



Supply Chain 2020

Adexa, Inc.

My 9 year-old has sent and received more email messages in his short life time than I had when I was 25. I have exchanged more emails on my cell phone in the past year than I did in the entire decade of 90's! I find everything I want, services and products, order it and receive it in almost no time with a few key strokes. I can examine who is at my front door when I am thousands of miles away from my home through the web site connected to a security camera and of course control the temperature and appliances at home no matter where I am. Where do you think we will be in just over a decade from now? What would be our expectations in receiving what we want when we want it? No matter what happens, I will guarantee two trends: almost real-time services and visibility, and lower cost. The latter will not be because we move manufacturing to some developing country! There will be none of that! It might even be less expensive to make them right here at home than it would be in Myanmar. Part of that may have to do with gasoline prices being at \$500 a barrel. Hard to imagine? Maybe, but today we in United States use 23 barrels of oil per person every year. In China and India, they use 1 barrel of oil per person for the same period. Given the current growth in China and India, imagine if the oil usage went up to a mere 5 barrels per person per year for 2.5 billion people in the two countries combined! It does not take a genius to figure that our current oil consumption will go from about 10 billion in the 3 countries mentioned above to almost 20 billion! We are not even assuming increases in other countries including fast growing economies such as Brazil and Russia amongst others in Eastern Europe and Middle East. You still want to do manufacturing abroad in 2020? Good luck with your transportation and labor costs! Besides, given the continued automation trend, the portion of labor in manufacturing would constitute only a small part of the final cost.

One hour glasses, 30 minute pizza delivery and packages overnight anywhere in the world are now taken for granted. Instant messaging, real-time email on the road and on the airplanes, instant exchange of documents and conf calls, collaborative design on the internet, instant search of anything anywhere. In just over a decade ago we still dealt with pagers and fax machines. We relied on assistants who would take the incoming calls and give us the messages whenever we called in using one of those public phones in the airport, if we could find a free one (which reminds me, what did we do with all the phones?) and we actually sent letters and post cards when we were away from family and friends! And here we are today, text messaging in real-time instead! What should we expect in the next decade in particular how it relates to supply chains? Clearly it will have a huge impact in the way we work, we trade, we buy and we sell.

Here are some predictions:

- Webex will have your conf center on your phone
- Virtual offices will be anywhere you are with abundance of bandwidth and cheap communication cost
- Your colleagues and your family would know exactly where you are because of your GPS device on your PDA (turning it off during the office hours would be against corporate policy!)

- Your PDA will make all your payments just like your credit card, from hotels to meals. It can even scan images of documents if so desired.
- Your phone will tell you the fastest and cheapest way to get anywhere including your flights to Asia
- Since you use your cell phone for shopping, GPS, banking, sending email, watching movies, playing games, your phone would constantly learn your personal habits and will be your “best friend” knowing exactly what meals you like, where to go for fun and what to shop and where.
- Everything will be tagged, your dog, your family members, your house, your ear rings, and your suitcase
- Anyone who has your tag information can find you on the new Google search engine, only if they enter a password that you have provided for them.
- Computing power and storage would be as much of a commodity as water and electricity. Just turn on the switch or turn the tap on and pay for it based on usage.

If you are looking for a product with all the specific attributes of color and shape etc just type it in and the search engine will find it, perhaps in multiple places and show you the prices, how much the comparables were sold in the past and what you should be paying for it. The product is found no matter where it is as long as the owner has the tag on. For example, if you were to sell your car, you turn the tag on, your phone would pick up the relevant information and send it to an electronic exchange place for cars; and someone somewhere may be looking for a car just like yours! Once they find your car, they can either contact you or leave you a message at your desired message board where you will get an alert signal

Products for each brand will be transparent

To buy a shoe, put your foot on a transducer on your computer and you will receive a perfect fit next day. And if you don't like it respond to their message and they will pick it up

Every product is tracked by the manufacturer in real time from quality of your swimming pool water to amount of gas your car is using and its tire pressure. If your PDA is running out of memory, you will get an alert from manufacturer to upgrade. All this real-time data is made available not just to the cell phone maker but also to the memory manufacturer and their subcontractors. The lead-times and inventory would dramatically drop leading to even more price competition.

Sensors will be placed in stores to monitor the amount of time a product is looked at by the consumer. Remote “mouse” is used by TV viewers to get hyper information on TV programs. Every video would be interactive by taking you to the right place based on your interest. Thus if you are watching the Lakers game, by clicking on Kobe Bryant's shoes you can find the best prices and locations where you can buy the shoe. Use your cell phone to go to the web site, and place the order by simply sending your imbedded info and the tag number that identifies your foot size previously measured and available to be released when so is needed.

Feeling sick? Have a conf call using your PDA with your doctor's assistant and if so needed, she will transfer you to the doctor, no matter where he is. He can take your vital statistics and if so needed immediately place an order for your prescription on your PDA. Use your PDA to get to your closest drug store and it will be at your door in less than 30 minutes.

As you can imagine, we are not too far from the above life style. So, what will be the consequences on the supply chain? How do I design my supply chain to be ready and competitive? There is no question that there will be continuous pressure on commoditization of products and lowering of the cost. As argued above, going to a developing country will not necessarily help to reduce the cost. That leaves us with lowering overhead cost, reducing lead-times and inventory. All of the above can be addressed by more efficient business processes and better connectivity with the trading partners. The latter implies almost real-time visibility of changes in demand and the ability to react fast enough to meet the demand. If there is real-time information available from the consumer to the extent that even before buying, they have an interest in the product, then one could conclude that (say) 7 out of 10 interested parties would buy the product over the next 4 weeks. Availability of this information would lead to much faster lead-times to react. Availability of this kind of information, would also help to reduce unnecessary inventory. Passing this information to the suppliers and their suppliers would also help them to have better visibility and react much faster. It all becomes a game of *speed* and *intelligence*. Why intelligence? Look at the stock markets around the world. The same information is available to everyone, anywhere in the world. The winners are the ones who can act fastest and analyze the data in the most effective way. This is where the intelligence comes in. You could have the best business processes in the world, but when it comes to the sheer size of data and the need for speed to analyze the data, systems are an absolute must. We feel that supply chains behave in exactly the same way, given the proliferation of data and information that is available out there as discussed above, there must be ways that we can quickly absorb this data and make some sense out of it as fast as possible and react accordingly. This is going to decide who the winners are. There are billions of consumers out there with different buying habits, cultures, seasonal needs and influencers with millions and millions of products to choose from. How do we predict, how do we analyze and how do we react? How do we coordinate between suppliers and customers, where do we store inventory, what do we produce and where do we send it to? What do we do when there is an earthquake or an epidemic preventing normal operation of the supply chain. These are all the questions that one needs to respond to with intelligence and speed. In the absence of that market shares would be lost, customers would walk away and demise of the company would become inevitable.

Next decade will have much exciting innovations and opportunities. If the next 10 years bears even the same kind of growth and innovation that we have experienced in the past decade, then we are going to be witnessing an incredible era in transformation of supply chains and how the age of real-time connectivity will create virtually instant delivery of what we desire. Alas, we will not quite have what the Genie out of the bottle could do for us but close!