature at a trade show. Your engineering staff frequently learns from conferences and personal networks about the technologies your competition is working on.

Do not limit your research to either primary (interviewing people) or secondary sources (published materials). Likewise, do not limit yourself to those sources that will directly see the signals. Industry watchers such as consultants, academics, financial analysts, trade officials, and journal editors follow the industry and frequently know what the major players are working on. In addition, you should identify sources that have direct knowledge of the target, including former or current employees of the target. A cross-functional team with significant industry experience, effectively facilitated, can usually identify 50 or more sources.

Case study: In AirLink's case, some of the sources identified to spot key moves:

Table 1. *Airlink Actions and Signals*

Actions	Signals
Buy a GPS receiver without housing	Airlink requests quotes from GPS suppliers
Repackage Inertial Measuring Unit	Airlink requests quote from casting house
Team with a software integration company	• Airlink explores software integration and navigation experience with software companies • Airlink conducts teaming negotiations with software integration companies
Enhance current software development capabilities	• Advertising for senior software integration expert • Filing a building permit for a software integration test facility • Hiring a Software Engineering Institute (SEI) certification consultant
Hire systems engineers	• Places ads in local papers • Places ads in system engineering journals • Has job openings for system engineering listed on their website • Participates in local job fairs looking for systems engineers

- **Buying a GPS receiver.** There are only three GPS receiver manufacturers that build units suitable for the Global program.
- **Repackage IMU.** Accurate Casting currently supplies AirLink's IMU housings. If AirLink were repackaging their IMU, Accurate would be the logical choice to provide the sensor assembly housing.
- **Teaming with a software company.** There are only two software companies with navigation systems experience capable of developing the integration software Airlink requires.
- **Hiring systems engineers.** AirLink would probably try to find systems engineers either through the International Society of Systems Engineers, advertising in the *Journal of Systems Engineering*, or going to one of the few technical specialist search firms.

Some signals are easier to observe than others. For example, the company president's announcement to her shareholder that the company intends to enter the system integration business is both a well-publicized (e.g., easy to spot) and clear signal. A good signal is a clear signal—its meaning is unambiguous. In this case, the president's statement is public and directed to shareholders, and therefore it is a highly credible signal.

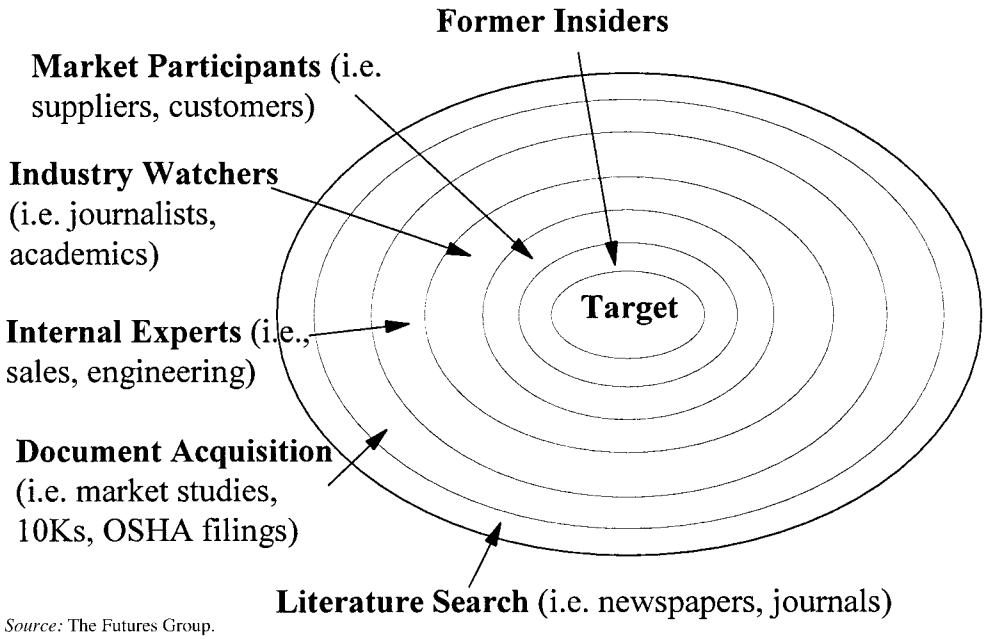
On the other hand, trying to hire a software integration expert, unless you are in a very small field, tends to be an action that is done very discreetly, making it a difficult signal to observe.

➢ *Step 6. Develop a data collection plan*

The next step is to develop a data collection plan. This plan guides the effort by defining the sources and questions to be asked. The sources on the data collection plan are sequenced from the outside of the "intelligence onion" to the inside (see Figure 2). In this way the easiest and most accessible sources—literature searches and talking to your internal experts—are tapped first. As the plan is implemented, your knowledge grows. The more knowledge you have, the more detail you can solicit from a source. Therefore, you are able to approach the most difficult and expensive sources for only the most valuable information.

For example, you should not waste the time of the country's foremost authority on navigation systems by asking her what an IMU (inertial measuring unit) does. However, you might ask her whether companies are moving toward developing integrated navigation systems for military aircraft. Since she has a close relationship with AirLink, she is liable to hint that she knows of a company working on an integrated system, or she might come out and tell you they are, or she could tell you those developments are still years away. The most difficult or valuable sources (such as competitor employees) are used only for the most difficult information. However, accessible sources are not necessarily less valuable than hard to access ones.

The plan ensures accountability for data collection by identifying a responsible individual and due date for each piece of information (see Table 2). Preferably, the



Source: The Futures Group.

Figure 2.

The "intelligence onion" of sources.

person assigned responsibility for the information already knows the source and contacts them as a regular part of his or her job. If the source is a supplier, the plan designates a buyer, if it is a customer, a salesman will contact them, etc. The comments column should note helpful information, any concerns, or suspected biases for a given source.

➢ ***Step 7. Collect the data***

You contact sources looking for the presence or absence of signals. Planning is critical to optimize every source. Prior to calling or meeting with a source, you should define exactly what information is needed, information you are willing to share, the sequence of the questions, and the exact phrasing. The intent is to drive the conversation from general questions to more specific ones. Trained data collectors ask open-ended questions that prompt descriptive and detailed responses, offering each source the maximum opportunity to reveal their knowledge.

Just as scientists base their methodology and findings on facts, so do business intelligence professionals. Therefore, the data collector must assess the validity of the source's information by understanding how they obtained it. Did the source see it first hand, hear about it from a reliable source or hear a third-hand rumor? Although opinions are not facts, they are recorded. The collector attempts to prompt the source for underlying facts upon which their opinions are based by asking for examples and details. Three types of facts will be uncovered:

1. *Observations that tend to support or confirm your hypotheses;*
2. *Observations that tend to contradict or disprove your hypotheses; and*
3. *Observations that introduce completely new possibilities, suggesting new hypotheses.*

You search must be open to each type of fact. The analysis of a robust fact set will permit your organization to iterate the data collection process until you are reasonably certain of the target's actions and intentions.

The success of this step relies on the use of skilled, well-trained, and unbiased data collectors to contact sources. It is relatively easy to structure a conversation to probe a source for an anticipated signal. However, collecting unanticipated signals requires experienced data collectors. It takes significant skill to ask broad enough questions and listen for subtle clues that lead a data collector to probe for unanticipated signals, because you do not necessarily know in advance what questions to ask. Yet, these signals are the most valuable because they indicate unforeseen strategies and actions that can cause you to reconsider your hypotheses.

The importance of executing this step well cannot be overstated. Mistakes are rarely made in analysis. Intelli-

Table 2. *Excerpt from a Data Collection Plan*

Questions Asked/Data Required	Source	Comments	Responsible Individual	Date
Names of industry experts	Database search of technical journals for last 3 years		J. Russell	11/1
Is AirLink trying to hire systems engineers with navigation experience?	Advertising manager, *Journal of Systems Engineering*		J. Russell	11/1
Is AirLink buying a GPS receiver? When do they want delivery? Without a housing?	Acme Electronics—Bill Lehman, Sales Manager, 212-555-1213	Sells GPS receivers. Worked with Gary Larsons on TSEC project	T. Britton	11/2
Is AirLink repackaging their IMU for a new sensor assembly?	Accurate Casting—Julie Rosen, Plant Manager	Supplies AirLink's IMU housings	C. Russ	11/3
Is AirLink in discussions about developing an integrated solution?	Beth Wilkinson—Cybersoft, S/W Engineering Dir. 714-732-8432	S/W integration house. Likes to talk about new technology	J. Ness	11/5
What market niches is AirLink targeting? Was AirLink interested in developing an integrated solution?	Scott Van Sooy, Mesa Electronics 619-234-5654	Ex-AirLink engineer, hates AirLink, knows J. Ness	J. Ness	11/9

gence failures almost always result from failing either to collect or to synthesize pertinent data. Likewise, it is important to remember the objective of the data collection process is *not to prove your hypotheses*. Just as with the scientist, the BI professional seeks to collect facts—not opinions or the proof of some preconceived notion. A professional draws conclusions by analyzing a set of facts. Intelligence professionals rely on the maxim: **weigh facts, not experts**.

You will find a wealth of information in some surprising places and some promising sources will yield nothing. To maintain the integrity of your process, it is critical that when approaching all sources that you identify yourself and your employer and that you specifically state that you do not seek any proprietary information. From each contact, you should try to obtain referrals to additional sources. In this way, the intelligence plan is a living document, with new sources and questions being continuously added or subtracted. After the conclusion of the interview, the results are recorded as soon as possible.

Case study: A typical abbreviated interview follows below:

Charlie Russ: Hi, this is Charlie Russ with Knowledge Link. We're conducting a market study for Freebird Aerospace of particular aspects of the aerospace industry; we are specifically interested in shifts to "smaller-lighter-faster" systems. Bill Lehman of Acme Electronics referred me to you. He said you make a lot of components for the industry and have an excellent perspective on industry trends. Do you have a few minutes to talk with me?

Julie Rosen: A few. What's your research about?

Charlie Russ: Well, part of my research shows that the shift to integrated systems is coming at the ex-

pense of high reliability. So companies are staying with older, heavier components longer than they thought.

Julie Rosen: Hmm, I don't think that's quite true. I don't think it's a question of reliability as much as a lack of systems engineering capability at the components houses. However, the components houses would probably say it is a reliability issue. As a matter of fact, I've got one components customer who is trying to flow down warranty coverage to me in their contract. Apparently, they are trying to go for a very low life-cycle cost.

Charlie Russ: Well, that might be true for valves or fuel assemblies, but that wouldn't be true for something complex like a navigation system would it?

Julie Rosen: As a matter of fact, the product I just mentioned is a navigation system.

➢ *Step 8. Analyze the data, reach a conclusion, and report your findings*

Executing the intelligence plan provides the data to assess your hypotheses. However, some data will conflict. Following good intelligence tradecraft, you should consider a data point valid only if it is confirmed by two independent sources or it has been confirmed by a proven source of high reliability with first-hand knowledge.

As you receive, analyze, and consolidate the data, you assess each hypothesis. In many cases, the facts you uncover will conclusively prove your hypothesis is true. Likewise, in other cases, you confirm an absence of any signals consistent with your hypothesis, indicating the hypothesis is false. However, in most cases, you obtain imperfect knowledge—a mix of confirming and disconfirming signals. Where conflicting data exist, the BI professional, unlike the scientist, applies the analytical standard called "a preponderance of the evidence," which is the standard lawyers use in civil proceedings. Specifically, they make a decision with the rationale that "it is more likely than not that the hypothesis is true."

The more varied the sources, facts and data, the less likely you are to draw an erroneous conclusion. Although, in intelligence, quality is always more important than quantity, most business intelligence professionals agree with Joseph Stalin when he said, "Quantity has a quality all of its own." Therefore, they rely on the *Law of Large Numbers*. By using well-trained researches to saturate the target with 150 to 200 focused interviews, rarely does an intelligence effort miss any pertinent signals. In this way, rarely do any "unanticipated signals" slip by undetected.

Analysis of your hypotheses should tell a story. Much like a game of "21 Questions," the proving or disproving of your series of hypotheses should lead you to a conclusion. The conclusion must be fact based and structured so that management is driven to take action. In fact, experience has shown that greatest benefit of intelligence is its ability to provide management with the **confidence** to take decisive action. Ignorance and doubt breed inaction.

Case study: In Freebird's case, the competitive analysis:

- *Proved*—The hypothesis that AirLink is a targeting the Global program as a "must-win." The program plays a critical role in AirLink's market strategy and will receive significant investment resources.
- *Disproved*—The hypothesis that AirLink is going to offer an integrated system. They have not established any teaming agreements with software companies nor were they acquiring software test facilities, hiring system engineering staff, or buying any GPS receivers, and the Software Engineering Institute (SEI) never heard of AirLink.
- *Proved*—The subsequent hypothesis that AirLink was going to compete on low life-cycle cost. This hypothesis was developed after the researchers discovered a number of unanticipated signals. In discussions with AirLink's suppliers, it was discovered that AirLink was trying to flow down performance warranties to their suppliers. The conclusion that AirLink was going to propose a longer and more extensive warranty (no company offered such warranties in this market) on their products was validated by industry observers and discussions with key customers.

In addition, Freebird uncovered that Airlink was redesigning its components' packaging to reduce weight and make the products easier to install in aircraft. The conclusion was that AirLink would propose a solution focusing on a low life-cycle cost through ease of installation and high component reliability, guaranteed with a warranty.

Another surprising finding was that AirLink was making significant R&D investments at a research lab and

university in micromachining technology. Apparently, they were actively working on developing a "sensor system on a board." Although commercial applications were at least four to five years away, such a development would reduce navigation costs and weight by a 100–1 ratio and dramatically change Freebird's marketplace. Now, Freebird was warned and alert.

After Freebird completed this analysis, they established a program to monitor AirLink's progress on a continuous basis. Freebird is aware that competitors sometimes change their offering at the last minute (however, this is not typically a winning tactic). They did not want AirLink to surprise them. So they planned to be in regular contact with their sources looking for new or inconsistent signals.

This competitive intelligence allowed Freebird to craft a win strategy that clearly differentiated their offering vis-à-vis AirLink, as well as transform the competition. Freebird decided to develop an integrated solution and lobby for a sole-source contract award. Freebird's integrated solution would provide significant weight reductions, improved accuracy, and improved reliability. In addition, Freebird designed their solution to ensure that it overcame or at least neutralized AirLink's advantages in life-cycle cost. Freebird designed their system for ease of installation, modular component replacement and self-diagnostics. Freebird crafted a plan to convince Global that:

- *They offered a clearly superior solution compared to AirLink's.*
- *An integrated solution would significantly reduce Global's engineering workload.*
- *Foregoing a competition would save Global time and money on this critical program.*

In this case, business intelligence not only allowed the company to craft a superior solution, it provided them the knowledge and confidence to proactively "change the rules of the game."

Summary

The intelligence process starts with management articulating the need for information that will allow them to make a critical decision. Effective business intelligence results not from luck, but from the same careful planning, discipline, and systematic process that scientists employ. The intelligence analyst deduces a target's most likely actions or intentions using the scientific method. The analyst forms and tests a theory about the target's actions, complete with a set of hypotheses that are consistent with the overall theory. However, instead of crafting an experiment like a scientist, the business intelligence looks for observations consistent or inconsistent with their hypothesis. The analyst constructs an intelligence plan to seek signals about the target's actions in the marketplace. The presence or absence of these signals betrays a target's intentions.

This process is so effective that there is very, very little that the skilled business intelligence professional cannot find out legally and ethically. The only requirements are the will to win and willingness to commit the resources. Conducting the Freebird analysis took five trained professionals two months full-time. While such intelligence is not inexpensive, it does result in a decisive competitive advantage.

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