

August 19, 2002

Fruit Flies, Disk Drives and Echelon

Clayton Christensen starts *Innovator's Dilemma* with a note about fruit flies being good research subjects because they have very short lives. Their life span is only a day so you can study many generations in a very short time. That's also the reason why he researched disk drives for *Innovator's Dilemma*. Echelon has been going at it for 14 years and we still don't know if it is going to make it or not -- not a good candidate for research!

I decided to read *Innovator's Dilemma* anew to see if it would help me decide if LonWorks is a disruptive or a sustaining technology. If LonWorks is a sustaining technology in the field of controls then Echelon does not have much of a chance against the incumbents such as Allan Bradley and it is time to move on to other research projects. On the other hand, if LonWorks is disruptive then its market potential is huge and its chances of making it against very powerful incumbents is also very good.

The salient points about disruptive technologies are:

- Less expensive per unit than the old technology
- Less capable per unit than the old technology
- Does not (yet) address the market of the dominant players
- Has features appreciated in new markets

The end result of these points is that the new entrants that bring the disruptive technology to market address new markets and the incumbents, even if they have studied the technology, decide not to enter these markets because their customers are not interested. There is a mismatch between the benefits of the new business vs. their expectations.

At this point in the game there has been no disruption. Disruption happens when the capabilities of the new technology intersect the needs of the older markets. At that time the incumbents find their customers defecting to the new technology which now satisfies their clients' needs better than the old. By now it is too late for the incumbents to take action and, generally, they tend to go out of

business.

Disruptive technologies don't come around very often. Most new technologies are sustaining technologies that work for the benefit of the incumbents.

From what I have seen so far, LonWorks seems to be a sustaining technology in the building and industrial areas. Incumbents are using the Neuron chip and LonMark products as part of their proprietary systems. Using the steam shovel as an example, when the gasoline engine took over from steam, the "steam" shovels changed their architecture radically but there was no disruption of the industry:

Where steam shovels used steam pressure to power a set of steam engines to extend and retract the cables that actuated their buckets, gasoline shovels used a single engine and a very different systems of gearing, clutches, drums, and brakes to wind and unwind the cable. Despite the radical nature of the technological change, however, gasoline technology had a sustaining impact on the mechanical excavator industry. Gasoline engines were powerful enough to enable contractors to move earth faster, more reliably, and at a lower cost than any but the very largest steam shovels.

Disruption in the excavator industry came with hydraulics which initially only could power very small buckets that could not compete with existing models but which were perfect for digging narrow shallow trenches in new housing developments, a job that previously had been done by hand.

Is all hope for Echelon lost? No, because there exists a very large and "practically" virgin home market for LonWorks. This is a market that the incumbent control companies cannot enter because of the high cost of their systems which were designed for industrial strength. The reason the home market has not been activated is because no one, up to now, had been able to offer the "whole" product. That is now changing with the wiring of over 27 million homes in Italy where ENEL is installing smart meters.

If the home market does take off, then the volume production of LonMark products can lower their price considerably and new entrants will be able to go head to head against the incumbents in buildings and industrial installations. That could be the time when the old closed proprietary control market gets disrupted.

The ENEL deal could spell the difference between success and failure for Echelon. The thing to watch for now is whether any new deals with utilities are signed in the next 2 or 3 quarters as Kenneth Oshman claims.

Denny Schlesinger

Caracas - Venezuela

denny@softwaretimes.com