**Computer Industry & Form Factors**

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MAN 4504: Operational Decision Making

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As a computer science major, the history of technology is a fascinating topic. The industrial revolution has improved the standards of living tremendously. The first thing that comes to mind is an assembly line, whether it be automobiles or processing food. When one person is done with one task they hand it off to the next person for the next task. Making labor simpler and more efficient.

As more and more products hit the market, manufacturers began using interchangeable parts. One part from one product can be used on many different, yet similar products. We see this a lot with computers, I can take my keyboard from one computer to another. Now if it is an old computer that uses the old purple PS/2 connector I can’t connect it to a new computer using USB. USB has become the standard to connect many devices to our computers, but it goes even further. I can take 2 broken computers, one with a broken hard drive and one with a hard drive that works, and swap the parts. Making a Frankenstein computer from 2 dead ones.

This only works if the form factors match. If the male and female sockets do not match, I can’t physically connect the pieces, therefor they can not interface(communicate) with each other. Sometimes there is a reason for this:

“The standardization of component form factors includes the inability of incompatible components to physically fit into a space. For example, mini-USB receivers have a form factor that prevents micro-USB connectors from being inserted (and vice versa). The electric and electronic specifications of the two connectors are different and it could cause damage to other components or data if the wrong one were inserted “(Micron Technology Inc)

It reminds me of a puzzle. If I wanted to create a computer from scratch, I would need to make sure the processor and memory are compatible with the motherboard. If I wanted to make it a gaming computer or mine cryptocurrency I would need to use graphics cards and use the correct power supply. Dealing with hardware can get quite expensive, whereas with software development I do not need to buy physical parts. I do need to connect code with the proper functions to make a product. Years ago, I made an app with the purpose of saving people’s lives from fentanyl. The user sets a time, enters a number and a message. When the time goes off it sends a text message. It was actually very simple to make, I took a function that sends a text message and combined it with a timer/clock.

To look at this app you can download the .apk file here  
<https://stevenmunich.github.io/Preventyl/Preventyl.apk>

<https://stevenmunich.github.io/Preventyl/> for Instructions

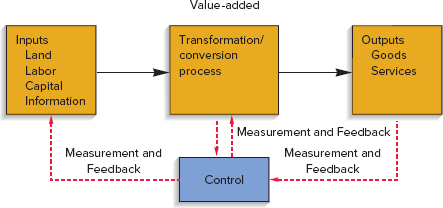
Now I wouldn’t have been able to do that without the infrastructure we have today. Somebody had to invent the computer in the first place. Somebody had to build cell towers and cable lines to transfer that data. Somebody had to come up with the addressing scheme, so the information goes to the right places. Now you might think the internet started with phone lines (and they did use phone lines as a transfer median), but the addressing scheme was started by Xerox.

“As the inventors of Ethernet over 30 years ago, we helped build the foundation for today's Internet. In fact, not known to many, the Ethernet's first commercialization was as a communication bus in our production publishing systems in the early 1990s.” (Xerox Corporation)

If we look further back in time, none of the infrastructure we have today would be around without the industrial revolution. I think the most crucial element is energy. A car needs oil and a light bulb needs electricity. But why would people even invent those things in the first place? What is the motive? Results, the output.

Figure 1.4

Operations Management



As a computer science major, I can relate to this concept. Input comes from the keyboard and the output is displayed on the screen. In a program a user will input data and the program will process it and display the results. It reminds me of a tree going into a lumber mill and coming out as a 2x4. The lumber can be used for the frame of a house, the flooring and furniture. Now when it comes to designing a house or a factory you have to look at the bigger picture because resources are limited. Smaller pieces have to be done right and with efficiency. Whether we look at the bigger picture or the smaller puzzles the motive is always the same, results.

**References**

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