Productivity

Productivity is the result or the sum of all effort that it takes to deliver a product or service. Productivity is frequently referred to as output and, to some degree, can be measured. The output generated by a person, organization, or other entity is measured in terms of (the number of) units or items produced and services performed within a specified time frame. Thus, productivity is the economic value of goods and services. It becomes the value or result of the "price" of a product or service minus all "costs" (supplies, materials, human labor, etc., which frequently are monetary) that go into the effort.

**Productivity Performance Measures**

Productivity is a performance measure that indicates how effectively an organization converts its resources into its desired products or services. It is a relative measure in that it is used to compare the effectiveness of a country, organization, department, [workstation](http://www.answers.com/topic/workstation), or individual to itself over time for the same operation, or to other countries, organizations, departments, workstations, or individuals. From a systems perspective, productivity indicates how well an organization transforms its inputs into outputs. In manufacturing, productivity is generally stated as a ratio of output to input. Productivity may be expressed as partial measures, multifactor measures, and total measures. Partial productivity measures are used to analyze activities in terms of a single input (e.g., units produced per worker, units produced per plant, units produced per hour, or units produced per quantity of material). Multifactor productivity measures take into account the utilization of multiple inputs (e.g., units of output per the sum of labor, capital, and energy or units of output per the sum of labor and materials). A total measure of productivity expresses the ratio of all outputs produced to all resources used.

**System and Subsystem Productivity**

An important point in seeking productivity improvements in a subsystem of an organization is to link the subsystem improvements to the total system productivity. Optimization of a subsystem operation that does not affect the overall productivity of the organization is a waste of resources. For example, a manufacturer might improve the productivity of its machining operations, as measured by number of units produced per dollar. But if these units cannot be sold and are warehoused, the productivity of the organization has not increased, since the goal of the manufacturer is to generate revenue through the sale of its products. Activities intended to improve productivity must be carefully selected, and the appropriate measures must be developed to ensure that the organization's efforts result in the improvement of its overall productivity.

Numerous specific components are involved in contributing to and measuring productivity. The most important of these are discussed below.

**Return on Investment** Productivity is closely related to, but not dependent on, profit. It can be measured by return on investment (ROI). ROI is determined after the sale of a product or service minus the [deductions](http://www.answers.com/topic/deductions) for the total amount of effort (resources, etc.) put into its design, development, implementation, evaluation, and marketing. The formula for determining ROI is: "Price" minus "Cost" divided by "Sales."

**Productivity Measures for Individuals and Teams** An individual's productivity is measured by that person's potential to reach the highest level of productivity possible. That is, a person has certain skills that determine his or her level of capability (an engineer's skills, banker's knowledge, etc.). An individual's experiences and education usually determine his or her skill level regarding a particular job. Other factors, such as a positive environment (working with a good team, having a good boss, liking the physical surroundings in the [workplace](http://www.answers.com/topic/workplace), being appreciated, etc.) and how motivated one is to do a job, also contribute to productivity. When several individuals come together to work as a team, the team's productivity or the effectiveness of the team is the sum of individual efforts toward achieving a desired goal. Several factors (motivation, expertise, working conditions, team compatibility, potential, etc.) influence the level of productivity achieved.

**Productivity Gap** A productivity gap (*or capacity gap*) is the difference between what a person can do and what that person actually does. That is, every person has the ability to achieve at a certain level. If a person is not motivated and is not working up to potential, that person's productivity gap is usually quite large. The same principle applies to a work team, organization, and so on. It is desirable to estimate potential (of a person, work unit, company, etc.) to determine where productivity gaps exist (and how large they are) and find ways to close them. By looking at a person's ability in conjunction with other motivational factors, it is possible to estimate a person's (or a group's) potential to achieve desired results. When all factors operate at [optimum](http://www.answers.com/topic/optimum), the productivity is said to be at its highest level—the productivity gap has been filled or is minimized.

**Motivation** Productivity is directly related to how motivated a person is to perform a task or activity. Many businesses devote much time and effort to finding ways to motivate employees. Worker enhancement programs (for an individual, team, company, etc.) that are built on ways to motivate workers (toward self-motivation and long-term motivation) can optimize productivity. Organizations that are most successful in motivating workers provide a variety of programs (formal and informal avenues within and outside the organization) to meet the needs of their employees. Some organizations offer employees sports and recreational activities, fitness and leisure activities, and family-oriented programs (*work-/job-augmented incentives*). Incentive programs may be totally separate from or incorporated into work-team meetings, seminars, and education/training programs. Such a comprehensive approach toward enhancing worker performance may capitalize on quality measures (such as value, total quality management [[TQM](http://www.answers.com/topic/tqm)], quality circles, innovation, etc.) and performance standards (such as profitability, efficiency, customer [satisfaction](http://www.answers.com/topic/satisfaction), on-time delivery, etc.) and include a wide range of personal and team rewards and incentives.

**Mutual Reward Theory** Mutual reward theory ([MRT](http://www.answers.com/topic/mrt-abbreviation)) is based on finding ways for all to benefit. That is, if an organization can assist an employee in reaching some of his or her goals while still meeting the company's production goals, a mutual reward has occurred. When the benefits are at an optimum for all persons involved, the greatest rewards are realized. Productivity is usually directly proportional to the degree of MRT success.

**Productivity Benchmarks** Factors that enter into productivity benchmarking for an organization include overall operations, worker training, technology, continuous quality improvement, and management philosophy and strategy. Management strategy includes how and at what level decision making takes place—usually greater productivity gains are realized when decision making is pushed to its lowest level possible and is still effective. Also, an organization's efficiency may depend just as much on borrowing and lending strategies (e.g., requiring immediate payment on goods sold while practicing delayed payments to creditors) to maximize resource availability as it does on efficient operations and a safe environment. Thus, there are many important factors included in maximizing ROI—most factors depend on making the right decisions at the right time. What is a good decision for one company may be bad or devastating for another.

**Productivity Growth and Economics** Productivity growth is defined as a measure of the amount of goods and services that are produced during a specified period of time. Once a standard has been determined, the standard ([benchmark](http://www.answers.com/topic/benchmark" \t "_top) or identified level of production) becomes the measure against which all future production can be compared. Since 1950, the U.S. ten-year annual growth rates have been as follows: 1950s: 2.17 percent; 1960s: 2.85 percent; 1970s: 1.71 percent; 1980s, 2.17 percent; 1990s: (estimate) 1.31 percent. The annual growth rate is of particular interest to individuals, since the productivity growth rate is directly proportional to a person's wealth. That is, as productivity levels go up, so does an individual's buying power. In turn, the total economy benefits from the boost.

**Productivity Value Added** While productivity is more easily measured in manufacturing (products produced) than in services, most productivity researchers agree that people are the world's most valuable resources. Many productivity re searchers suggest that education and training are the basic foundation for raising productivity levels. The acquisition of expertise through education and training, coupled with the best equipment and resources within an efficient and safe environment, can be maximized by developing employees into people who want to learn, who want to work at their potential, and who want to continuously improve. These factors are best achieved when an employee is motivated to take pride in the work he or she does. A motivated, self-starting employee is one who adds value to an organization and contributes to the overall productivity of him or herself, a work group, an organization, and the economy.