



# CodeFacts

AIDC (Automated Identification and Data Collection) Technical & Informational Documents  
Written for Everyone

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## Cost-Justifying a Bar Code System

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There is really no such thing as a "Bar Code System", but we call them that anyway. Rather, bar code technology can be *applied* to virtually any computerized software application which may, or may not have existed without it. Therefore, bar coding is merely a "system enhancement". It is probably the most easily cost-justifiable improvement that can be made to a computerized system.

On the tangible side, the use of bar codes at least doubles data entry speed and multiplies data accuracy by many times. Such statistics can easily be converted into "hard dollars". On the intangible side, however, bar code systems are not quite as easy to cost justify.

Bar codes are simply machine-readable characters, which can be scanned into a computer system, which normally accepts key-entered data. Most computers have the data they use entered through the keyboard, so it's fair to compare bar code scanning with manual keyboard entry.

The QWERTY keyboard, which we all use today, was invented over 110 years ago and was specifically designed to work slowly. This was due to the lack of mechanical sophistication of the 1880's. Newer keyboards have been designed with more efficient designs which speed operator input, but none has found any great degree of acceptance. The bottom line is that a keyboard needs to be totally operated by a human being and humans are not the most exacting, nor the speediest of creatures.

### Accuracy

Statistically, the average typist will make one in 300 keystroke errors. This number is an oft-quoted statistic, generally considered factual by authorities in industry. Actual numbers, obviously, will vary dependent upon many factors. By statistical comparison, a bar code will misread somewhere between one in a million and one in four trillion characters! To take the keyboard error statistic further; errors may be spotted and corrected immediately by the operator or, it may enter the system and take an appreciable length of time to locate and fix or, worse still, the error ends up remaining in the system indefinitely. This latter situation means that our state-of-the-

art computer system is providing us with erroneous data that we base business assumptions, statistics and forecasts upon!

## **Speed**

Scanning bar codes is very fast. A typical typist will take about four to six seconds to key in a 12-digit numeric string. It will take a somewhat longer period of time if the string consists of intermixed alphanumeric characters, such as "AB239-TYP2309", because the numeric keypad cannot be used exclusively. A scanned 12-character bar code, no matter what kind of combination of characters it contains, will take a maximum of one second to input. While this difference may seem trivial when a mere three to five seconds is saved, data input time has effectively been cut in half—if not more! This translates into at least doubling the throughput of a single operator, requiring half as many keying personnel, half as many terminals, half as much space...etc. To put this into perspective, just think how long you'd be waiting in a grocery store lineup if the checker had to manually type in a 12-character UPC product codes for each item you were buying!

## **Reliability**

With the speed and accuracy gained through bar code technology comes a more reliable and accurate database. While this cannot be equated easily in terms of dollars, two things are apparent. Firstly, when a database is more reliable, people have a tendency to trust it more. This not only allows for less-frequent audits, but also a general well-being of managerial and support staff in knowing the facts and figures they are basing decisions on are as correct as possible. The second apparent benefit is a more up-to-date database. If the information is more quickly entered and quantified in the system, management can react more quickly to a changing marketplace, based on the most timely data possible.

## **Intangibles**

A commonly quoted intangible benefit of a bar code system can be seen in increased employee morale, *provided the purpose and benefits of the system have been presented to them and understood before implementation*. Bar codes make people's jobs easier, are very user-friendly, and improve productivity and job performance. Bar code scanning is a great "leveler" as most everyone can operate at peak efficiency with no one employee having dramatically higher productivity than another.

Another positive implication of a bar code system is the progressive image that a company exhibits by using such a forward-thinking technology. This conveys a

feeling of confidence to clientele in knowing the company they're dealing with is concerned with efficiency, accuracy and service.

These are just a few ways to help you cost-justify the wonderful technology of bar coding. Working out the formulae and pointing out the benefits in your particular application and situation are the next step. Keep in mind these points and you'll have little trouble convincing most anyone of the benefits.

