The 'A's have it – from Audre to ADMAPS to Aimco

I first met Brent Wilkes in La Jolla California at Aimco Financial Management in 1992. I was looking for someone to help my company Audre on Capitol Hill and had gotten a recommendation from my sales consultant, Tom Adams, that Wilkes knew his way around Washington. In what would become one of many coincidences, my company was listed on the American Stock Exchange's Emerging Company Marketplace, and our floor specialist with Jacee Securities happened to be friends with Aimco's principle, Marvin Friedman. After coordinating schedules, Jacee's Joel Lovett flew out from New York and caught a cab to our office in Rancho Bernardo, about a half hour north of the San Diego airport. It was a rare occasion for us to be visited by a member of the exchange and we made the most of it by presenting him with a demonstration of our software's capabilities. I am not sure that Joel really appreciated what he was witnessing, but from his perspective, the astronomical appreciation in our stock's value was enough to make him a believer.

We derived our company name in the early '80's in part because it was the acronym for what we did (AUtomatic Digitizing and REcognition - AUDRE), but we really came up with it because Apple had just introduced its Lisa computer and we thought it was funny to mimic them with a double-entendre name. In scientific terms, Audre was an applied intelligence software program that was able to identify the information contained on scanner-captured images of paper or microfilm maps, engineering drawings and technical publications. After understanding a document's content, our software would then transfer that knowledge into the databases of computer-aided design, engineering, mapping and publishing software systems. In laymen's terms we were the bridge between historically printed information and the digital age.

Optical character readers had been utilized for a similar purpose with varying degrees of success for years, but they had only a limited ability to recognize printed fonts as they appeared uniformly in textual documents. Our challenge was to read highly technical documents that usually had not only machine printed text, but also hand-written annotations, an endless assortment of industry specific symbology, geometric representations (lines, arcs, circles, splines, polygons, etc.), patterns and solids, all of which could be presented in any degree of rotation. The significance of all of this is best described by contrasting our technical challenges to when computers

revolutionized how we wrote and managed our finances. Transferring any and all alphanumeric based information was easy. All you had to do was type on the computer's keyboard. But our technical knowledge was an especially difficult problem because there was no keyboard that could convey into the computer the geometries, symbology and relative connectivity of those entities with their alphanumeric relatives.

Simply stated, no input – no output. It was quite a shame too. There was an abundance of computer-aided design, mapping, engineering, publishing and manufacturing software available. Given the right information, those systems could accelerate the prototype to product processing cycle far beyond the capabilities of mere mortals. The problem was that we maintained our technological knowledge on paper and microfilm and transferring that information into a form our design systems could work with necessitated an arduous re-drawing of all those billions of documents via a stylus synchronized to an electronic drafting tablet and keyboard. It would take forever, which was just about how long it took us to accumulate all those blueprints and maps in the first place. Re-drawing documents by hand with pen, pencil or electronic stylus took relatively the same amount of time. Putting the problem in perspective, it was common for an advanced vehicle like the space shuttle to have its design incorporated onto millions of separate pages of paper and microfilm. You did not want to be the unlucky engineer tasked with manually entering that information into a computer engineering system, especially if anyone was adhering to a project schedule.

Audre's capability was it capacity to be trained to "see" and then recognize what it was looking at. Much like going to school, the Audre software was shown the individual informational entities that were incorporated into a series of technical documents and told what they were. When it later encountered them in a scanned image, it would identify them and then transfer to the design system what it found and where it found it. The process was called raster (image) to vector (an object and its spatial location). It was far from easy to develop the Audre system and our early software was not particularly simple to use, but it got the job done, revolutionizing the transfer of our legacy technical information into the computer age. The best part was that it was tireless and would run as fast as the computer it resided on. Faster computer, quicker results. Big problem? Add more processors! Succeeding through scale was something our government appreciated, and it was no surprise we quickly found ourselves in the middle of automating our military industrial base.

After spending nine years performing like a trained seal for what seemed like every program manager working on each project within all agencies of the Department of Defense, in 1991 we finally became a subcontractor to a modernization program that was designated to become a joint command project. Called ADMAPS (Automated Document Management and Publishing System), the program was developed to employ state of the art digital technologies to the problem of publishing and distributing technical manuals, first on behalf of the Navy and then ultimately throughout all branches of the military. Standing behind the operation and maintenance of every ship, vehicle, aircraft, or weapon system resided the greasy technical instruction manual. They were everywhere throughout the military, but with most manufacturers constantly modifying or upgrading their products and deploying them into the field as quickly as possible to keep the cash flowing; they were often out of date. It was also common practice to rip out the relevant pages while working on equipment rather than struggling with reconnoitering a bulky binder in what was often tight spaces, a bad habit that created an endlessly diminishing supply of readily available information.

Sheet after sheet of updates were constantly being printed and delivered, invoking an endless page substitution process that no one could keep up with, not to mention that it was also a tremendous waste of time and money. The problem was so serious that it is humorous to note that the best way the old sea dog Maintenance Chiefs had learned to keep their paper manuals as current as possible was to throw the old ones overboard before returning to their home port. That then allowed them to order a completely new set which presumably had the most recent changes already incorporated.

ADMAPS was intended to not only automate the printing of manuals, but it could instantly make updates and distribute the changes electronically or via compact discs. Looking to take a particular page? Just print what you need, when you need it. ADMAPS was a huge change, not just technologically, but physically as well. The average Navy ship carried approximately 40 tons of technical manuals. Every Captain could quickly grasp the improvement in just cruising speed, not to mention maintenance performance. Astonishing as it seems, an Aircraft Carrier's water level would literally rise up a couple of feet when the paper manuals were replaced by CDs.

That was all the good news. ADMAPS had been competed, and contracted for through a multi-year process that entailed requests for proposals from

industry, which were then combined and customized to the Department of Defense's requirements to produce the actual procurement. It was a progression that resulted in the best and brightest, state-of-the-art system and Audre was proud to be selected to be part of it. The bad news was that no one had appropriated any money to implement the program and it wasn't going to be installed anywhere unless cash was found to carry it forward. ADMAPS was issued as an IQ-ID (indefinite quantity – indefinite duration) contract. Although IQ – ID articulates with authority, it is just another one of those infamous government catch phrases like "don't ask – don't tell" or "don't admit – don't deny". Without any doubt there must be a highly placed office somewhere in government that is well funded and tasked with endlessly creating all those nonsense terms. They always seem to be able to come up with these sayings and they always mean the same thing – trouble.

Our problem was compounded by the fact that the ADMAPS program originated with Navy Publishing and Printing. It was the linchpin of their bright idea to take over the Army and Air Force printing operations and combine them into a joint command called Defense Printing. The shorthand for all of that meant that two of the three main branches of the military adamantly opposed the idea. To add misery to mayhem, not too many Admirals had risen up from the ranks of the ink corps and if they wanted to speed up the cruising speeds of their watercraft, they would rather buy bigger engines than replace paper manuals with CDs. That was why I was intensely cruising down the Interstate in my NSX to the La Jolla office of Aimco Financial Management at very non-Manhattan speeds. Or at least Joel was saying so, informing his friends back at the exchange via my car-phone that should he survive the trip intact, he would exclusively travel using public transportation and never again complain about taking too long to get anywhere.

Joel was a very important person to the company. To get Audre's public stock price similarly accelerated forward, I had to impress him that I could turn IQ-ID into meaning infinite quantities of infinite dollars. Wall Street had high expectations after we became part of the ADMAPS project, having just the previous year made the company the second highest gaining stock on the NASDAQ Stock Exchange. The American Stock Exchange so believed in our potential that they recruited us to become a Charter Member of their new Emerging Marketplace Exchange. Like most of us, they felt that our

selection placed Audre in the forefront of a significant software sector, and this would be the first of many contracts of consequence we would enjoy.

Unfortunately, it was becoming apparent that not only was ADMAPS not budgeted for implementation; it seemed that no one in Navy Publishing and Printing was interested in doing anything more than using it as a demonstration of capabilities to justify the Defense Department's formation of Defense Printing under their jurisdiction. Spread the command authority, get new business cards and hopefully a promotion or two and it was all well worth the time and effort. I came to find those goals to be the hallmark of business as usual within our government. Progress did not necessarily mean going anywhere; it was only the appearance of movement that counted. Besides, attempting to actually accomplish something had a serious downside, the possibility of failure. It was far better to succeed at doing nothing than to fall short of even the smallest undertaking. ADMAPS was an ambitious endeavor and that relegated it to be regarded as too risky to really roll out.

Despite the Department's dilatory conduct, I was not going to be deterred. We had spent years proving the reliability and undeniable benefits of the technology, both physically and financially. It was an expensive and exhausting process, and I was sick and tired of chasing program after program. With ADMAPS identified to become a joint command program, I finally had the soap box I needed to stand on and make our company highly visible across all facets of the military and I was going to do exactly that. I also needed to make it a success because expectations for Audre were understandably high. I took my complaints to the ADMAPS Program Manager, John Karpovich, and after a cut to the chase consultation; we came to a consensus that I needed look beyond the Pentagon. The only answer to our dilemma was for me to head for the Hill and directly lobby Congress for implementation authority and money. The analysis was brief and the conclusion clear – the military brass was disinterested in anything that didn't eventually result in an explosion and if anyone was tired of picking up the tab for less than optimum results, it had to be Congress.

My calling and challenge was to take up the cause of legacy data automation and bring it before Congress on behalf of all concerned. ADMAPS was just one of many similar projects stalled by shortsightedness and superficiality. As the saying goes: a rising tide lifts all boats, so I decided that it would best become my creditability to address the broad problem of information

conversion, rather than our individual project. Besides, we had lofty ambitions and the bigger the playing field the better. Audre could convert everything from an index card to a wall map and we were confident that we would successfully contend our wares against anyone with comparable technology. The most ideal outcome for us would be a consolidation of competition across a large breadth of budgeted programs. Host a shoot-out once and for all and then move on to the business of implementing the finest and brightest for the benefit of everyone. Congress had spent billions on automation and had yet to see any real benefit that came as a result of their buying binge. Time and time again Congressmen and the military brass had been given automation demonstrations by the CAD/CAM companies, showing them rapid design, prototyping and manufacturing capabilities. Time and time again they purchased these systems and then saw very little happen. The time to develop new weapon systems had remained essentially the same, as had the methodologies. My mantra was for them to host one test, buy the best and leave behind all the rest.

I knew what they did not know and no one in the military or automation business would tell them: that if you did not solve the data entry problem first, you would never automate anything. The fact was that the deployment of all those systems was limited and constrained by a lack of accessible legacy data. Their approach to data automation was kind of like paying to build cars before anyone had invented the internal combustion engine. As was typical of government, their billions in computer system purchases had given them the appearance of progress, but in reality, without usable data to process no one was able to do anything revolutionary. Like the Wizard of Oz, what the Congress and the Department of Defense were not shown during the information automation demonstrations was the little man behind the curtain. We knew him as the data conversion guy, and he had probably taken months to prepare the data for that half-hour demonstration. Rapidly producing a new thingamajig prototype design does not materialize out of pure silicone and no computer software system comes preloaded from the factory with the customer's legacy data already loaded and ready to go.

It seemed that no one had thought much about the problem they were really attempting to resolve. It is a fact that virtually all new designs are a modification of existing designs. Think about it. The "new and improved" catch phrase by definition makes reference to its predecessor. The new light bulb is like the old bulb, but with a longer lasting filament. The new tank is like the old tank, but with a larger barrel and thicker armor. The new map is

like the old map, but with the recently constructed housing development now displayed. Ironically, the ever-increasing complexity of our existence makes us even more dependent on building up from our past accomplishments to continue progressing forward. On and on and on it goes, an actuality that is as inescapable as it is undeniable. Audre's first customer in 1983 was the United States Army's White Sands Missile Range in New Mexico. By the time we were awarded ADMAPS in 1991, I had spent eight years in the military market and knew it well. The Department of Defense's design automation problems were so severe that I could easily select from any number of programs that I had participated in to point them out. But no program had quite the sorry profile as the Redstone Missile Arsenal's participation in the Star Wars project. It was the perfect example for the point I would try to make.

President Reagan's Star Wars program was designated a national defense priority, but in reality, it travels at anything but light speed. I knew it was a little-known fact that Huntsville was on track to take about 200 years to complete the entry of their millions of existing paper and microfilm designs into their Intergraph automation system. In theory that slow pace would finally place them in position to rapidly modify the missile designs into something presumably new and improved. Of course, it was absurd to even embark on a program that was moving so slowly that the results would be irrelevant by the time they were realized. Anyone, even a congressman could see the logic in that.

I had earned a bachelor's degree in political science during the '70s when it was vogue to get involved in government. If my education and later experiences had taught me anything, they taught me one thing: politics is personal. If I had resort to my right as a citizen to hike up to Capitol Hill to get funding to support legacy data automation programs like ADMAPS, then it was time for me to let the cat out of the bag on a program that would catch everyone's attention. You may know our country's history, the Constitution, the Bill of Rights, our many laws and institutions, but if you do not know the man in charge on the Hill, you know nothing. In the case of ADMAPS, the institution of importance is the Defense Appropriations Subcommittee, and I knew I needed to meet its Chairman.

The sales consultant that suggested Wilkes was a long-time acquaintance of Karpovich's and knowing we all had a common interest, I got serious about following up his recommendation. Aimco was like a lot of small securities

firms I had visited. Their plush offices in La Jolla's University Town Center were meant to impress investors and confer to them the confidence to trust Aimco with their cash. It was plain, simple and to the point. In the particular case of Aimco Financial Management, they had identified state and federal pension funds as targets of opportunity. Mr. Wilkes was there to make an entrée for the firm to meet politicians with the hope they would get to manage any pensions that might become available as a result of those personal relationships.