Our industry has been fraught with technology blunders. At the same time, a select minority of new solutions has triumphed to become successful mainstream applications. There's a lot to be learned from our past mistakes, and we can use history to help tell the future. One thing is certain: Many lenders and others in today's challenging business environment will continue to waste money on the wrong technology--you want to make sure your company isn't one of them.

There seem to be two core beliefs that drive investment in unproven technologies: 1) Technology changes will revamp entire segments of the marketplace, and 2) Lenders mistakenly believe that not leading with technology implementation can be costly or even lead to a loss of competitive advantage. If the technology train really is leaving the station, lenders are afraid of missing it . Yet it's rare in our industry that
not being in the lead is fatal. Overall, mortgage companies lost far more trying unproven technologies than they did missing opportunities.

The smart players are those that allow a few small companies to experiment with and prove a solution, and then they jump in full-force. With such patience, a model can be better understood before it's adopted and money isn't wasted trying to perfect the solution. Many large lenders understand this concept fairly well. Still, the recent debacle with HomeAdvisor(symbol) (TM) Technologies Inc. (HTI) proves even the largest industry players can be misled by nothing more than a business plan on paper.

Before making any technology prognostications or assessments, let me share a little of my background in mortgage technology. More than 20 years ago, I developed the industry's first PC based LOS, Contour Software. Since I formed the company, Contour was bought and sold twice (each time with growing valuations.) Additionally, I have reviewed every significant mortgage technology firm (usually meeting with the CEO) and their solutions for the past two decades. Although I have written several articles predicting mortgage technology trends, my most notable prediction being the failure of the Value Added Networks (VANs) to gain widespread industry adoption. Today, I define strategy for Ellie Mae, the largest mortgage origination technology firm.

Now, let's review the past 20 years of mortgage technology and consider how some

perceived technology marvels ended in failure. This article looks at a number of past "fad" technologies that took the industry by storm and yet, ultimately, only appear to have caused significant losses. In this year alone, nearly a half-billion dollars is being wasted in just one technology category (ASP solutions for lenders). What about the latest offerings? Some show real promise and others predictably will flop. Finally, let's look
out on the horizon and see what technologies of tomorrow are the most likely to become mainstream applications.

Video conferencing

One of the classic mistakes we see underlying many past technology blunders is the idea that an aspect of the industry can be completely reshaped by a new technology. The worst mistakes are caused by technology solutions designed to replace what are at their core people solutions. For example, loan origination, at its core, is about personal relationships, and someone on a screen doesn't replace personal contact.

In the mid-1990s, the concept of video conferencing was embraced as an appealing application for loan origination. Articles were published predicting that origination channels would be redefined with the power of this technology. Video kiosks were showing up in shopping malls across America, in the local bank and in Realtor offices. At the time, many in our industry were convinced that video conferencing was good enough to replace the originator/borrower relationship.

At least a dozen startup companies produced and marketed these solutions to the mortgage industry. All told, I estimate that approximately one-half billion dollars was invested by video conferencing firms, Realtors, lenders and investors—in 1993, the largest firm alone had received more than $100 million in funding This wasn't just
a fringe movement by a minority faction in the business, either. There was hardly a mortgage technologist or executive who wasn't on board with this compelling application. Yet, in the end, it was all a waste.

E-lenders

Thinking the Internet could replace what a loan officer does is one of our most recent mistakes, in my view. Once again, like lemmings, we all followed one another down a path of perceived technology perfect solutions.

At the Mortgage Bankers Association of America's (MBA's) 1999 mortgage technology conference, I asked the audience to

estimate what percentage of loan originations it thought would come through e-lenders by 2003. By a rough count of the show of hands, approximately 10 percent thought the number would be less than 20 percent, around one-third thought it would be 40 percent and the remaining felt more than 60 percent of originations would come exclusively from a Web site.

Once again, many were wrong. But why?

X.12

A March 1996 *Mortgage Banking* article written by Dan McLaughlin and Leilani Allen, PhD, entitled, "EDI" Setting the Record Straight" said, "The primary value of X.12 is that it provides a unique opportunity for all parties involved in a given transaction to together define requirements. . . . This means that new values can be easily added to suit the needs of one industry without having to define a completely new format. . . . It is also useful to remember that only the first conversion is difficult. Once people are familiar with the approach and technique, it is merely a repetitive task."

Even strong industry leadership organizations such as the Mortgage Bankers Association of America (MBA) are capable of misjudging the potential staying power of a given technology. In 1995, I warned the industry against the pitfalls of X.12 – I took a lot of heat for it, too! However, it seemed everyone believed the vision that X.12 standards would change the industry—making transactions more streamlined, saving hundreds of dollars per loan. From the largest lenders to the smallest technology startups, everyone was planning to adopt X.12. Unfortunately, when it came time for implementation, the reality was significantly different.

With X.12, the problems stemmed from a misunderstanding of the impact technology could have on our complex environment. The original design of X.12 was intended for facilitating transactions in industries (such as shipping and invoicing) not nearly as complex as those of the mortgage industry. Those in our industry involved in the decision-making process to adopt X.12 had little to no experience with actually creating electronic data interchange (EDI) solutions. In hindsight, it's hard to say how we could have avoided this. The positive impact of this failure is that it gave us the experience needed for the Mortgage Industry Standards Maintenance Organization (MISMO) project. So the exercise has proved somewhat beneficial.

Origination systems reinvented

About once a decade we see new origination systems come to market from new vendors. These "revolutionary" loan origination systems (LOS) promise far greater efficiency from their new technology. This was first apparent when Windows(symbol) (R) was introduced, then imaging became available and finally the promise of the Internet arrived on the scene.

In each case, five to 10 new vendors would arrive with solutions based on these new platforms. Some lenders eventually purchased these systems, but within two to three years, the vendors' funding-well ran dry and the LOS were gone. This left lenders with systems that couldn't be properly supported and maintained, and eventually they were forced to purchase new systems.

The mistakes in this case were twofold. First, there was a belief that the new LOS were radically more efficient. Most often, these systems were less efficient as they didn't have the refinement that comes with years of actual use. The top 10 LOS today all took at least a decade to design, test, implement and continuously improve. New platforms rarely make a dramatic improvement in productivity.

Second, existing LOS vendors will migrate their applications to any proven platform. Thus, the predominant vendors today are the same ones that existed in the days of the DOS world. Further, these very companies will be the ones that migrate their applications to any future new platform that proves its market acceptance.

Work flow

Returning to the 1990s, work flow was a big buzzword. Many lenders saw it as the solution to high labor costs. Today, in my view, workflow has proven of little value to the typical branch origination office In fact, many companies actually increased their costs of originating loans with workflow solutions. The cost of implementing and maintaining these systems outweighed the staff hours they saved, from what I have seen. There are a few success stories, but such cases involve certain types of origination environments, including call centers and other high-volume operations.

Once again, the problem arose with mortgage technologists and other decision makers becoming enthralled with a new technology without fully comprehending its impact and benefits. Because it is difficult to evaluate these solutions, many origination companies have been sold on theory alone.

Transaction systems

During the last two years, there have been more than a dozen companies attempting to build the industry's standard transaction system. The attempt is to create a system that would work with all parties involved in the mortgage transaction.

Again, the industry spent more than a half-billion dollars. Many companies like NetOriginate, Ocwen and nCommand have closed down. Others like OpenClose and ALLTEL's Interchange never saw the industry adoption among mortgage originators they had expected.

At one point, more than a dozen companies were vying for the market niche to drive transactions from originators and vendors. Now, following a shakeout, a few companies are in a position to profit from this market including Ellie Mae Inc., Pleasanton, California, and RealEC Technologies, Santa Ana, California. According to company officials at each respective organization, both companies are handling in excess of 100,000 transactions per month.

The reason the other companies failed is simple: They all built systems that stood apart from the LOS. Both Ellie Mae and RealEC understood from the beginning the need to integrate tightly with originators' mission-critical back-end systems (LOS). The others failed to see that transactions were currently being handled by the LOS (though in a more manual fashion), and thus, originators expected e-commerce transaction functionality to occur from within the LOS. When done from outside the LOS, data integration issues
were too significant and it was too cumbersome using two separate systems.

Given the overall downturn in the capital markets (stock markets and venture
capital), it's unlikely the mortgage industry will see so much funding wasted on technology in the future. Instead, the invested capital will require a far greater chance of success by seeking a proven model. Further, there will be much more reliance on experienced management teams with direct and proven experience in mortgage technology.

Most of the firms that failed were led by managers without long-term experience in mortgage technology. Our industry is very complex, and it takes years to understand both technology and the mortgage industry—and years more to understand how they

should work together. The mortgage technology firms thriving today have management with at least 10 years of direct experience.

In the current marketplace, there are several ideas in which companies are investing and yet it is my prediction that many of these will fail or have very limited success. At the same time, I foresee some of the new solutions succeeding. Here's a look, from my perspective, at each type of solution along with my general rating (from hot to cold) as to their viability from today's market perspective.

Transactions systems: Hot
While we have just finished noting that the last few years brought over-investing in transaction systems, still we believe transaction systems are clearly the future of our industry. Ordering credit reports electronically has been popular for many years. Still, other transactions like appraisal, flood and title orders have yet to gain widespread use. In
the months to come, the industry will experience a significant increase in ordering all types of services electronically--in fact, it's already happening.

Electronic orders will become a de facto standard for all transactions in our industry. All LOS vendors are and will continue to be the driving force for the development and implementation of these new electronic transaction solutions.

Application service providers for LOS: Cool
Loan origination systems that are ASP-based (application service provider) will find a cool reception among mortgage origination companies. Perhaps their biggest weakness is they'll never work well on a portable laptop (at least not until we have high-speed, wireless Internet access). Further, when all aspects of an ASP loan origination system are considered, it will be more expensive and less productive.

On the surface, the ASP model looks very intriguing. But look under the hood, and you'll see a long list of problems. At this point, an ASP solution is only viable for a small minority in the industry, in my view. Also, I believe it will be the entrenched LOS vendors that will supply these systems once they are proven attractive.

It should be noted that many other ASP solutions have the potential to become hot, including e-commerce solutions for wholesaler-to-broker communications, management-reporting solutions, providing loan status to third parties and others.

The primary issue with ASP-based systems is that working in a browser environment is generally less productive than working in a similar Windows application. A good example is how e-mail, the ultimate Internet application, is primarily handled via a Windows application such as Microsoft Outlook™ or Eudora™ rather than a browser-based solution such as Microsoft's Hotmail™ or AOL™. This is certainly the case for large-volume users that rely on constant e-mail usage.

Note that high-production environments with mission-critical applications, such as an LOS, are more likely to be desktop-based solutions. Other problems associated with browser-based solutions include data-entry inefficiencies, slow printing and problems with imaging. The future is actually strong for an ASP LOS, but an ASP LOS is much farther away than anyone expects.

Digital signatures: Cold
Homebuyers want their hands held as they pour through the 100-plus pages of a
closing package. A digital signature and an electronic signing room is a far cry from a loan officer handing you the keys to your new home at the closing table. There are also many technical issues to overcome, which are roadblocks to consumer and industry acceptance.

With that said, there are some uses for digital signatures. For home-equity loans and upfront disclosure packages, the concept is terrific. Even refis could be handled this way. However, there's one major problem: Borrowers will have to obtain a digital certificate, which still requires a notary signature and completing a somewhat arduous process. Consumer acceptance of digital signatures is years down the road. Nevertheless, lenders will be investing money preparing for its eventual arrival.

Rate distribution systems: Cold
Since the early 1980s, the mortgage industry has seen several technology providers attempt to create a wholesaler-to-mortgage broker solution. Such a solution would distribute rate and product information from wholesalers to mortgage brokers. On the surface, this appears to be a perfect new business for budding entrepreneurs.

Dig deeper and you'll find that in the last 20 years more than 25 companies have attempted to build this solution--and all but two have gone out of business. Further, the founders and investors sunk more than $100 million combined into this business model. I'm unaware of a single company that ever earned a profit trying to distribute rates and mortgage product information. And yet more are in the works today.

While rate distribution systems have failed, there is an alternative likely to take hold. Prequalified rate sheets (PRS) are a newer solution that will likely be a winner and replace the need to distribute rate sheets. With PRS, a broker sends data about the borrower to a wholesaler and the wholesaler's e-commerce solution returns a PRS. It is in essence a price sheet for a particular borrower and will likely include risk-based pricing.

Pasadena, California-based IndyMac Bank's eMITS(symbol) (R) system is a good example, and has certainly proven this business model. Soon, these systems will all be accessed from the LOS so that a mortgage broker can obtain a PRS from virtually any lender with the click of a mouse. The borrower data will flow from the LOS to the lender's Internet servers, where the data will be crunched and a PRS will be returned. The one surprise here is how slow the wholesalers have been to adopt this model, given its powerful potential to shift market share significantly (witness the climb of IndyMac's market share since eMITS was introduced).

XML: Warm
The industry would surely love a standard, and nothing has come closer to it than extensible markup language (XML) and the MBA's MISMO group (MISMO defines the data within the XML format). Scores of talented industry leaders have put their heart into creating these standards, and some technology companies in the industry have begun using them. Still, the standards don't yet work for all transactions or in all circumstances for a wide variety of reasons. Thus, XML's successes will continue to be a bit of hit-and-miss.

The industry is beginning to see some significant usage (unlike X.12, which never saw much). To the mortgage originator, XML really isn't that important because it operates behind the scenes. For originators, the only issue is if the data can move from company to company without fail. For this reason and others, alternative data formats will continue to see widespread usage—such as Fannie Mae's Desktop Underwriter(symbol) (R) (DU) file format. Also, existing vendors are creating comprehensive loan file formats with XML, and use data tags created by the MISMO group. Thus, some companies will use
aspects of the MISMO work even if the predefined MISMO transaction sets may not be a perfect fit.

E-lenders: Cool
Today it's no secret that the dot-com e-lenders didn't take over our world. The wasted capital was considerable--likely more than $1 billion. In my view, pure online lenders will continue to have limited success. Mortgage originators will instead use the Internet to support their existing operations. Sure, some aspects will become streamlined and Web sites will improve, but the demise of the loan

originator is at least a decade away (if
it's coming at all).

There are a couple of areas realizing true success. Home-equity loans and Second mortgages are prime candidates for pure Internet origination systems. Refinancing will also be a hot application for e-lending. In the next refi boom, the mortgage industry will see a much larger share of Web-based refi originations. Loan originators don't add much value in the refinance transactions, and this business will most likely belong to the large servicers. Today's large lenders with their huge servicing portfolios will eventually figure out how to refinance their own customers without paying for the added costs of loan origination channels.

Web site builders: Warm
Most Internet service providers (ISPs) are getting hit hard in the public markets, with their stock prices 80 percent to 95 percent off their highs. Still, those companies that host Web sites will always be around, even if consolidation dramatically reduces the number of ISPs out there.

In our industry we've had experiences with hundreds of ISPs that could build a Web site for a mortgage company. Their ranks have been reduced dramatically (in the last 12 months I'd guess this number has been cut in half), and most mortgage companies now realize they need to work with an ISP that understands the mortgage industry--knowledge that comes from ISPs that serve the mortgage industry exclusively.

There are dozens of this type of vendor, but their ranks have also been shrinking. In 2002, it should be clear who the remaining winners are in the ISP battle for market share. Eventually, there will only be a few. To determine which Web developers will survive, simply look for the market leaders that have the greatest number of customers. They are the ones to offer more "bang for buck." This area will always be around--it's simply
maturing.

Internet portals for mortgage professionals: Hot
This is a new aspect of our market and it's just getting started but appears to be coming on fast. Think of MyYahoo! for the mortgage industry and you'll get the picture. Each worker will have his or her own Web page that contains all the information and

tools needed to do his or her job each day--sort of a virtual office.

These portals are designed to handle all the transactions that each worker needs. For example, loan officers can find the loan products they need for a borrower, such as a PRS. Loan processors can use the site to order credit, title and appraisals, with a click or two, from their favorite vendor. Such sites will also contain an abundance of general information like bond market information and news sources.

Mortgage Internet portals that are integrated with the LOS provide the most promise as data moves seamlessly between the LOS' database and the vendors' back-end systems. The new technology terminology for this is "supply chain management"--when back-end systems of both the supplier and consumer (i.e., origination company) become tied together.

Portals allow both the mortgage company and the vendor to know each step the other is making on any given loan. A major problem for originators is that when a borrower calls asking for a general status report on their loan, the originator might have to make several calls or check several Web sites. Instead, an originator should be able to pull up the loan file in the portal-connected LOS and instantly know the status of the loan from the view
of the loan processor, appraiser, underwriter, closing agent and so forth. Additionally, when a mortgage broker locks a loan with a wholesaler, both the wholesaler and the mortgage broker should know if at any time the interest rate or lock expiration date differs between the wholesaler's systems and the mortgage broker's LOS. This requires real-time data movement, something a portal can effectively handle.

PDAs: Cold
Every few years, we get a new wave of ultra-small computing devices. The latest is the personal digital assistant (PDA), from companies like Palm and Handspring. While these devices are far better than anything that preceded them, they still aren't up to performing the tasks a typical mortgage originator needs.

For example, a new loan file can require hundreds of data elements to be entered. On a PDA, entering this amount of information is tedious and time-consuming. It could be so unproductive, in fact, that most consumers sitting with a loan officer would begin to question the professionalism of the mortgage company.

Many other issues exist as well. Loan officers need to show charts, loan amortization schedules and loan product comparisons side

by side. These are the tools of the profession, and a PDA could never do justice considering today's laptops. A PDA might be fine for a loan officer to keep track of appointments and phone numbers, but every loan officer should be well equipped with a laptop capable of handling every request a prospective borrower might make. If a loan officer must always carry a laptop, then a PDA loses much of its value. Keep PDAs as personal organizers, but don't expect any real productivity gains from them for loan officers.

Broadband access: Hot
In 2002, we'll see the majority of the mortgage industry adopt broadband access to the Internet. This could be ISDN, Digital Subscriber Line (DSL), cable modems, T1 or even
some of the brand-new, high-speed wireless solutions via satellite. As we all become far more reliant on the Internet for day-to-day business, we need to ensure that the employees of the company are operating at peak performance.

Lenders just can't expect their loan processors to use a portal proficiently when communicating at 56kbps (kilobits per second) or less. If lenders aren't using high-speed access today, they should be soon. Internet access has now become so much of a requirement for our industry that even small mortgage brokers need broadband access so as not to lose money on staff inefficiency.

LOS: Hot
Some in the industry have wondered if eventually the LOS might be replaced by solutions like automated underwriting systems (AUS) that become much more comprehensive. There has been some hypothesizing about this but it's not going to happen.

Instead, in my view, the LOS will continue to grow in importance as the industry becomes more interconnected. The LOS contains the master database from which all other parties in the industry must communicate. E-commerce will continue to become a core function for the LOS.

LOS also involve much more than just printing loan applications and related documentation. They are the central database for everything a mortgage origination company does. Their uses include tracking all customer correspondence, providing management reporting, tracking all documentation, performing all compliance work, tracking customers' escrowed fees, managing the staff and a variety of other
services. The LOS will continue to be the dominant application used in the origination industry for the foreseeable future.

Electronic delivery of documents: Warm
While it will take a long time before signatures will be digital, everything else will be. Sending documents via the Internet is a great way to make our industry more efficient. Already, many lenders are doing this on a regular basis, and you can expect it to go mainstream in 2002.

There's not much to dislike other than the fact that some of these files can really clog up an e-mail server or Internet connection. Electronic documents (especially when using a PDF format) can get really large. Also, this is only a one-way transaction, since the signed documents still must be physically delivered.

ASP solutions for wholesalers/lenders: Hot
If there is one mistake many wholesalers have made in the last couple of years, it's dragging their heels when it comes to building fully enabled Web sites for mortgage brokers. Ironically, this has occurred even after it has become obvious that successful implementation has had major advantages for origination firms such as Calabasas, California-based Countrywide Home Loans Inc. and IndyMac.

While these two companies are leading the industry, even they can make further improvements.

Today there are several companies offering ASP solutions to allow other wholesalers to keep up with what Countrywide, IndyMac and a few others have done on their own. It makes sense for a wholesaler to rely on these ASP solutions. These turnkey solutions can offer rate-lock systems, PRS features, loan submission, risk-based pricing and the like They will continue to thrive as wholesalers seem to need outside vendors to remain
competitive on the technology front. Perhaps it's their sheer size, but many wholesalers seem incapable of building world-class e-commerce engines.

 Conclusion

One theme of this article is the cost of failed technology to our industry and its investors. Looking to the past, we can better predict the future. Examining each of the past's failures, we can make smarter decisions for today and tomorrow and avoid repeated losses.

Time and time again, history has proven the need for experienced management with specific mortgage technology background. Firms that navigate these perilous waters carefully can find the right solutions. Those solutions can dramatically propel the success of their firm. Increasingly, technology decisions, both wise and foolish, will determine a firm's ultimate fate. MB

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