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# Industrial Production Managers

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## Significant Points

- Industrial production managers coordinate all the people and equipment involved in the manufacturing process.
- Most employers prefer to hire workers with a college degree; experience in some part of production operations is also usually required.
- Employment is expected to decline as overall employment in manufacturing declines.

## Nature of the Work

Industrial production managers plan, direct, and coordinate the production activities required to produce the vast array of goods manufactured every year in the United States. They make sure that production meets output and quality goals while remaining within budget. Depending on the size of the manufacturing plant, industrial production managers may oversee the entire plant or just one area.

Industrial production managers devise methods to use the plant's personnel and capital resources to best meet production goals. They may determine which machines will be used, whether new machines need to be purchased, whether overtime or extra shifts are necessary, and what the sequence of production will be. They monitor the production run to make sure that it stays on schedule and correct any problems that may arise.

Part of an industrial production manager's job is to come up with ways to make the production process more efficient. Traditional factory methods, such as mass assembly lines, have given way to "lean" production techniques, which give managers more flexibility. While in a traditional assembly line, each worker was responsible for only a small portion of the assembly, repeating that task on every product, lean production employs teams to build and assemble products in stations or cells, so rather than specializing in a specific task, workers are capable of performing all jobs within a team. Without the constraints of the traditional assembly line, industrial production managers can more easily change production levels and staffing on different product lines to minimize inventory levels and more quickly react to changing customer demands.

Industrial production managers also monitor product standards and implement quality control programs. They make sure the finished product meets a certain level of quality, and if not, they try to find out what the problem is and find a solution. While traditional quality control programs reacted only to problems that reached a certain significant level, newer management techniques and programs, such as ISO 9000, Total Quality Management (TQM), or Six Sigma, emphasize continuous quality improvement. If the problem relates to the quality of work performed in the plant, the manager may implement better training programs or reorganize the manufacturing process, often based upon the suggestions of employee teams. If the cause is substandard materials or parts from outside suppliers, the industrial production manager may work with the supplier to improve their quality.

Industrial production managers work closely with the other managers of the firm to implement the company's policies and goals. They also must work with the financial departments in order to come up with a budget and spending plan. They work the closest with the heads of sales, procurement, and logistics. Sales managers relay the client's needs and the price the client is willing to pay to the production department, which must then fulfill the order. The logistics or distribution department handles the delivery of the goods, which often needs to be coordinated with the production department. The procurement department orders the supplies that the production department needs to make its products. It is also responsible for making sure that the inventories of supplies are maintained at proper levels so production proceeds without interruption. A breakdown in communications between the production manager and the procurement department can cause slowdowns and a failure to meet production schedules. Just-in-time production techniques have reduced inventory levels, making constant communication among managers, suppliers, and procurement departments even more important.

**Work environment.** Most industrial production managers divide their time between production areas and their offices. While in the production area, they must follow established health and safety practices and wear the required protective clothing and equipment. The time in the office, which often is located near production areas, usually is spent meeting with subordinates or other department managers, analyzing production data, and writing and reviewing reports.

Many industrial production managers work extended hours, especially when production deadlines must be met. In 2006, about a third of all workers worked more than 50 hours a week, on average. In facilities that operate around-the-clock, managers often work late shifts and may be called at any hour to deal with emergencies. This could mean going to the plant to resolve the problem, regardless of the hour, and staying until the situation is under control. Dealing with production workers as well as superiors when working under the pressure of production deadlines or emergency situations can be stressful. Corporate restructuring has eliminated levels of management and support staff, thus shifting more responsibilities to production managers and compounding this stress.

## Training, Other Qualifications, and Advancement

Because of the diversity of manufacturing operations and job requirements, there is no standard preparation for this occupa-



*Industrial production managers monitor the quantity and quality of goods produced.*

tion. Most employers prefer to hire workers with a college degree. Experience in some part of production operations is also usually required, although some college graduates are hired directly into management positions.

**Education and training.** Many industrial production managers have a college degree in business administration, management, industrial technology, or industrial engineering. However, although employers may prefer candidates with a business or engineering background, some companies will hire well-rounded liberal arts graduates who are willing to spend time in a production-related job.

Some industrial production managers enter the occupation after working their way up through the ranks, starting as production workers and then advancing to supervisory positions before being selected for management. These workers already have an intimate knowledge of the production process and the firm's organization. To be selected for promotion, workers can expand their skills by obtaining a college degree, demonstrating leadership qualities, or by taking company-sponsored courses to learn the additional skills needed for management.

As production operations become more sophisticated, an increasing number of employers look for candidates with graduate degrees in industrial management or business administration, particularly for positions at larger plants where managers have more oversight responsibilities. Combined with an undergraduate degree in engineering, either of these graduate degrees is considered particularly good preparation. Managers who do not have graduate degrees often take courses in decision sciences, which provide them with techniques and statistical formulas that can be used to maximize efficiency and improve quality. Those who enter the field directly from college or graduate school often are unfamiliar with the firm's production process. As a result, they may spend their first few months in the company's training program. These programs familiarize trainees with the production process, company policies, and the requirements of the job. In larger companies, they also may include assignments to other departments, such as purchasing and accounting. A number of companies hire college graduates as first-line supervisors and later promote them to management positions.

**Other qualifications.** Companies are placing greater importance on a candidate's interpersonal skills. Because the job requires the ability to compromise, persuade, and negotiate, successful production managers must be well-rounded and have excellent communication skills. Strong computer skills are also essential.

Industrial production managers must continually keep informed of new production technologies and management practices. Many belong to professional organizations and attend trade shows or industry conferences where new equipment is displayed and new production methods and technologies discussed.

**Certification and advancement.** Some industrial production managers earn certifications that show their competency in various quality and management systems. Although certification is not required for industrial production manager jobs, it may improve job prospects.

One credential, Certified in Production and Inventory Management (CPIM), is offered by the Association for Operations Management and requires passing a series of exams that cover supply chain management, resource planning, scheduling, production operations, and strategic planning. Certification holders must complete a set number of professional development activities every 3 years to maintain their certification.

The American Society for Quality offers the Certified Manager of Quality/Organizational Excellence (CMQ/OE) credential. This certification is open to managers who pass an exam and who have at least 10 years of experience or education, 5 of which must be in a decision-making position. It is intended for managers who lead process improvement initiatives. To maintain certification, workers must complete a set number of professional development units every 3 years.

Industrial production managers with a proven record of superior performance may advance to plant manager or vice president for manufacturing. Others transfer to jobs with more responsibilities at larger firms. Opportunities also exist for managers to become consultants. (For more information, see the statement on management analysts elsewhere in the *Handbook*.)

## Employment

Industrial production managers held about 157,000 jobs in 2006. About 4 out of 5 are employed in manufacturing industries, including the fabricated metal product, transportation equipment, and computer and electronic product manufacturing sectors. Production managers work in all parts of the country, but jobs are most plentiful in areas where manufacturing is concentrated.

## Job Outlook

Employment of industrial production managers is expected to decline. Applicants with experience in production occupations along with a college degree in industrial engineering, management, or a related field will enjoy the best job prospects.

**Employment change.** Employment of industrial production managers is expected to decline moderately by 6 percent over the 2006-2016 decade, mirroring the overall decline in manufacturing employment. Some declines will result from manufacturing plants moving abroad, but domestic production in manufacturing is expected to continue to increase. However, as plants produce more goods with fewer people, there will be less need for industrial production managers.

## Projections data from the National Employment Matrix

Occupational Title	SOC Code	Employment, 2006	Projected employment, 2016		Change, 2006-16	
			Number	Percent	Number	Percent
Industrial production managers.....	11-3051	157,000	148,000	-9,200	-6	

NOTE: Data in this table are rounded. See the discussion of the employment projections table in the *Handbook* introductory chapter on *Occupational Information Included in the Handbook*.

Efforts to increase efficiency at the management level have led companies to ask production managers to assume more responsibilities, particularly as computers allow managers to more easily coordinate scheduling, planning, and communication among departments. In addition, more emphasis on quality in the production process has redistributed some of the production manager's oversight responsibilities to supervisors and workers on the production line. However, most of the decision making work of production managers cannot be automated, which will limit the declines in employment.

**Job prospects.** Despite employment declines, a number of jobs are expected to open due to the need to replace workers who retire or transfer to other occupations. Applicants with experience in production occupations along with a college degree in industrial engineering, management, or business administration, and particularly those with an undergraduate engineering degree and a master's degree in business administration or industrial management, will enjoy the best job prospects. Employers also are likely to seek candidates who have excellent communication skills, related work experience, and who are personable, flexible, and eager to enhance their knowledge and skills through ongoing training.

### Earnings

Median annual earnings for industrial production managers were \$77,670 in May 2006. The middle 50 percent earned between \$59,650 and \$100,810. The lowest 10 percent earned less than \$47,230, and the highest 10 percent earned more than \$130,680. Median annual earnings in the manufacturing industries employing the largest numbers of industrial production managers were:

Management of companies and enterprises .....	\$88,820
Aerospace product and parts manufacturing .....	87,750
Motor vehicle parts manufacturing .....	79,360
Printing and related support activities .....	73,350
Plastics product manufacturing .....	70,180

### Related Occupations

Industrial production managers oversee production staff and equipment, ensure that production goals and quality standards are being met, and implement company policies. Other managerial occupations with similar responsibilities are general and operations managers, construction managers, and sales managers. Occupations requiring comparable training and problem-solving skills are engineers, management analysts, and operations research analysts.

### Sources of Additional Information

General information on careers in industrial production management is available from local manufacturers and schools with programs in industrial management.

For more information on careers in production management and information on the CPIM certification, contact:

➤ APICS, the Association for Operations Management, 5301 Shawnee Road, Alexandria, VA 22312.

Internet: <http://www.apics.org>

For more information on quality management and the CMQ/OE certification, contact:

➤ American Society for Quality, 600 North Plankinton Ave., Milwaukee, WI 53203. Internet: <http://www.asq.org>