CHAPTER 4
MANUFACTURING

BUSINESS BEATS BASICS

MANUFACTURING

INTRODUCTION

Despite what may be said about the decline of American manufacturing, factories exist throughout the country in small and large cities alike. Some areas are so dominated by their manufacturers that they become company towns – a place where practically all stores and housing are owned by a single company that is also the main employer – such as Koehler, Wisconsin; Hershey, Pennsylvania; and Kokomo, Indiana.

In other areas, factories are simply part of the economic mix. You might not think of Chicago as a manufacturing hub, but there are factories sprinkled throughout the city from the shores of Lake Michigan to the western outskirts.

As a business reporter, you might be asked to write up an earnings release for a company that produces a product. Or, your state might announce tax incentives to keep a plant in your community. There could be layoffs that anger the union representing workers at the factory. Or the factory may close in your town, and you will be asked to write about its history. Beyond simply dipping into the topic, you may be asked to take on manufacturing as your sole responsibility. Often, this happens when you're assigned to cover an industry that's important to your community, such as autos, steel, or food products. In that case, you will have to become an instant expert on manufacturing, and your stories will have to make sense to the people who work in the factory.

Manufacturing touches many parts of the economy, and reporting on it can be an exciting task. First, you need to understand that broad economic measurements have a direct impact on manufacturing. For example, the automobile industry closely tracks what happens with employment, consumer confidence, and housing, since a car is the second-biggest purchase consumers can make, after a home.

Next, it is important to understand what is going on at the grassroots level. Manufacturers need to have a feel for what customers are thinking and which way consumer trends are heading, so they can predict how their industries will fare in the wake of change.

Additionally, the manufacturing beat requires an understanding of workplace issues, as you are likely to come across labor unions both big and small. You also need a basic understanding of the

technology and concepts used by engineers to design the products they make.

Manufacturing is the end result of many other decisions, from the first sketch of a new product to the initial marketing study by those tasked with selling it. Then come hours of engineering and, finally, the development of the factory processes required to make the concept a reality.

The blessing for anyone who understands manufacturing is that the basic way that things are made has not changed since the beginning of the industrial age. But the techniques used inside factories have changed significantly, while the internet has sped the way consumers learn about and react to the products that come off the assembly line.

As you learn about manufacturing, remember that it is a global business. The market for vehicles in China affects decisions made in Detroit. The ability of a plant in Vietnam to make the hottest fashions has an impact on designers in New York. Mexican production flow will determine whether a supermarket shelf in Chicago's Little Village is stocked with Coca-Cola.

BOOKS TO READ

The Machine That Changed the World (1990)

by James T. Womack, Daniel Jones and Daniel Roos

The Toyota Way (2001)

by Jeffrey Liker

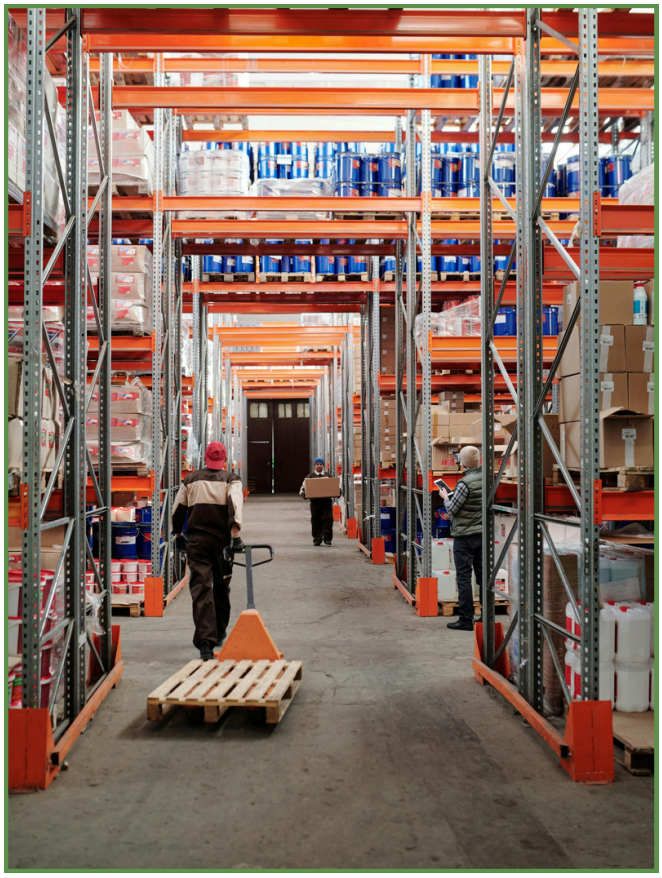
My Life and Work (1922)

by Henry Ford

WHERE TO BEGIN

Manufacturing has a long, turbulent history in the United States. Factories, in the best situations, gave millions of people white-collar lifestyles while working blue-collar jobs. However, for most of the 20th century, factories were considered to be low-status places to work, with manufacturing executives, managers, and workers ranking well below those at other companies in terms of prestige.

This is no longer the case. Car companies from Japan, Germany, Korea, and other countries proved that manufacturing could be a well-regarded specialty. Now, it's rare that a CEO or senior manager at an American company gets to the top without manufacturing experience.



HISTORY

Learn everything you can about the history of the company and the industry you are covering including any unions and product lines. The roots of a company often determine its corporate culture and its manufacturing processes. Look for historians, books, and documentaries about your subject. Ask your sources for recommendations.

STUDY MANUFACTURING CONCEPTS

Manufacturing is taught in business school classes under the heading of Operations Management (OM). If you have the time, enroll in at least one semester of an OM course. If you don't, find a professor, and ask for a tutorial. At minimum, get the class syllabus, and do the readings for the class. Most OM classes are organized in the same way, usually by case studies of different companies and the problems that they have faced. In studying OM, you'll see how the field has progressed over time.

FIND THE REAL EXPERTS

Do a web search for the companies you are covering, and see which experts are quoted the most frequently – then keep reading deeper into the search. As with any topic, the people who are quoted most frequently may not be the true experts, but they may be the people easiest to talk to. Many professors or executives who are true experts on a company are busy visiting its factories domestically and overseas and are selective about talking to reporters.

Other manufacturing experts to seek out are people who used to work at the company you're reporting on. When you see a notice that an executive or labor leader has retired, track them down, and ask if you can pick their brain about their experience and expertise. You also can check universities and institutes in your area for their list of experts as a starting point.

CONFERENCES

The good news is that manufacturing experts love to attend conferences. The bad news is that those conferences can be so technical that only the experts can understand what's being said in those seminars. Conferences are great for source development and for presentations on concepts that people are talking about. Use them as a jumping-off point for further research on trends that are developing in your industry.

FACTORY TOURS

Whenever you're offered the opportunity to take a factory tour, GO. You may feel silly wearing safety glasses, steel-toed shoes, or those funny suits that you have to put on before you're allowed in a plant's "clean room." But you can learn something from every factory. Each has its own personality. Do not hesitate to ask questions. Manufacturing people love it when visitors take an interest in their field. Their language may be technical, but in manufacturing, knowledge is shared by teaching.

All factories have some things in common, such as the inventory entering at one end and finished products leaving at the other. But the interior of every factory is different. If possible, ask a public relations person or manufacturing expert about the layout of the factory before you take a tour. If you have a working knowledge of the way the factory operates ahead of time, you will be able to get more out of the tour once you're inside.

CONNECT WITH UNIONS

It can be difficult to initially cultivate sources inside a union. Some local leaders have been burned by what they feel are unfavorable stories, and often the national office does not want local leaders to talk to reporters. Relationships with union leaders are best built when you can find someone to introduce you. Union conventions offer great opportunities to meet sources that can pay off later. Go to the cocktail hours and the receptions for the individual union locals from your area.

UNDERSTAND FACTORY HOURS

Manufacturing workers often start early. It is not uncommon for shifts to begin at 6am or earlier. If you're offered an interview in the hours just after dawn, do not complain about the time.

Factories that run all day commonly have three shifts where new crews may start at 7am, 3pm, and 11pm each day. Learn what shifts and times they begin for the factories you cover, and be ready to catch workers as they are leaving their shift.

FINDING THE DATA

Manufacturing is a data-rich field, and there is a wide variety of places to go for information on everything from cars to airplanes to textiles to petroleum-based goods – as well as the people involved in manufacturing.

U.S. CENSUS BUREAU'S ANNUAL SURVEY OF MANUFACTURES (ASM)

census.gov/programs-surveys/asm.html

This is a good place to start. It provides estimates of statistics for all manufacturing establishments with one or more paid employees. One of the most useful parts of the ASM is the breakdown of manufacturing by geographic area.

THE BUREAU OF LABOR STATISTICS (BLS)

bls.gov

This is the principal source for statistics about employment and labor unions. Labor unions are required to file an annual report with the government stating their membership and financial resources. You can sign up for emails from BLS that will send you the latest statistics on a variety of subjects.

FEDERAL RESERVE BANKS

The 12 regional banks of the Federal Reserve Board publish monthly statistics on manufacturing. For example, the Chicago Fed publishes the Midwest Manufacturing Index, which tracks 15 different measurements of manufacturing in seven Midwestern states. You can sign up for emails from the banks as well.

THE NATIONAL ASSOCIATION OF MANUFACTURERS (NAM)

nam.org

This is a trade group that publishes monthly state-by-state data measuring manufacturing jobs and output. While NAM is understandably pro-manufacturing, it's worth checking out the data on its site.

INVESTMENT ANALYSTS

Independent analysts can be extremely helpful in providing data and information. Companies whose shares are traded on Wall Street are often followed by investment analysts. They publish regular reports, often through email, which provide investors with updates about the companies. Once you find an analyst whose work you respect, you can ask to be added to their mailing list.

CREDIT-RATING AGENCIES

Standard & Poor's, Moody's Investor Services, and other similar organizations have analysts who follow manufacturing. These analysts focus primarily on the creditworthiness of the manufacturing companies. They sometimes speak in more technical terms, but they often are able to spot problems first. Their reports often tend to be more blunt than those from investment analysts.

INDUSTRY SPECIFIC ASSOCIATIONS

Every major manufacturing sector has a lobbying group in Washington that publishes its share of statistics. You can find much of the information you need online, and the associations often have chief economists who can walk you through industry-related issues and point you to statistical research. The associations often hold conference calls when their industries are in the news.

Some major associations include:

- Air Transport Association – representing the nation's airlines
- Alliance of Automobile Manufacturers – represents Detroit automakers and many foreign producers in the U.S.
- American Iron and Steel Institute – the steel industry's trade group
- American Textile Manufacturers Institute – textile manufacturers and retailers
- International Association of Oil and Gas Producers – a London-based group representing energy producers

COMPANIES

Individual companies have their own internal data on production and sales and are often willing to share them with reporters. For years, Ford Motor Co. has provided regular research reports that are circulated among senior executives and often with the media. The reports generally serve two purposes: to cast the company in a good light, and to show that the company is aware of industry trends. Although the data can be informative, use care in quoting these statistics, and be sure to always source them to the company that provides them.

TRADE PUBLICATIONS

Trade publications are enormously useful as sources of data about manufacturing. Every automobile reporter reads Automobile News, while airline industry reporters read Aviation Daily. Trade publications can be expensive, and editors may balk at paying for them. However, the publications often provide free access to their websites a few times a year or to a handful of articles. It is better than nothing. Also, some trades are willing to offer free website access to journalists, especially those that quote them. It never hurts to ask.

CHALLENGES AND PITFALLS

Products break, inventory arrives late, and a reporter runs into trouble on a manufacturing story. Those things happen all the time. Here are some things to be aware of when covering manufacturing.

"I TOOK SIDES"

When a company is a major employer in your town, there can be pressure from editors and publishers to write favorable stories about it. Or perhaps your parents, or someone you are close to, are involved in a union, and you can see things from only the union's point of view. Especially when writing manufacturing stories, resist siding with one point of view over another. Stories that appear to be too pro-company can alienate workers and suppliers. Those that come out as pro-union can prompt management to refuse your interview requests. Do your best to stay neutral. If you do report on a union or company that you have a personal connection with, be sure to disclose the conflict of interest not only to your editor, but if moving forward with the story, to your readers.

"I FOLLOWED THE PACK"

Veteran manufacturing reporters have seen this happen time and time again. A news service quotes a source saying a local factory will close, or a newspaper reports that a big company is planning to pull up stakes and move its headquarters. You jump on the story because your editor insists you match it, even though you don't have a first-hand source. Resist the urge to follow the pack. The story you don't do often says more about your news organization than the one you do.

"MY SOURCE WAS OUT OF THE LOOP"

It can be exciting to hear what you think is the inside story. Maybe you got some advance information from a local parts supplier who does some business with the company, but not from the company itself. Or, your local union leader heard something from a guy who knows a guy on the bargaining committee. These sort of tips can be helpful, but also very difficult to verify. Try for first-hand sources whenever possible, and do your due diligence before moving forward with a second-hand source. Manufacturing is a beat where the inner circle may not speak to you, and you have to rely on outlying sources, so when in doubt about the validity of the information, err on the side of caution until you have an additional source or more information to go on.

"THERE'S NO UNION, AND NO ONE WILL TALK TO ME"

Finding people to interview at a factory without a union can be difficult, as there is no obvious representative for workers. That doesn't mean you give up. Search social media sites for people in your area that have the company in their profiles. Ask your friends and professional contacts whom they know. Then try the old-fashioned way: go to the bar, coffee shop, or cafe near the factory and have plenty of business cards handy.

"I DIDN'T DO MY HOMEWORK"

Like any industry, manufacturing is a complicated subject with its own language. Sometimes, you simply don't comprehend it. You failed to read up on a company and its products before you went to the interview and took the factory tour. Now your notes and recordings seem like gibberish. To avoid this, you must do your homework before every interview and factory visit. If you don't understand something, stop, and get it clarified in simple words. Should worse come to worst, call the PR person, and ask for another interview on specific topics. Remember that re-touring a factory may not be possible in a short period, so make the most of your first visit by doing your homework ahead of time.

TERMS TO KNOW

Andon cord

A cord, like a clothesline, that hangs above the assembly line. A pull on the Andon (pronounced ANN-don) slows the assembly line; a second pull generally stops the line. This concept was popularized by Japanese automakers, who gave employees the authority to slow or stop the line when a problem occurs. Nowadays, the line is rarely stopped except for an emergency. Generally, a tug on the cord will summon a supervisor, who will bring in other workers if needed to solve a problem.

Automation

In its most common usage, automation means robots. In many cases, robots have replaced labor-intensive, difficult processes – such as welding pieces of metal together – but they also have taken the place of workers whose job it was to move parts down the assembly line. In German factories, such as Mercedes-Benz's plant near Stuttgart, you will see robots picking up material and moving it across the factory floor. Automation also has taken over many tasks in food processing, such as filling containers and stamping out cookies, and is often used in packaging the finished products. Automation is using any technology or machinery to complete steps in the manufacturing process without humans.

Bottleneck

Problems that prevent a factory from running smoothly. Bottlenecks are sometimes physical obstacles on the assembly line. But there also can be slow deliveries or shortages of parts. Bottlenecks can take place due to a shortage of skilled workers or when machinery breaks down and needs to be repaired. Weather can cause a bottleneck in deliveries, particularly in the winter when trucks are unable to navigate roads.

Capacity utilization

The percentage of time a factory is in operation. This is generally measured on a five-day week with two eight-hour shifts of workers (called "straight time") The time on top of this that the factory operates is called overtime. Minimally, a factory needs to be in operation at least 75 percent of the time, to cover the costs of inventory, maintenance, salaries, and distribution. The best factories run at 100 percent of straight-time capacity. A capacity-utilization number above 100 percent reflects overtime.

Just in Time (JIT)

An inventory system that keeps only the number of parts required to complete production on one shift or one day. The JIT system, also popularized in Japan, has its roots in American supermarkets. It is modeled after the "stock-from-behind" system used in dairy cases. As a customer removes one carton of milk, a new carton is pushed to the front.

Kaizen

A Japanese term that means "continuous improvement." Kaizen (KYE-zen) is an effort to do things faster and more efficiently. On the factory floor, workers in Japanese factories are encouraged to provide feedback and suggestions, often taking time at the end of their shifts to brainstorm ideas. To "kaizen" a problem means to dissect it and come up with solutions. Kaizen also is used in a white-collar environment to speed up product development.

Productivity

This is a measure of output. Think of it as the batting average for a factory. Productivity reflects how much time it takes to produce a product, often divided by how many workers are involved. In modern manufacturing, high productivity generally means producing the most goods possible with the lowest number of workers possible. But manufacturers also measure productivity in terms of the output per worker and look at the productivity of their machinery, which reflects a number of things – such as the design of the machines, the way they are programmed, and how well they are maintained.

The 5 S's

A visual measurement of the efficiency of a factory. The 5 S's are sort, straighten, sweep, standardize, and sustain. The list describes the ways to keep order on the assembly-line floor.

Sorting: categorizing tools and keeping only those required near a workstation.

Straightening: the way those tools are arranged and returned after use.

Sweep: to keep a clean work area.

Standardize: to have common methods for performing work.

Sustain: the practice of performing the 5 S's. The best factory experts say they can take a look around a factory and tell how well the 5 S's are being applied.

Product testing

The testing of products before they are manufactured or shipped to consumers. Product testing also takes place before goods are put into production. Engines, transmissions, and other components often undergo hours of product testing to measure their durability. For white goods (large domestic appliances, such as refrigerators, dishwashers, and washing machines) and for large products such as automobiles, product testing is often performed at the end of the assembly line as well. Many cars go through a water test inside the factory to make sure they are airtight.

This chapter is based on the "Beats Basics" Manufacturing section, originally published in 2011 and written by Micheline Maynard, former Detroit bureau chief with The New York Times.