

THE PERFECT STORM

WHY GAMING SYSTEMS ARE SO DIFFICULT TO IMPLEMENT AND MAINTAIN



Large gaming industry IT projects often fail, miserably. They fail against all traditional business benchmarks. They fail to meet customer expectations and performance requirements. They fail to meet budget requirements and scheduling requirements. They fail in all industries in all corners of the world. (In 1994, the Standish Group published a landmark study examining the number of failed software projects across a variety of industries and business sizes. This study, called "The Chaos Report," may be found at http://www.standishgroup.com/sample_research/PDFpages/chaos1994.pdf. On page 3 it states, "Only 9%

of projects in large companies were successful. At 16.2% and 28% respectively, medium and small companies were somewhat more successful. A whopping 61.5% of all large company projects were challenged... compared to 46.7% for medium companies and 50.4% for small companies. The most projects, 37.1%, were impaired and subsequently canceled... in medium companies, compared to 29.5% in large companies and 21.6% in small companies."

Ask any casino manager and you will hear horror stories detailing the many broken promises from the vendor, the cost and schedule overruns, and the poor performance of the software. The gaming IT executive will tell you how the vendors inadequately tested and supported the product and that the

end users would not do their share. The gaming system vendors will tell you how the customers were unwilling to spend the time necessary to fully understand what they purchased and how they refused to use, configure and maintain the system properly. The end users will simply tell you that the system was either too hard to use or just didn't work. This occurs despite the fact that gaming systems are being provided by gaming vendors with abundant resources and experience, the procurements are approved by gaming executives who are very experienced in making large purchases, and the IT managers in place have years of education, specialized training and experience.

This author contends that many IT projects fail because the challenges faced by,



and interaction between the three primary entities — the vendor, the IT Department, and the system’s end users — feed on each other to form “the perfect storm.” Unlike an act of nature, however, it is possible for us to mitigate at least some of the storm’s effects.

The Nature of the Storms

Meteorologist David Epstein described the 1991 “Perfect Storm” that formed off the New England coast, made famous by the 2000 Warner Brothers movie, in this way:

“Back in October 30th through November 1st, 1991, I was working at a TV station down in Hartford, watching the storm unfold...we had a lot of events going on at the time, weather-wise. ... Basically what happened is that the energy from... three storms combined over time out in the Atlantic.”

“What made this storm so extraordinary was the fact that, for one thing, it had been an old hurricane which did regenerate itself, and you also had three things combining meteorologically to form what we now call the 'perfect storm'...” (Excerpt taken from <http://perfectstorm.warnerbros.com/cmp/flash-thestorm-fr.html>. David Epstein was the meteorologist depicted in the film). The stage is set.

The First Storm System: Gaming System Vendors

By far, the most complex of the gaming systems are the casino management systems. For our purposes, casino management systems



refer here to systems that include player tracking (club) functions; cage accounting functions; credit functions; table rating functions; and slot and table game accounting functions. Many of those in use today have their roots in products developed in the early 80’s and 90’s. Small entrepreneurial engineering groups typically developed them. These small groups were faced with the largest of challenges confronting developers.

The system is critical to the operation of the business.

- Maximum uptime must be achieved on a 24 x 7 basis.
- System performance is critical to success.
- The system is subject to mandatory government regulation.
- Market and regulatory requirements change frequently.
- The customers and end users are not IT savvy.
- The system must monitor, communicate with and control the activities of a large number and variety of software, humans and devices.
- Price sensitive customers.

Large process control system manufacturers (such as GE, Honeywell or Foxboro) usually

develop systems with risk factors such as these outside of the gaming industry because they have the engineering processes and experience to overcome obstacles of this magnitude.

Add to the foregoing risk factors the lack of resources available to the original companies, the huge demand for the product through the 90’s fueled by market forces (how can you have a large casino without a slot club?), and regulatory agencies (in many jurisdictions, a casino cannot operate without a casino management system and, in fact, must shut down if the system fails for more than a few hours) and you have the atmospheric conditions for the first storm: rushed design, rushed development and rushed testing. All left for the installers, technical support people, IT Departments and end users (the heroic seamen of this story) to keep running.

With a few exceptions, gaming systems look like old college libraries. In order to accommodate the ever-changing demand for books and technology, there are stairways and doorways going nowhere, crooked hallways, and varying architectural designs matching what was popular the year they were built. The analogy breaks down, however, because at least the buildings were subject to a well-defined public building code. As



regulated as the gaming industry is, very understandably, regulatory agencies concentrate on ethics, safeguards against fraud, and accounting accuracy. No third party really approves the actual engineering practices used to develop casino management systems, including: quality of the design, development practices, and the quality of the technical documentation.

The Second Storm System: IT Departments

For our purposes, we will concentrate on the groups inside the IT Departments who are responsible for implementing and maintaining third party systems. IT Departments are the industry's "Doc Jones" — country general practitioners that must do everything from setting broken bones to delivering babies.

Despite strong preferences of gaming industry CIOs for centralization, individual IT technicians typically find themselves responsible for a large variety of components. These swaths can be vertical, where single individuals must be knowledgeable about many facets of a single complex application, or horizontal, where single individuals must know a little about many different systems. Besides accumulating the necessary technical knowledge of ever changing systems, they must also be effective project managers, contract administrators, trainers, and testers.

There are so many details to track, they must manage by exception. This means that they are only called after a problem has occurred. A "problem" can, to name a few, be a software error caused by a system vendor, an operational error caused by an end user, a hardware error caused by an equipment failure, a network error caused by a third party utility company, a virus caused by a malfasant, or an error caused by one of their own coworkers. When things are going right, IT Departments are invisible. When something goes wrong, they are in the doghouse. Nothing is more frustrating than broken technology. It must be fixed fast.

They always have more work than they can do. IT personnel work long hours, are always under pressure, commonly under trained and frequently under appreciated. They often must clean up other's messes. They must walk the fine line of the middleman between the end user and the vendor. They live on passion and adrenalin in order to overcome lack of sleep and constant frustration. These

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Car races were popular in the early 20th century. At that time, the automobile industry was immature, not unlike the software industry today. For a race of any real length, sitting next to the driver was a mechanic. This is because autos at the time could not go very far without breaking down. The mechanic's job was to keep the car running and keep the car in the race. The same is true today of software applications. They do not run very long without breaking down. Today's IT technician is like the mechanic, keeping applications running and keeping the business in the race.

The Third Storm System: End Users

The gaming industry is a service industry. The majority of the employees using the systems require them to be easy to use and predictable. They typically have little tolerance for things that do not work well. They usually will not venture outside of routine in order to correct problems that arise. Management must

actively narrow the corridor of employee behavior given the controls inherent in a highly regulated industry. Management must continually retrain employees due to turnover. Casino middle managers are busy people. They have little time to spend understanding how their tools should work, they must concentrate on finding the most effective way to run their respective departments with or without these tools. Their incentives are based on their results, not how they get there. If the technology gets in their way, they tend to find innovative ways to work around the technology rather than work to fix it. Casinos ran for many more years without technology than with it.

To casino upper managers, technology is a necessary evil. They have little interest in understanding it, leaving it exclusively to the IT professionals. Increasing revenue and decreasing operating costs are their overriding focus.

Lack of patience, lack of interest in the details, and an ends justify the means outlook are the atmospheric conditions for the third storm system.

What Happens When These Systems Combine Together

The convergence of the storm systems has this result: fragile, overworked and over committed vendors install complex gaming systems supported by under appreciated, thinly spread IT technicians and operated by impatient and frustrated end users. This results in the perfect storm.

From The Perfect Storm to Perfect Harmony

In nature, a small change in the way things interact in the environment can have large results. Currently, our three entities have an adversarial relationship. IT Departments do not want to do work they are paying vendors for (quality systems, good support). End users are mad at vendors and IT Departments because their systems frequently fail and they don't seem to get what they pay for. Vendors feel they are asked to do unreasonable things (perform miracles) for unreasonable compensation (expectation of perfect performance even if they are not operated correctly).

To help solve the problem, each entity must look at itself as one leg in a three-legged stool. The stool can only hold its burden if each entity does their job. Unlike stool legs, our

entities have the added advantage of being able to assist one another. In fact, for our stool, a strong leg promotes strength in other legs.

For their part, gaming system vendors must make the switch from being people-based to being processed-based. They must stick to the proven methodologies for software development for each phase (d³ -- definition, design, development, documentation and deployment). They must set accurate expectations and inform their customers immediately when they see a problem.

IT Departments must take their middleman (ambassador) role seriously. Complex systems generally are still immature. They will fail and they will fail often. Just fix the problems. Help the vendors do their jobs and help the end users do theirs. That is why you are there.

End users must get the training, ask their managers and co-workers for help before calling IT or the vendor, and have a little more patience. These systems are the tools of your trade. Care for them. Middle and upper managers, IT is not that hard to understand at a level where you can help. Just as you take an interest in many things that you do not fully understand (i.e., dishwashers, laundry equipment, air conditioners), learn to apply your business skills to IT items just like you do every-

thing else. Vendors and IT Departments really need your perspective. Go to the system design meetings because, if you don't, you will not get from the system what you want and can ultimately work with. You will get from the system what you put into it.

It is the small efforts that affect the small changes that can turn the perfect storm into perfect harmony.

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