



The Economics of
ERGONOMICS

An information document by Franz Schneider

**People are the sole source of office productivity.
Office productivity depends on healthy people.**

Understanding the Economics of Ergonomics

Over the last 25 years, the basic principles of office ergonomics have become muddled by complex words and too much hype. When the rhetoric is removed, three guiding principles remain as the foundation of office ergonomics. These principles set the path towards an office that is both healthy and productive.

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Principle Number 1

People are the sole source of office productivity

In ancient times, business was conducted between merchants gathered around a flickering fire. Each had something the other wanted. By exchanging goods of value, a deal was struck and both parties achieved business success. Today, the flickering glow may come from a computer, but the basic parameters remain unaltered. The interaction of people with people is the basic building block of business. While pursuing the latest management “trend de jour” in office productivity, we need to go back to basics and remember the importance of people. There is no such thing as a productive office building, a productive computer, or a productive chair, there are only productive people. People are the single and only source of productivity in the office. Remove people from the office equation and all work grinds to a halt. If people perform well, then a business performs well. If people perform poorly, then a business performs poorly.

Principle Number 2

Office productivity depends on healthy people

Human performance and business performance is inseparable. Consequently, improving human performance is a major goal of management. Because the office environment can increase or decrease human performance, managers need to view ergonomics as a management tool. Good office ergonomics can improve performance. Poor ergonomics can destroy it. At the extreme end of the poor ergonomics continuum is illness. Painful symptoms and illnesses that are commonly associated with the office workplace fall under the broad umbrella term CTD or Cumulative Trauma Disorder. Cumulative Trauma Disorder is the final evidence that we are failing in our support of human productivity. Business is faced with a simple choice when it comes to ergonomics.

Pain or productivity?

Poor Ergonomics = Illness

Good Ergonomics = Productivity

Office productivity depends on healthy people

The difference between what healthy people can do, and what the physical work environment allows them to do is called the productivity gap. The productivity gap is the difference between mediocre and outstanding performance. The most effective way to close the productivity gap is to remove barriers to human and team performance. Much has been written about removing organizational barriers, but management barriers are likely a secondary concern. This relationship is best understood through athletics. Your running shoes need to be the right size before the coach can start perfecting your running style. The first step towards office productivity

is to address the physical quality of the workplace and the health of your employees. In his famous treatise, Maslow described the needs of the human and prioritized physical needs before social needs. Maslow's hierarchy of needs correctly describes our needs in the office. If pain and illness are bombarding an office worker, whether he or she has the correct span of control or a well calibrated empowerment organization are irrelevant. Individual needs for physical health and well being must be fulfilled before organizational well being becomes important.

Office productivity depends on healthy people

Your organization will only perform as effectively as the ability of each person. And, each person will only perform as effectively as his or her personal skills and motivation will allow. It has been proven that poor office ergonomics contributes to pain and illness and that the pain and illness caused by poor ergonomics will inhibit motivation and degrade productivity. Such a simple concept can sometimes get lost amid the challenges of today's business climate, but if you look at your own personal experience, it is really simple. We all know that there is nothing motivational about working in pain or being sick. Recognizing this fact, we must view employee health as a basic building block of human performance, and human performance as the basic building block of corporate performance. Removing pain and illness from the office is the first step in closing the productivity gap. Healthy people perform better than sick people!

Principle Number 3*

Good ergonomics is good business

When cost justifying office ergonomics, we can use the same tools employed to cost justify a new photocopier. The premise is simple; the benefits of value added performance must outweigh the capital costs. The beginning point in cost justification of office ergonomics is an introduction to human resource cost accounting. It is important to understand the total cost of an individual to your company. The total cost of an employee includes: The salary of the individual + the benefits offered by your company + the cost of the overhead to support the individual = Total Cost. For instance: \$40,000 in salary + \$12,000 in benefits (about 30% of salary) + \$14,000 in overhead (about 35% of salary) = \$66,000 Total Cost This person now has a cost to your business of \$33 per hour. This is based upon a 2000 hour year which is derived from 50 weeks, 40 hours per week or 2,000 hours which is the standard year for most accounting equations.

Good ergonomics is good business

Given the wide cost spectrum in the USA today, let's use average numbers to develop our position. A recent Lou Harris study defined the mean salary for a cross section of full time office personnel as \$23,950 per year. Applying a benefits burden of 30% with an overhead burden of 35% yields a total burden cost of \$39,517.50. This calculates out to \$19.75 per hour. We will use this "average" number for our evaluations.

Good ergonomics is good business

There are two tactics for evaluating the contribution ergonomics makes to corporate performance. Good ergonomics can improve human performance. Poor ergonomics can inhibit human performance and contribute to illness. Very simply, the differences are whether we focus on the positive aspects of a value added approach or direct our attention to avoiding negatives through cost avoidance. Many companies have had success with the value added approach. Using the value added approach, benefits from the cost avoidance for worker's compensation, replacement costs for injured workers or retraining costs are icing on the corporate cake. The value added approach to ergonomics is simple. We need only answer one question. Will ergonomics furnishing allow you to do more work? The concept is called - Time on Task. An employer does not derive value from employees discussing the latest Dilbert cartoon, walking to the water cooler, or returning late from lunch. Although many parts of the complex mosaic called office productivity depend on non-job directed conversations, the ultimate denominator of office productivity is:

How much of what you are paid to do, do you actually do?

These activities are referred to as core functions; how many customer support phone calls do you respond to, how many fields of data do you enter in a spreadsheet, or how many semiconductor task is a denominator that directly responds to these core functions. If an employee is working on a core task, they are directly contributing the company, if they are off task, at best; they are contributing indirectly, and in many cases, are just goofing off. What if office ergonomics could be used to leverage more core function time? Could a fully adjustable workstation provide a worker with an additional 10 minutes per day of more time on task, and ten less minutes per day of wandering away from your desk because your back hurts?

Could full range adjustability give you 10 minutes per day of comfort and ten less minutes of leaving early because your are burned out" for the day? Research studies into office ergonomics have defined improvements approaching a 25% increase in time on task. We will continue with a conservative approach and use a number of 1/10th of what may be possible. Ten minutes per day is only one tenth of what researchers tell us is possible, yet ten minutes per day yields approximately \$825.00 in value added performance per year. One of the factors that many people overlook when developing a cost benefit scenario for office furniture is that we do not have to cost justify the entire price of the workstation.

Principle Number 3

Good ergonomics is good business

People need to work somewhere. The difference between nonadjustable furniture and full range adjustable furniture is the cost gap that must be bridged. Let's estimate the cost difference at \$700.00. Another of the factors that we often overlook is the service life of the workstation. The

purchase price is not a recurring annual cost. Although benefits persist throughout the life to the workstation, the cost is amortized over the life of the product. The life of a workstation is typically 7 years. Consequently, we are looking at a yearly cost for the fully adjustable workstation of \$100.00. Now the costs of ergonomic office furniture can be evaluated. One of the cheapest things we can ever do to improve human performance is to spend \$100.00 per year on good office workstations, which will provide a productivity improvement of \$825.00. Compared to the costs for educational seminars, quality circles, employee counseling, or employee recognition lunches, ergonomic workstations are cheap.

Summary - *Summarizing what we have learned, let's look back at the three basic principles of office ergonomics again.*

People are the sole source of office productivity.

Office productivity depends on healthy people.

Good ergonomics is good business.

Applying these three principles allows you to develop an office environment that is both healthy and productive. When the techniques of cost accounting are used to evaluate the benefits of office ergonomics, it becomes clear human productivity improvements are an untapped resource for many companies. Good office ergonomics is like getting extra personnel, without paying more salary. What would it be worth to your company if once per week every employee skipped lunch and worked at their desks instead? Sounds like a dream doesn't it? It's not a dream; it is the reality of office ergonomics and the value of increased productivity.

* While this document was published on April 19, 1994, the general principles are the same; however, the cost cited have changed.