

## Postmortem: Twisted Pixel's *Splosion Man*

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[In this in-depth postmortem, Twisted Pixel, the Austin, Tex.-based independent developer behind *XBLA* and PC title *The Maw*, explains what went right and what went wrong with the fast-paced development of the *XBLA* action platform game *Splosion Man*.]



## Introduction

*Splosion Man* is Twisted Pixel's second game based on an internally developed original IP. Our first game, *The Maw*, was well received, and allowed us to grow the company and begin making a name for Twisted Pixel. Having already pushed ourselves hard with the first game, we decided to make something a little smaller while still retaining the character and personality that our studio is becoming known for.

The character and personality stuff happened, but the smaller part didn't. For reasons described below, it was important for us to complete the game in a short time frame (six months) but to still improve the quality, presentation, and gameplay over *The Maw*. As a collective team, we feel we achieved these things with *Splosion Man*, but it wasn't an easy journey and we learned some valuable lessons along the way.

## What Went Right

### 1. Creative Direction and Level Design

One of the reasons we were able to create *Splosion Man* as quickly as we did is that we had a strong art and design direction from the very beginning. Using games like *N+* and *Sonic the Hedgehog* (the Sega Genesis versions) as reference early on helped everyone on the team understand what we were going for with the visual style and the feel and length of the levels.

Concept art for new character designs can take a very long time to nail down just right, especially when you are dealing with a main character that is basically made of fire and inner explosions. But instead of being more work than our previous game, *The Maw*, it actually was much simpler to visualize *Splosion Man* and the secondary characters in the game.

Whether that was because the team had already worked closely together before, or that the bizarre nature of the character design made it easier to throw out whatever ideas we wanted, I'm not sure, but it was a very quick turnaround time for characters that convey quite a bit of emotion with almost no dialog. The same for sound and music -- it all just came together and everyone understood very early on what this game was, and how it should look and feel.

Level design was originally a huge concern for us, because no matter how funny the game was or how cool the characters were, the levels had to be just the right length and just the right challenge or it would all fall apart.

Our first great success in reaching the high bar we had set for ourselves was accomplished with the additions that our programmers made to our internal tool set (which are described in the next bullet point). These changes gave the level designers a great amount of freedom to not only design cool levels, but do so very quickly.

And quickly made they were -- with our schedule, some of *Splosion Man's* levels had to be designed and implemented in a day. It was an insane challenge, especially with multiplayer levels where the thought process in designing is completely different than for the single player levels.

The second great success came from the ability that our level designers displayed in not only being able to reference games from the past that would help us as a starting point, but in also being able to create entirely new ideas from a small set of puzzle types that they could use over and over again and still keep new levels feeling fresh.



## 2. Tools and Building upon Existing Tech

During the development of *The Maw*, we also built our internal engine as well as our game editor, respectively named BEARD and RAZOR. As you might guess, this took up quite a bit of programming time just to get the engine to a usable state.

At the time, we weren't able to spend a whole lot of time adding more advanced features to the engine or fixing usability issues in the game editor. However, while developing *Splosion Man*, we were able to spend time making the engine and game editor more complete.

When we first started developing *Splosion Man*, we knew how short the schedule was going to be so it was important to make things as easy as possible on the designers so that they could create levels quickly and effectively.

The first issue we addressed was the need to run the game as a separate application from the game editor. Designers would open the editor, make some changes, export data, run the game, test their changes, and then repeat the process. This wasted a lot of time during the development of *The Maw* because level iteration took a lot of time which was exacerbated by the fact that our level load times during development were slow.

Our solution to this problem was to modify our game editor so that the designers could actually play the game within the editor. Users could easily toggle between layout mode and play mode with the click of an icon. This decreased iteration time immensely, allowing designers to quickly modify a level and see how it played and then repeat the process without ever having to leave the editor.

The next big task we tackled was adding a 2D layout mode to our editor. *The Maw* was a 3D game in which the player was able to wander around a 3D world. *Splosion Man* is based on 2D gameplay, although it uses 3D assets.

So we decided it would be best to add a new mode to the tool to allow designers to more easily place objects in a 2D plane. We added a layering system so they could easily place objects in the foreground or background of the playing area.

We also knew that since we were so short-handed on artists that the designers would need to build the level geometry themselves in the editor. So we created a feature that allowed the designers to "draw" in the levels. Underneath the covers, the editor would automatically build all of the collision and visual geometry needed to represent those drawings in-game.

After we had the features that we needed in order to make the game more efficiently, we were then able to spend some time on some features that would make the game look a little bit better. We added morph target support, reflections, improvements to our shadows, distortion support, and generally upgraded our shading pipeline.

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## 3. Prototyping

Even though *Splosion Man* uses a simple one button mechanic to play the entire game, we needed to prove to ourselves that it was something that would be fun to do over and over for several hours. Very early into the pre-production of the title, we started making a very rough prototype of the "splode" gameplay to see how it would feel, and if it would be fun.

This was a huge reason *Splosion Man* turned out to be a success in our eyes. Before the game looked good at all, we had a very rough-looking *Splosion Man* model sploding around very basic geometry. Using this method we could tell right away that this was going to be fun. If

we left the game looking the way it did, it would still be fun. It might not end up being the prettiest game out there, but there was no denying that you could enjoy yourself.

This may seem like an obvious thing, but when you are trying to impress publishers or others that your design document will turn into an awesome game like you promised, it can be very easy to try and make early demos look as good as you can.

We took the opposite approach and kept the game in a "grey box" state as long as we could, so we could make sure everything was fun, and then we could go in and dress it up with graphics, sounds and visual effects at a later date.

This same method was applied to almost every feature in the final game. We treated cinematics the same way, doing very early passes and throwing them in just so we could see if the smoothing of the camera was working properly, and if the timing was right.

For a game that was made as quickly as *Splosion Man*, it worked out great to worry about the gameplay and the fun factor first, and then worry about how it looked as a distant second.

#### 4. Moving To Austin

Twisted Pixel's original location was in the small town of Madison, Indiana. We had always planned to move the company to a larger city "when the time was right" but it was unclear as to when exactly that would be. After development of *The Maw*, it was becoming quite apparent that the right time was quickly approaching.

Although Madison provided us with the low cost of living and low startup costs that we needed at the time, it was difficult to find talented and experienced people to join our team that were willing to move to a small town, especially knowing that we would be moving the company somewhere else at some point.

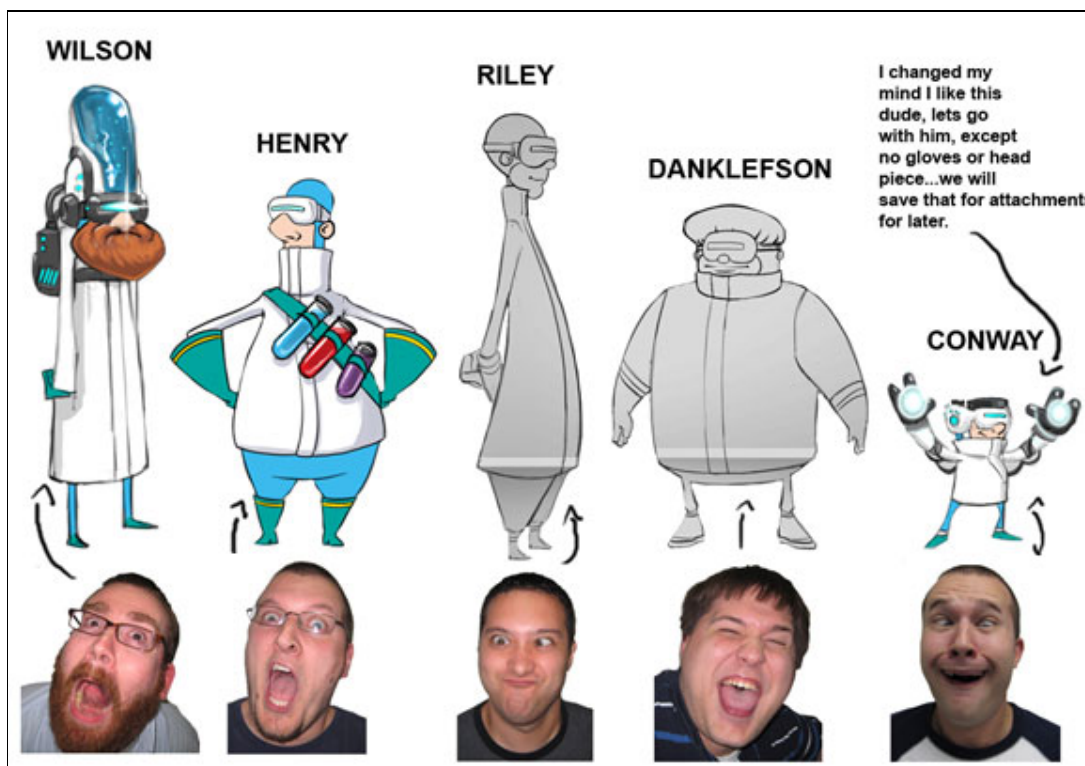
We also found ourselves fielding a lot of questions and concerns from the current employees regarding when and where we'd be going. We closely examined our financials to make sure it was feasible to make the move and it very much seemed like the time was right after completing *The Maw* so that there was minimal disruption to our next project.

We had several meetings with the early members of Twisted Pixel to discuss where the company would be moving. It was very important to us to keep all of our team members, so we wanted to be sure that everyone was happy with where the company would be located.

We came up with a list of several locations that made good business sense based on a combination of factors like an existing game development community, talent pool, tax incentives, high quality of life, affordable housing, etc.

After a lot of discussion, the group narrowed it down to two locations: Austin, TX and the Raleigh, NC area. We then sent out a few people to talk to each city's Chamber of Commerce as well as film the area and get a general feel for it. After that, it was quite clear that Austin was the right city for us.

We've been in Austin for nearly a year now and I'd say that all of us are quite happy that we decided to move here. The variety of food alone in the area has made it worth it.



## 5. Summer of Arcade

The biggest challenge in creating *Splosion Man* was attempting to get the game ready for Microsoft's Summer of Arcade marketing promotion. We took a calculated risk in assuming that they would run it again, after the first one proved so successful.

During an early scheduling meeting at the beginning of the project, we made the decision to try to finish the game quickly so that we could (hopefully) be considered for the second annual Summer of Arcade. We figured that if Microsoft ended up having it again, and we were finished, then it was awesome timing and maybe we could be a part of it. If they decided not to do it, maybe we could spend a little more time on the game.

The reason for trying to push ourselves into the Summer of Arcade program is that the marketing support is great, and our game would be alongside some of the best titles that Xbox Live Arcade has to offer. There was no guarantee that we would be included in the program, but we decided to go for it anyway.

This proved to be a very wise decision on our part. By using early prototyping we were able to show Microsoft that the game would be a lot of fun, and we eventually earned one of the coveted slots of the Summer of Arcade, along with great games like *Shadow Complex* and *Trials HD*.

Without the Summer of Arcade, not as many people would know about *Splosion Man*. The extra attention the game received was something that would have been very hard for a small company like ours to get recognition for on our own.

So without the aggressive schedule we had, we might have been able to include a few more levels or a few more puzzles in the game, but in the end, getting the game finished in time for the Summer of Arcade program turned out to be not only much better for us, but better for players now that *Splosion Man* has more recognition than it might have gotten. And, there would be a lot of sad children around the world who might not understand the awesomeness of sploding evil scientists into various meat products.

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# What Went Wrong

## 1. Networking

We knew from the very beginning of development that we would have a co-op multiplayer mode in *Splosion Man* and that we wanted people to be able to play together online. We didn't have the manpower to add networking support to our engine internally so we decided to contract someone to help us out.

Unfortunately, it took a little longer than we had hoped to find someone to fill this role which left only a short four months to implement our network layer and get the whole game synched up over the network.

Because of the short development cycle, many of the game's features weren't implemented until quite late causing network synching of these features to be pushed back even later.

Late in development, we started realizing that we were using way too much bandwidth and that the game played poorly when packets are lost or when lag is significant. We improved this as much as we could without risking the game's stability in the short amount of time we had left.

Luckily, our contractor was quite skilled and did a fantastic job given the time that he had. Unfortunately, after *Splosion Man's* release, we received a lot of complaints from players having problems playing over the network.

So, we took it to heart and have spent some time working on a Title Update that immensely improves network performance. The good thing that comes out of all of this is that we learned a lot and have managed to improve our network code for use on future games.

## 2. An Over-Worked Chainsaw

At Twisted Pixel we work with a very talented audio studio called Gl33k, who has worked on all of our titles. When bringing them on for *Splosion Man*, we were unsure of how many sound effects the game would need, and how long they would have to create the audio assets for the game.

We originally based our sound estimates on *The Maw*, but that proved to be a very wrong assumption, as *Splosion Man* ended up having way more sound effects, including special musical numbers and other prizes than *The Maw*.

Our "go to" guy at Gl33k was Matt "Chainsaw" Chaney, and he worked extremely hard to make sure all the new things that went into the game everyday received the sound attention that they deserved. Making things even harder on him was the fact that most of the final art and animation assets weren't going into the game until towards the very end, which made it difficult for him to figure out what we wanted and where it should go.

While this is a negative point in our postmortem (bad scheduling on Twisted Pixel's part, no clear path for Gl33k when sound should go in), it luckily became a positive as well. Chainsaw loved the game and loved what he was doing for it, so he put in an insane amount of effort to



make sure that the sound design was of a higher caliber than what most people would expect from a \$10 downloadable title.

Along with Matt Piersall (President of GI33k), they did an incredible job of making the game memorable, especially with Chainsaw's own "Donuts Go Nuts" song, which some players may associate with *Splosion Man* more than the actual gameplay or characters.

With future titles, it will be important for us to not underestimate the amount of planning it takes for an awesome audio implementation. Luckily for us, our friends at GI33k worked with us to make it possible to ship *Splosion Man* on time, which I'm not sure anyone else could have pulled off except for them.



### 3. Too Many Concurrent Projects

Although Twisted Pixel's primary focus is developing original games using our own IP, we also do contract work for other games. During *Splosion Man*'s development, we had more concurrent projects going on than we have had in the past.

It was typical for us to have a small team of programmers working on outside contract work while our main team is working on our own game. However, during *Splosion Man* we were also finishing up *The Maw* downloadable content, had another small team working on a port of another game, had a couple of people working on some contract work, and were working with another developer who was porting *The Maw* for release on Windows.

This stretched those of us who were involved with managing these projects pretty thin, especially given that we were also active key members of the *Splosion Man* team. There were just too many things to monitor and do with too few people to make sure that it was all running smoothly.

Fortunately, time was able to ease this problem as projects were completed. *The Maw* DLC was completed fairly early on in development, the port that the small team was working on got cancelled for external reasons, and *The Maw* port to Windows was completed a few months into the development of *Splosion Man*.

Thanks to the progressive completion of these projects, we were able to avoid any development delays because of limited manpower. In the future, we need to be more cognizant of the amount of time it will take to manage multiple teams of people on different projects no matter how small the teams are.

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### 4. Too Many Hats

Quite often it can be difficult and time-consuming to handle being an owner of the company, a manager, and a key team member all at the same time. Sometimes there's really just too much to do and it seems like everything is high priority.

When working on *Splosion Man*, we found ourselves losing a lot of time from the game's actual development to figuring out the marketing, designing and producing pitch materials for future projects, deciding company strategies, managing employees, dealing with press and fan emails, balancing our budget, managing outsourcing, and countless other things.

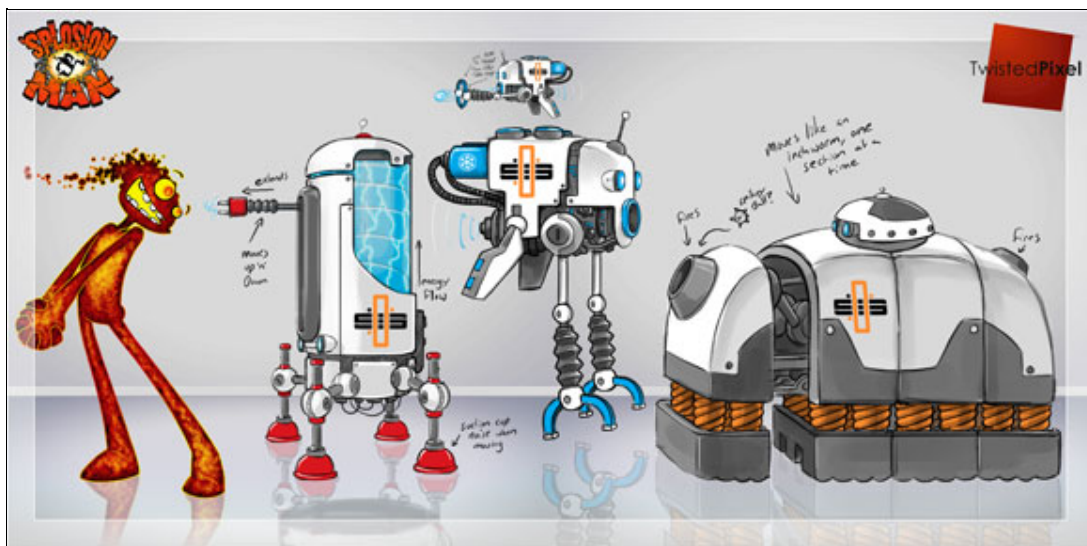
It's a strange balance because all of these things need to get done; however, if the game itself isn't progressing then many of these things don't really matter.

We were able to make up for the amount of things we had to do by putting in more and more time. However, that is not a long term solution so we're planning to shift some responsibilities and add new employees where needed to ensure that those who are key team members can really focus their energy on making the game rather than spend their time on a variety of other tasks.

## 5. Bad Outsource Experience

In order to create all of the art assets our games require, we looked to some very talented outsource companies and freelance individuals to help us. With only two internal artists at the time of production on *Splosion Man*, there was no way we could create everything we wanted internally.

Outsourcing has worked great for us on our titles, and partners like Nikitov LLC and Virtuos art studios continue to help us on our games. However, on *Splosion Man* we ended up needing more outsourcing than we originally intended. Since our current outsource partners were busy creating assets for us, we turned to some other unproven studios that ended up not working out and ultimately created more work for our artists.



Very early on during *The Maw*, we researched a number of outsource companies, had meetings, and ran art tests so we could determine their quality level. This helped us to determine who would be good partners that we could trust to hand off important character models over to. Fortunately for us, we had planned this time into our production schedule and it turned out to be great for us.

On *Splosion Man*, though, we overlooked the need to research new outsourcing companies. Instead, we were forced to rush into some outsourcing partnerships that ended up not producing usable results, which generated additional work internally. We made this clear to the new outsourcers we were working with, but no amount of explanation got across this fact to them. In the end it was a waste of time and money.

In the future, when we have down time (if there is such a thing), we will continue to find new outsourcing talent at our own pace, so we know who to turn to once our current partners are busy creating other assets for us. This was a big wakeup call that I hope we won't run into again, and can leave a bad taste in someone's mouth if they have never worked with good outsourcing companies before.

## Conclusion

We're quite happy with how *Splosion Man* turned out. It's a fun and addicting game that people seem to really enjoy. It has helped our company grow and helped us realize ways that we can make Twisted Pixel and our games better.

The recognition we've received from *Splosion Man* and *The Maw* has given us many opportunities for upcoming projects, and we will continue to apply the knowledge and wisdom that we've gained along the way to every new game that we create.

## Game Data

**Developer:** Twisted Pixel Games

**Publisher:** Twisted Pixel Games

**Number of developers:** 10 internal + outsourcing

**Length of development:** 6 months

**Release date:** July 22, 2009

**Platforms:** Xbox LIVE Arcade

**Development software used:** Visual Studio, Photoshop, 3ds Max

**Pounds of meat consumed:** Countless

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