Postmortem: Arrowhead Game Studios' Magicka

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By Johan Pilestedt

[*In this candid and thoughtful postmortem, Arrowhead Game Studios CEO Johan Pilestedt describes the haphazard "process" behind the Sweden-based development of the PC game Magicka, showing how lack of experience can lead to pitfalls, even when you have the best advice.*]

As I enter the office, I notice the couch in front of the TV is still out of place from the video interviews we did last week. On the wall hangs a spoof *Magicka* poster, and in a glass display near to the door is our first big award -- the "Swedish Game Awards 2008" trophy, and beside it is Extra Credit's "Most Unbelievable Awesome Fun" award.

Programmer Peter Lindgren and CFO Robin Cederholm are discussing their weekends -- it's Monday at Arrowhead Game Studios and I can't help but think how we got to this point, much like Frodo and Sam must've wondered as they returned to the Shire after their long journey.

After three and a half years, it is difficult to finally be able to look back at what happened during that last year in college without feeling a darkness stirring inside. Behind our first title, *Magicka*, hides a story of bravery, pain, personal crisis, and most of all, passion.

I will, in the following pages, take you through what we as the developers of this light-hearted game have been through, as well as the rights and wrongs made along the way.

What Went Right

1. A Child of Love

Magicka was first thought of in college, a simple idea full of classical fantasy elements, reminiscent of the games we used to play, like Dragons and Daemons (a classical Swedish take on Dungeons & Dragons). We wanted our game to evoke the grand and cheesy plot lines of childhood adventure games like *Monkey Island* or *Day of the Tentacle*, with its bizarre and wonderful humor.

We also wanted a dynamic spell casting system -- something that in games should make the player feel as if they were taming the secret arcane energies of the world and not just tapping a button to drain an impersonal mana-bar. This ambition gave rise to the simple idea of having elements that give meaning to each spell, and vary its efficiency.

Essentially, one could say that *Magicka* is pretty much a love child of pen and paper RPGs and the humor of the LucasArts adventure games.

This mix resulted in the most crucial facet of Magicka's development -- having a concept which all of us, as developers, thoroughly and deeply loved, gave us not a spark of passion, but a flame that burned throughout the entire development process, and more importantly, united everyone's vision in terms of which kind of game we were making.

2. Oblivion is Bliss

As none of us had any real game development experience, every idea got evaluated not on the basis of viability, budget or its possible return value, but from the author of said idea telling the rest of us about the hilarious situations that could arise from the envisioned gameplay mechanics or simply describing a character, his background and his motivation.

I suppose everyone in the games development industry has these weird discussions during breaks about what would've been hilarious -- small ideas that barely get noticed or that one simply dismisses as jokes.

For our team, these ranged from the modest "It'd be great if the Druids had a Monty Python 'Knights who says ni' kind of voice" to the wacky "What if the warlocks had captured the king inside the king's hall and built this really elaborate James Bond-esque drill, powered by a bicycle-riding orc, to kill said king," and the outrageous "Let's just make all animals except the dead moose out of wood — like toys."

For us, these ideas came to fruition and the decisions were made on the basis of what was good for the game, and ideas were never too stupid or silly to implement. If all of us thought it was fun, we reasoned that it probably was.

3. The Sense of Feeling

From the start we had this saying -- "that's too much fun."

I've been asked countless times how we managed to create the humor in *Magicka*, as humor is supposed to be such a tricky thing to get right. The thing is, almost everyone out there overdoes it. Most ideas are good to start with, but when you complicate things by considering how many people are going to "get it," if they're really going to understand that it's a joke and whether the joke will be accessible to "everyone," you fail to realize that half the joke depends on its subtlety.

The secret recipe that we use at Arrowhead for most of our creative decisions is based on the firm conviction that "something that's made for everyone is made for no one." By doing something that only a small crowd will enjoy, this small crowd will appreciate it even more. And if this small thing doesn't resonate with the rest of the crowd it will be, in a sense, a shared secret between us developers and the gamers.

When deciding which genre of humor we'd have in the game, pop culture references were the ones most widely available to us, as that's pretty much what we joke about in our spare time anyways. If you take Family Guy into account, there sure seems to be a market for that kind of humor.

Monty Python and Terry Pratchet also fit very well into the general absurdity that hits home for us as developers, so some of that went in there as well, giving birth to some of the best moments in the game such as Vlad, as well as the peasants disrespecting wizards who are unable to clarify situations.

So, what's there to learn from all this? I reckon that the more familiar you are with a subject, the easier it is to successfully create humor based around that topic. We constantly joke about these things during lunch breaks, and therefore it comes pretty naturally. When we were coming up with a joke about a specific subject, the person with the best understanding of that topic was put in charge.

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4. We Are Making a Game For...

We knew right from the start that our target players were creative nerd/geek gamers of all ages. With that decision we had won half the battle. There were no delusions of making *Magicka* more accessible than we ourselves thought reasonable. We didn't want to maximize the number of players that would get involved with the game at the cost of the gaming experience for those who would like it in the way it was intended. Once again, something for everyone is something for no one.

As *Magicka* was developed to be a niche game, it was easy to filter and dismiss "incorrect" feedback from certain well-established people that knew the industry better.

"You'll have to remove friendly fire," "you can't let the player begin with all elements, he should have to find them throughout the game," and "players should be able to hotkey their favorite spells so that they don't have to press several buttons just to do one attack," were several of the suggestions we heard.

All of these suggestions directly interfered with the main design philosophies at Arrowhead and would've diluted our vision for *Magicka* and made it a carbon copy of so many other titles.

This is also one of the main reasons why we acted the way we did just after release. As the game went live on Steam, a huge number of people bought it the first day. The number of severe bugs and crashes became painfully obvious -- to the point that a problem-free game of *Magicka* became a joke.

Even though the game had so many problems, we had a large amount of gamers playing and loving it. Many expressed their sadness that the game was nearly unplayable. At that point, we made a split-second decision that we'd patch the game every day for two full weeks, just because we knew that if we had bought a game in that state, we would have expected the same. Not only did we bring all our guns to bear, but so did our publisher, Paradox Interactive, who focused all their efforts to soothe the discontent of gamers and convey our plan for two weeks of unyielding support.

Due to this quick response, we gained a crowd of hardcore fans that continue to stand by us and help us moderate the forums and help new players with the problems they're having. This was, of course, a time where we demanded much of our employees, but in the end it turned out well and everyone at Arrowhead Game Studios can say that they are proud of the way the studio acted during those two weeks.

5. Soul Searching

About three quarters through the development period, we were still grappling with the original adventure design where the player would be allowed to unlock different paths depending on how well he performed in certain levels.

We never really got this to feel right and as we cut levels from the game, the goals the players had to achieve to unlock these "hidden paths" were thinned out to the point that our branching structure had essentially boiled down to two different campaigns running parallel to each other. We learned the hard way that when you're struggling to make one campaign, don't ever make two.

So just a couple of months before the final milestone we rewrote the entire script for the game during the course of an evening, reusing all the assets and levels that had previously been part of the "second campaign" to include several plot twists, time travel, and just wrap up the whole story in a neat package instead of the mess it previously had been.

Without this change the story would, for most people, never have included dragons, SkiFree references, the Tristram spoof song, or the scene where Vlad reveals that he in fact is... Well, I won't give away this spoiler for those of you that haven't played the game, but it's a plot twist that is crucial to the whole feel of *Magicka*.

So, the lesson that can be learned from this is that self criticism and soul-searching will reveal parts of your game that are working as intended but aren't fun or fitting. The tricky part is realizing when to just say stop and muster up the courage to make the decision to cut or redesign.

With all that said, we did make some mistakes... so many that we were, in fact, close to just giving up. So, let's venture into the dark side of this postmortem.

What Went Wrong

1. Optimism

Back in the days when we crafted our first budget and milestone plan we had the development of *Magicka* ironed out to five full-time developers working for six months.

Fact: *Magicka* took eight full-time and between two and four part-time developers 24 months to barely finish. Our initial estimate was off by more than 700 percent. One would think that an estimate that's so horribly wrong as this one would've been caught and adjusted.

And sure, after three months of development we realized that the estimate was very wrong and we adjusted it accordingly, by doubling the months required and adding two full-time developers. This was of course also a misjudgment by about 200 percent, but at the time we were so blinded by our initial deadline, our financial situation, and the faith in our own efforts and work ethic that we thought we'd manage it anyway. This behavior continued throughout the development process. We were always having 16 hour/day crunches weeks before milestones that we would, in the end, miss.

This is of course one of the most common mistakes for software developers, but guesstimating milestone schedules for a creative process is very tricky. Game development is very much a creative process that is not at all compatible with how the business is actually handled around fixed deadlines. In the future I would hope that the games industry evolves to become more flexible, and realize that the creative part of the process won't conform to deadlines.

... I wonder if Michelangelo had a milestone schedule for his Sistine Chapel?

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2. Overambitious and Under-Achieving

Due to our milestone plan, we had this mentality of "having to pull together." This mentality resulted in not only our actually pulling together, but also our shunning existing technology, putting too much effort in things that didn't matter and just plain grinding -- MMO style.

It also made us never able to cut features that would detract from the gaming experience. We instead took it upon ourselves to work overtime for several consecutive weeks to catch up for previous misjudgments and attempt to reach new impossible milestones.

One of these ill-focused features was the magical menu tome. We spent several weeks designing and implementing this book, with careful attention to detail so that each page would curl realistically as the player flipped pages so that the previous page displaying correctly on the now turning one.

This feature went overboard to the point that we were worried about whether the players would be critical of the fact that nothing was rendered on the "filler" pages between two menu pages. I suppose this would've been an acceptable

concern if we had an otherwise complete game and were just polishing it, but at that point half of the boss fights were non-functional.

Not only did we keep putting focus in the wrong areas, but one of the biggest problems we had during development was the lack of tools. Up until the first big DLC that we did (*Magicka: Vietnam*) we had no tool for merging animation files; The animator of the team had to manually open the ASCII .fbx file and copy/paste the takes into a bigger animation collection. This was, at the least, a time consuming and painstaking job.

Another problem we had was the inability of artists to view things as they would look in-game from an external program, such as a model viewer or some other application. Instead, they had to guesstimate and just travel to that point in the level where said piece of art would appear, evaluate, fix and repeat this process.

As for us designers, all scripting both for levels and enemies was done in plain XML, with the same problem -- if a trigger didn't execute properly, you just had to go through the XML file, fix what you thought was wrong, and rebuild the script, evaluate and repeat.

In our upcoming games we've decided to constantly take a step back and just think about which features are the most important ones. Tools -- while time consuming to develop -- will save so much time for artists and designers and in the end generate a much better product.

3. Poor Planning Leads to Doubt

"I love it when a plan comes together" - John "Hannibal" Smith

Unfortunately, we didn't have a plan. At least not a plan that had any reasonable way of tracking how we were doing, where we were, or how much we had left. All that existed was a timeline on the whiteboard with numbered weeks associated with levels and features. If a level slipped past the week to which it was assigned, we would just consider it "good enough" -- even though it was missing crucial gameplay features.

As you might imagine, having faith that a finished game awaited us on the other side of those months was nearly impossible. Worse yet, we had no idea of how much we had left incomplete as we went through each level, to the point that we could only guess that there was no way we'd be finished by the established milestones, and we were far too proud and afraid to bring this issue forward; We instead solved it as we did with all problems: crunch.

Sometimes in the middle of development, we realized the game was nowhere as fun as it had been in the prototype stages, and not even close to what we aimed for. The first time we had experienced such a problem, doubt filled the studio and it caused our productivity to decrease. Without any form of measuring, we kept wasting several weeks on sporadic, non-motivated, directionless development. We tried several different approaches for how to tweak different spells to deliver a more fun-filled gaming experience. It was, alas, to no avail.

All this uncertainty combined with doubt and created several moments of despair, along with an unforgiving feeling that we would never finish the game and go into bankruptcy. In some cases, this fact was so obvious that we could do nothing but to laugh.

At what was supposed to be our beta milestone, after submitting the build, we did a play test of the final boss: Assatur. Instead of descending from the top of the screen to do battle with the wizards, he for some reason turned around and ascended back to where he came from, never to be seen again. At this point, 6 am -- after a long crunch -- the entire team cracked up, went to bed and took a couple of days off.

The epiphany came from an article about SCRUM development, how it could help a team estimate tasks better, and how the data it provided could be used to track progress and estimated completion time. Of course, by the time we implemented our SCRUM solution, it was far too late, but it gave us a sense of direction, a sense of progress and a sense of control -- something that allowed us to focus on what was really important.

As for the fact that the game wasn't really fun -- we investigated what made the prototype so much fun. What we found out was, we happened to accidentally kill each other more often and everything was more "haphazard" -- something we managed to get just right by increasing the power of the spells and toughness of the enemies.

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4. No Need to Ask Obi-Wan

When Arrowhead was founded, we had a lot of good will from experienced developers throughout the Swedish game development industry who wanted to spill the beans on how to make the best game possible, and save us from the biggest pitfalls a new studio can fall into.

We failed miserably at heeding their advice. It was almost as if we were told about the exact position of all the mines in a minefield and we still, like some sort of imbeciles, were compelled to step on them.

The first and most memorable advice that was given to us right after our Swedish Game Awards '08 victory was that we had to act on the hype and ride the wave as far as possible. We didn't.

Instead, we kept attending our college courses, developed the game on the side, and sort of let it slip through our hands -- until after about six months we realized what was about to happen and made up our minds: we would drop out of college and found a studio to develop *Magicka*.

This tendency of having to experience mistakes before learning from them kept haunting us throughout the entire development process. When we were in doubt we just went headfirst, instead of asking for advice. When we got advice we heard, but never listened. In a way I believe much of this was tied to our being overambitious and in a way, arrogant.

To this day, we still often fail to recognize when we could really use some assistance, but we're working on it. In a way, as with so many problems, half the battle is admitting you need help.

5. Social Safety at Risk

As we started the studio, we didn't have any capital that could set us up with the necessary software. As luck would have it, Microsoft provides newly founded companies with a cheap BizSpark membership that grants you access to pretty much all of their products.

The big ones, Maya and Photoshop, were something the studio couldn't afford, and because of the lack of a financial history, the banks wouldn't grant loans without a guarantee -- something that we as founders took upon ourselves. Not only were we in debt because of the guarantee, we used our savings and borrowed from our near and dear to finance the share capital, rent and general living costs -- which massed up to quite a bit.

This was fine in the beginning, but as we started to doubt that we'd ever finish the game or that the game would ever make any profit, many of us had a hard time sleeping. This was perpetuated by the fact that every one of us had so many shoes to fill in the project development that fear, stress, frustration, and despair became our constant companions.

In hindsight, spending all our savings, borrowing money and becoming financially liable all for one big gamble is something to be avoided at all costs; it was like a little monster multiplying the stress of an already demanding trade.

Conclusion

Seven months later, *Magicka* is considered a smashing success and has sold nearly 800,000 copies -- something that we never, in our wildest college dreams, thought possible. Not only does *Magicka* have a lot of fans, it has a great community that constantly comes up with wonderful ideas/feedback and are really involved in the evolution of the game.

Other than that, we have established a functional pipeline for creating new content for *Magicka*, even though the game engine isn't really crafted to handle it. We've released a couple of DLCs, patched the game countless times and added the missing versus mode -- yet even this is just the beginning. We really want to support all *Magicka* fans for as long as they play, by releasing a lot of DLCs -- both free and paid.

During the development of *Magicka*, the studio has grown tremendously both in experience and in creative vision. Our goal is no longer to get our first game out on the market, but to create clever niche games for creative gamers. As is so apparent when you look at *Magicka* -- we're all die hard sci-fi fans that really long to get our hands on something... spaced out!

Data Box: *Magicka*

Developer: Arrowhead Game Studios

Publisher: Paradox Interactive

Release Date: January 25, 2011

Platforms: PC

Number of developers: 8 full-time and 4 contractors

Length of development: 24 Months

Budget: ~$400.000

Development Tools: Maya 2010, Photoshop CS4 / CS5, Visual Studio Team System Ed.

Most played songs: Barracuda - "Ass up," Lonely Island - "I'm on a boat," Mastgrr - "Cooking by the book - A Lil Bigger mix," "They're taking the hobbits to Isengard."