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### **Role of Optimization: The Emptoris View**

*In 1999-2000, supply executives were bombarded with dot-com announcements claiming an overnight revolution in purchasing. Many investors bought the dot-com story, but buyers did not. At the same time, serious IT experts in optimization were preaching a different story. One of these was Avner Schneur, who had been the senior vice president of operations for Vectis Corp., a software vendor of electronic medical records. Before Vectis, Schneur was vice president and chief technology officer for Astea International, a developer of customer interaction software. He is graduate of the Technion (Israel Institute of Technology). Here he tells the story of Emptoris, which he heads as president and CEO, in an interview in his Burlington, Mass. office with Doug Smock, editorial director of [globalcpo.com](http://globalcpo.com).*

#### **Q. Why is there so much focus on supply-side management right now?**

For many years companies spent a huge amount of money buying stuff and for many years that responsibility was put into the hands of inadequately qualified people in many cases. When I started Emptoris in late 1999, who knew what CPO (Chief Procurement Officer) was? In last two years, CPOs are popping up everywhere in title, capabilities, and with broader reach. This really nice to see and a clear evidence for the progress in the procurement field. Because of the previous lack of focus; top executives were not willing to allocate money to this before. Basically what CEOs said was push your suppliers and get good prices, negotiate and get good deals. The people who were traditionally managing purchasing were usually back room people who were running operations, accountants with no or very little access to top management. Also corporate never recognized the significant value purchasing can bring into the organization.. If you look at current CPOs, you find out that some of them had nothing to do with purchasing before, and there is a new profile of executive responsible for procurement. These are a new breed of leaders, that have real business savvy experience and are reporting to presidents, COOs or CEOs. What happened is that the combination of technology and the recognition suddenly created a huge focus on procurement and sourcing something that did not exist before. CEOs started to understand that the procurement function can have a huge influence on the bottom line. This recognition started the elevation of CPOs to top executive positions. Management started realizing that identifying cost reduction via procurement is now reachable via technology and it's in one reach. While increasing top line is very important, companies saw the huge advantage in addressing cost via procurement. It is almost like one who found treasures within his own home. It's very difficult today to increase the top line. In the past, procurement people were focused on direct material which in general received a good treatment. A lot of smart people were tackling the direct material

but left ALL the rest without focus. What about indirect? What about services? What about G&A-like sourcing? Very few touched it. It was left in hands of domain experts whether it is legal, real estate, IT, marketing. IBM was one of the first to recognize this. Now you cannot buy anything at IBM unless it goes through sourcing. So basically things moved very quickly and people began to see the treasure.

**Q. What made you think of this as a business when CEOs did not see it?**

What happened is that in late 98 after the sale of my previous company, I was looking at what to do. E-markets were the craze. You had eMarkets for every commodity, some of them clearly ridiculous like eMarkets for light bulbs, pet food, you name it. In my background I did a lot of work sourcing direct material for a large company that made medical imaging equipment. It was a little less than a billion dollar company. Very smart. But we had the most centric-ever strategy for sourcing. Our strategy was --you will laugh-- we have to build everything ourselves. So we had a plant for molding. We had a plant for metals. We even had a plant for the magnets for the MRIs. I came out of school with a degree in engineering and computer science and I was put into a project that was automating the collaboration and interaction between the company and its 24 subsidiaries around the world from a supplier perspective. It was unbelievable. I had a wonderful exposure to sourcing and engineering dealing with complex BOM and international sourcing. Then in '98 the Internet craze happened. I saw all these e-markets, but my experience told me that it's all about long-term relationships and total cost of ownership. This is what we did a long time ago and it was very intuitive that the simplistic eMarkets won't work. In addition if something costs me just a buck it may be meaningless if one needs to ship it from Taiwan. It could be 15 bucks by the time it arrives here. I looked at all of these things and I thought you know what? It is really an optimization problem. Think about it: it's a tough problem of total cost of ownership. Not just the cost of goods but also shipping, warranty, services, customer service, quality, this all needs to go into the equation. Classic optimization problem. I hired a few people and we wrote an RFP engine that was strong in optimization. Everyone told us we were really wasting our time and optimization in sourcing will never work. And then the e-markets crashed... We got a bunch of good customers who thought, this is very interesting. Why don't you work with us? As the Net crashed, we started to grow. In the past there were about 50 small companies doing all kinds of procurement systems. Most of them disappeared. Now we are number two in the whole market (in dollar transactions through the system). Since 2000, which was our first year of operation we grew hundreds of percent per year continuously and consistently. We have changed the way people are thinking about procurement. We brought the analytics with powerful optimization to the mass. Our customers are achieving significant amount of savings that they did not even think in their most optimistic views that they will be able to do. The level of adoption increased drastically, our customers have thousands of trained users in almost every vertical you can think of. Look at this amazing statistics: We started in late 1999 and in December of last year 2003 we processed more than a trillion dollars of products and services in our analytical system. Our customers

source about \$60 billion worldwide running on about 15 languages with a saving of 5%-25% annually. Our product is horizontal and our customers use it in a wide area of about 400 categories. Originally it started in the manufacturing side. It's been widening. Sixty percent of the companies using our software are using it for indirect materials. One note: We are a technology company. We are not doing the sourcing for customers as do some consulting companies

**Q. What is the product?**

It addresses everything in supplier management from the very beginning to the end. Analyzing the spend. -- What is the opportunity for the spend. Developing the strategy. Aggregating demand. Qualifying the supplier. Collaborating. Negotiating. Analyzing. Create a contract and then monitor compliance. We have 15 modules. Each to some degree has autonomy so they can be deployed independently.

**Q. What are the spend analysis/management aspects of the Emptoris system?**

It tackles the challenge of really understanding the spend in the enterprise. When we say spend we mean every dollar that leaves the enterprise. You can imagine that in large organizations, it is a very challenging task. If you add to that the fact that most large enterprises grow by acquiring other companies, and each one of these companies may use other ERP or operational system you can imagine the difficulties of understanding the spend. For example, one of our customers, a major bank has done 98 acquisitions in about 10 years. They had multiple ERP and operational systems that can't be changed. It's a huge mess. You don't know where to start. Emptoris came in, in the first analysis found out that they had 700 vendors just for print materials (!) for business cards, statements, etc. We sucked in information from procurement systems, ERP, P-cards. P&Ls, bank feeds -- from wherever. We normalized and enriched the data utilizing a very large proprietary knowledge base and provided a multi-dimensional system. Information is now available from a variety of dimensions: location, product line, and branch, whatever. Training time to use the system is half an hour and the whole application can be manipulated from one screen. The idea is that one can ask any questions he/she wants. How much did we spend in this region on this product line summarized by this attribute in the last three months? Spend Analysis gives you a report on the true status of where you are -- not where you think you are. Out of this we provided an opportunity assessment which the system proactively tells you where you should focus in your new sourcing initiatives due to supplier density, repeat buy, overlap contracts etc.

**Q. What is the technology you use to match products with different numbers and descriptions? Some companies even define something as simple as a box in a multitude of ways. One major company has 40 specifications just for water.**

I hate the term artificial intelligence, but there is an optimization engine and a huge knowledge engine.

**Q. How are you against best of breed?**

Our strength is in providing enrichment to the data and the fact that if one need we can guarantee that we will capture and categorize a very high percentage of all spends so the “other category” can be very low. You may need to pay more for such a commitment but we can do that. No one else will.

**Q. What are the biggest mistakes most CPOs make in this area?**

There are a few classic mistakes that we see CPOs are doing. Let me address some of them: First, some CPOs are still very slow in adopting technologies for procurement. The jury is already out there: it’s working, it’s proven and it can have significant impact on saving for the organization. Second, When approaching the issue of automation, CPOs are looking on a very narrow potential of spend. It is very clear that if you process more, you will save more. Proven in 100% of the cases. So try to expand the target spend as much as possible. Sourcing is not just indirect or direct material. What about services? Real estate, transportation, marketing etc. CPOs sometimes have challenges addressing this spend. A side issue of this is clearly speed for saving. Make sure you have the right system that can be flexible enough to address all variety of spend with is particular needs easily so the speed to saving will be fast. Third, its OK to start sourcing without spend analysis since you can get some good saving on major categories, but do spend analysis and do it wide to address 70% -90% of spend.. People are always amazed to see the results when we are done with the first cycle of spend analysis. You cannot fight the data. It will help you understand where to focus. Last, stop being very buyer centric. Let me explain it’s a little long: Most people think they know their goods and services better than their suppliers and that is a mistake. The suppliers know much more about their products than you do. So what we did in Emptoris system is we turned the pyramid upside down. We said don’t force the suppliers to answer exactly your RFP. Leave some space here and let the suppliers innovate. In 99% of the cases buyers never allow suppliers to get very creative. The supplier may say, I'll give you other options that you did not ask for or even did not know that exists. In most cases the supplier will give you information on what you asked. But if you allow them to innovate and tell them to provide you with ALL options they have, they may provide one that actually work well for all parties. A simple example is if you ask suppliers for grade C of goods. The supplier instead of giving you information just on total cost of grade C may now offer you grade D, for price “x” and grade E for price “y” and by the way me the suppliers can bundle of 10 line items, for price “z” or bundle 15 line items for price “w” and give you a rebate if you get to level “w” of dollar spend. This can be a win-win for both sides. In addition we introduced attributes that the supplier can add as part of his bid, things the buyer did not think about at all. During the process buyers and suppliers can add preferences and constraints into the system. Constraints can cover lead times, quality, whatever is important to them. Now imagine that the

next supplier is providing all this information and beyond. Some of it may not be even comparable apples to apples. Very complex! How can anyone solve this? What supplier should be awarded? No way to solve it if you don't have strong user friendly optimization engine. Interesting enough we provided this solution from the beginning. Most of our patent applications are filed on this. After we optimized, the system recommends to the buyer line by line who to buy from, and supports it with sensitivity analysis of reasoning for the win. If you like the scenario you can move forward. If you don't like it you can introduce a new constraint, such as x% of the business going to a minority supplier etc. Of course you get a different result and you can compare one scenario to the next. Another module that is a killer is helping suppliers to determine what should be their best bids. We call it creative negotiation. In real time the suppliers get to change attributes which will impact total cost of ownership. The supplier can press one button that give them number of options, such as changing the warranty. If you change this attribute or a few of them, you will take the lead

**Q. What is the biggest obstacle to implementing these systems?**

The recognition of the executives for the huge leverages the procurement can do. Everyone will tell you it is an adoption issue. It is not. It is a leadership issue. It's not difficult to implement it. We don't need real-time interfaces; we don't need all of this challenging interfaces, the interfaces are straight foreword. Look at Motorola, GSK, in 18 months after implementing our system they covered 80% of their spend. It consists of 400-800 categories (!) with unbelievable saving. Using the Emptoris solution, Motorola won the most prestigious optimization award given by Institute for Operations Research and the Management Sciences (INFORMS) for the best and implementation of optimization and highest impact of optimization on business. Motorola president and CFO both presented and explained how using Emptoris sourcing, Motorola was able to save \$600M in 2 years and how it impacted Motorola going back to profitability. How were they able to do it? Excellent product, strong CPOs and VP procurement, top management commitment and you got it.

**Q. What needs to be in place? A centralized purchasing system?**

I could go through a long laundry list of obstacles, but I will tell you: It is all about leadership. We have companies that have decentralized procurement. One of them is the biggest world wide wireless provider that implemented it country by country with great results. The CPO must have the vision to do it and with top management commitment, it will happen quickly. These systems have the highest ROI in the enterprise application space and usually it's very fast, a few months after installation.

Thank you Avner. .