

TECHNOLOGICAL PRACTICE CASE STUDY

JUL 2006/MAY 2009

DIGITAL TECHNOLOGY

YEARS: 1-6; 7-10; 11-13



SIDHE INTERACTIVE

The computer and video game industry is a world-wide, multi-billion dollar affair which employs thousands of people and continues to grow. While New Zealand is a small player on the global scene, it is definitely making an impact and earning millions of dollars in overseas trade. The award-winning Sidhe Interactive is New Zealand's largest interactive games company.

FOCUS POINTS INCLUDE:

Characteristics of Technology

- collaborative teamwork.

Technological modeling

- ongoing refinement based on the evaluation of functional modeling

Technological systems

- integration of developed software with existing hardware

Planning for Practice

- effective use of available skills and ongoing interaction with target market; protection of original IP; efficient and appropriate documentation; ongoing testing and evaluation

Outcome Development and Evaluation

- the pitching round; creative generation of design ideas

ADDITIONAL MATERIAL

Sidhe website

- www.sidhe.co.nz

Intellectual property issues:

- www.techlink.org.nz/Case-studies/Technological-practice/ICT/sidhe-interactive/IP.htm

Media Design School:

- www.mediadesign.school.nz
- vimeo.com/user743798
- www.youtube.com/user/MediaDesignSchool

SIDHE INTERACTIVE

Wanted: Games Tester! But before hordes of enthusiastic gamers rush the door at Wellington based Sidhe Interactive it should be pointed out that playing games all day is not all it might sound.

Testing is a very repetitive process but vital given the potential economic impact of a successful game. The computer and video game industry is a world wide multi billion dollar affair which employs thousands of people and continues to grow.

While New Zealand is a small player on the global scene, (the [New Zealand Game Developers Association](#) has 21 members) it is definitely making an impact and earning millions of dollars in overseas trade.

Sidhe Interactive is New Zealand's largest interactive games company. Managing Director Mario Wynands and partners started Sidhe while holding down day-jobs as IT consultants. In July 2006, the company had a core development team of 54, plus administrative support which brings staff numbers to over 60, with more people joining as a project progresses.

At the 2006 [Australian Game Developers Awards](#) Sidhe's original game *GripShift* was awarded 'Best Level Design', Best Game Design' and 'Best Handheld Game'. The company also won the 'Industry Contribution Award', presented in recognition of their outstanding contribution to the growth of gaming in Australasia.



The Idea

The company has an open policy on pitching original [Intellectual Property](#) (IP), which Business Development Executive Jos Ruffell says is really important for the industry. (For extensive discussion on Intellectual Property issue connected with the case study and Sidhe and its business, see: www.techlink.org.nz/Case-studies/Technological-practice/ICT/sidhe-interactive/IP.htm)

There is a big difference between being a work-for-hire developer as opposed to being an originator and owner of IP and content. Sidhe has 'pitching rounds' where any member of the staff can come up with an idea, put together a design document and pitch it to the staff, which is how *GripShift* came about.

Pitching rounds are held frequently but are dictated by the company's needs, so if there is no spare development resource then it's not done. Pitching is done as an open forum where everyone's ideas are heard and then votes are taken on a number of different criteria – 'game you would most like to work on' versus 'your favourite pick'. A balance is struck between what people are excited to work on and what they think is the best idea.

The point of this is that what is potentially going to be the most profitable may not necessarily be what everyone wants to work on. Some of the biggest success stories in the industry have been titles that, according to Jos, most developers wouldn't have really wanted to work on. He notes that 'Who Wants to be a Millionaire' sold an enormous number of units one Christmas but he can imagine that the guys working on that would have preferred to be doing something unique and original.



What's in a name?: Sidhe, pronounced 'shee', is the name given to the faeries (supernatural beings) of Ireland and Scotland. There are different types of sidhe with different attributes or roles such as the ban sidhe (banshee) which wails to warn of impending death.

The top five 'picks' from a pitching round are taken away to be discussed at upper management level and decided upon according to the company's needs and what sort of game is being pitched. Nowadays, games don't necessarily have to be in physical disc format; games can get to market via direct downloads through the Xbox 360's Live Arcade. This being the case, the company may be able to balance that smaller Live Arcade title with another Playstation Portable (PSP) project, although generally they are looking for one clear winner.

Producer Andy Satterthwaite came up with the concept for Gripshift and became its producer. His original plan was to pitch a Future Racer, but once Sony had announced the release of Wipeout Pure went back to the fundamentals – "What do I find fun?". He took concepts from classic games Super Monkey Ball and Stunt Car Racer plus other games he had been planning, and emerged with the idea of "a platform game with cars".

After working with a company artist who put together some conceptual art Andy took Gripshift to the pitching round. Although it actually came second in the vote management decided that the "first place" title was too big a scope whereas Gripshift could be developed with the available resources and still make a great original title for the company.

After it was selected from the concept approval process for development, Andy became the producer and designer for the project. Although not guaranteed, Sidhe tries to ensure that the concept originator for a title gets a key role in its development.

The Team

The nerdy computer geek working alone is not a part of the modern games environment. Back in the days when video games were just starting out a game was quite frequently put out by one programmer, possibly with a bit of help from an artist. Nowadays this is done in a team situation where good communication skills are essential, because one small slip in an area of the code or animation can hold up the rest of the team and the game's progress. A willingness to learn and keep on learning is another must; the games environment is ever changing and getting increasingly more complex.

According to Jos, the best employees are those who are resourceful and proactive about coming up with smart solutions. A game can be made the so-called 'Right Way' but it can also be made just as well the 'Smarter Way' a lot of times.

When a game is being built, the team has to decide how they are going to strike the right balance between load time and game play, while also working in a tight time parameter. The most successful in the games industry are those who can come up with innovative solutions to these problems – creativity that isn't written down in any text book.

The team is dealing with confidential technology, in terms of ideas and software, and are aware that they can't talk openly about them to people as piracy is a big issue in the industry.

Starting up

The raw process of producing a game is always the same. Once the winner of a pitching round is decided the team starts scoping out the project, which essentially means building it down from the top. At this stage of the development process Sidhe would use money from other projects to fund the current project.

An executive producer is appointed plus lead coders and lead artists and they start shaping the project as required.

The team is always butting against constraints of hardware: the Playstation Portable has only got a certain amount of Random Access Memory (RAM), its Central Processing Unit (CPU) is not as big as would be ideal and the disk only holds a certain amount with slow seek times. All these factors must be considered when working on a project.

A game like Gripshift is fairly light in animation so only needed a couple of animators working on it, as opposed to other projects the company has done which required more – such as Rugby League.

Developing a game using in-house IP is different from developing one using an 'outside' idea or theme. The company can't just develop any original game as it has to be something they think will sell.

Unless it's going to something like the Live Arcade market place a game can't get out to shops unless it's attached to a publisher. So there's a balance to be struck on how far a game is developed before a publisher is brought on board. (Gripshift was co-published by Red Mile Entertainment.)

Generally the process is the same for making an original IP game or a licensed product. The team comes up with the design document, a technical requirements document and then works through the project with a producer



overseeing the development. The producer liaises with the lead designer, the code leads, the art leads and the publishers.

Any project will run into problems if it's not clearly defined and specified from the outset. Game development is a very specific discipline and the fundamentals need to be known from the outset: what the buttons are going to do, what the risk/reward pattern in the game is going to be, what's different/exciting about it, why it's going to be fun, how and where it's going to be played. There are a lot of things that need to be clearly defined before anyone begins writing a single piece of code or putting a single piece of art in it.

A very well defined pre-production period is important. This is essentially from when upper management decides to 'green light' a game and the different heads start considering the various aspects involved.

The technical director will be taking into account the risk of the project, considering such questions as "What are we going to write it in?", "Are we going to do it in proprietary code or get some middleware and do it in that?" and "What's going to best serve our needs for this project?".

The producer will be looking at it in terms of bringing the whole thing together – how will it be done on time and on budget? His job is to steer and track the development of the project.

There is no way to really get everything right on paper and the game will be 'tweaked' many times through the development process. Everyone in the team will at some level end up contributing, it is very much a team based production.

Evolving

The design people will be looking at how they can actually execute and make it different, fun, exciting, and interesting. They will also consider what sort of technology they can bring to the table so that their technology is a bit different to, for example the **coders'** technology. They would be bearing in mind the things which are becoming increasingly important in games, such as lighting effects, particle effects and textures.

This group considers how the game can be made to look as good as possible or whether it actually needs to look good at all. If it does then what type of appeal is it going to have? At this point they'll have a skeleton team working on it. This might be a couple of artists working on concept art, basically trying to knock together images that convey a scene or moment from the game. These pieces of art need to give an understanding of what the team is trying to build.

The graphic requirements in Gripshift were more technical as it is so specific and differed from **Frankie Dettori Racing**, based on the Melbourne Cup where there are more artistic decisions such as drawing the various horses.

With Gripshift, the concept art had a track going over the hill and a buggy flying around so that people could start to feel what they were trying to do for the game. This starts to help define the visual look of the game and the team can start iterating on that, based on what looks good and what could work. The Gripshift team then started designing things like props for the games, pieces of scenery, a road sign or petrol station.



At this stage one or two of the **coders** come on and start playing around, testing some things out. At the same time the designer and producer are working away to flesh out a comprehensive design document – detailing everything down to the smallest little bit of detail in the game; this becomes the production 'bible'.

Having a key design and clear focus is necessary to make sure the iterations don't wander off too far. However the actual process of game development is fairly linear and proscribed.

One of the key things Andy wanted for Gripshift was a **track editor** so that players could build their own challenge levels and race levels for single and multi play. This requirement influenced a lot of the development process.

Frequently gamers ask for more realism but later realise that they don't want it as it can be a bit dull. A fast game full of action is more spectacular but less realistic.

The process rolls out from there. One of the things that the industry is moving into in a big way is prototyping. In the past games would get made and sometimes it was only discovered once they essentially had all the pretty graphics and animations that the game wasn't actually all that much fun. They could have found that out if they'd just built it with stick figures and done exactly the same thing. So prototyping is about trying to get a feel for what the game's all about – what it's actually going to feel like when someone's playing. This is where the real pre-production work comes in; the prototype is tweaked a lot and eventually expanded upon.

A scene would be constructed with base models where a castle scene would have just blocks for the castle, no textures, nothing on it; a few objects popped in just to get a feel for the game.

At this early stage of prototyping the team would just be playing it themselves, depending on the type of game. With something like Gripshift they can get a good feel for how it's going to play and who it's going to appeal to. Where a game is aimed at a different market, such as teenage girls, it would be necessary to bring some of those people in and get their rough feel for it.

Nowadays the size of a game is defined not so much by the action coding itself but by the coding for other contents such as graphics and music.

Next generation games for the Xbox 360 and Play Station 3, and even some of the Play Station 2 games coming out now, have got teams with upwards of



100 people working on them, with many spending US \$10 – 20 million on each game. The biggest team Sidhe has working on a game at the moment is 30 plus people.

The **hardware** needed for a game is quite significant as it can define everything from the start. Gripshift didn't require the massive hardware that restricts the production of graphics. The game was specifically aimed at Playstation Portable and is fairly low specification although high for a handheld game. The graphic detail was defined right from the start.

There is a different challenge working on a game which will be released on multiple machines e.g. King Kong. At least seven versions from low to high specification will be made to make the most of what a particular hardware can do.

Maya 3D software was used for Gripshift while **Adobe Photoshop** is the industry standard for 2D productions.

Testing

Testers are kept on staff and are constantly playing **builds** of games; they try to trip the game up and find all the **bugs**. These testers are searching for specific things, which is why that part of the job can be quite monotonous.

Usability testing is very important for game development in general. This involves bringing in people from outside who haven't seen the game before, seeing what issues they have with it, what they don't understand. There is a big difference between someone who's been intimately involved with a project, working on it from start to finish, and to whom it's obvious how the game works to someone from the outside who has never seen the game before. Bringing in someone who hasn't played it quickly shows what is not clear and things that need changing.

When making a game like Gripshift the team works out who the target market is and brings in people who have played certain games before or conversely requests people who haven't played specific games (on the grounds that they'll be potentially biased towards a particular game and try to play the new game in the same way, which could be an issue).

Having outsiders, rather than the team who had become really good at it, play Gripshift resulted in design changes to difficult structures. Even after Gripshift was released the team still found things they would have changed. Andy says that it's a process of refinement and that nothing is right until it's been released about six times. Until thousands of people have played they will never answer all the questions and are aware that they're not going to please everybody.

It can be a tricky balance getting something a new player can succeed at while also challenging more skilled gamers.

Sidhe has set up its own usability laboratory which works alongside the testing laboratory to find faults in the game. This is a very involved process but the game gets better and better because of it.

Once a game is finished from an internal point of view it is sent off to the manufacturer. A development manual goes off to Sony, Microsoft or Nintendo to be approved by them.

A huge document covering technical requirements follows this. When it is approved and released they will frequently find some small thing which requires iteration.

Marketing

Throughout development of a game the team works with the Sidhe marketing department and the publisher's marketing department. Project development depends on whether a game is an original, or is a franchised or licensed product. However the process is generally the same.

Publishers often want to buy intellectual property from the developers of a game. Sidhe kept the Gripshift copyright, which means if Sidhe does a sequel, they can negotiate from a position of strength.

Developers often work on games where the copyright is owned by someone else as buyers often want something they feel safe with – such as a Harry Potter game – rather than risk buying a new game they haven't heard of. Buying a film **licence** in order to develop an associated game means there is an established audience but the licence costs a lot.

In some cases Sidhe develops design and marketing documents. These identify who the market is and why the game is going to be successful; looking at precedents, competitors, the 'x' factor in the game.

A demonstration game is put together for marketing purposes. This is a very iterative process but the advantage of this over a prototype is that it has all the graphics but is only a small portion of the game. Sidhe uses this when pitching to publishers around the world in the hope that one will come on board and fund the rest of the development. At this point the team would be expanded to work on the game as a whole.

In order to be able to sell to a wide audience the company set out to make sure Gripshift had the lowest rating; these being done through the **Entertainment Software Ratings Board**. This was not a problem graphically or code-wise as there is nothing, such as blood, which would lead to a higher rating. However with the music (using New Zealand artists) some words, e.g. 'champagne' had to be bleeped out otherwise it would have been put up to a teen rating. There are some stores which won't stock games over a certain rating.

Working at Sidhe

Many students don't realise that the gaming industry in New Zealand has a variety of employment opportunities. If you are good enough with computers and programming, you have a very clear route and pathway to get into the industry.

Modern games coding (the whole process in getting 3D graphics on to a screen) is hugely maths intensive and programmers need a solid knowledge of maths; Sidhe looks for this in computer skills whereas the artistic is not as important. Gripshift is a physics heavy game (this being a limiting factor in the number of vehicles on the screen) and the physics coding requires a stronger maths background.

Sidhe works quite closely with **Media Design School**. A number of employees are School graduates and the company helps shape the curriculum. As the largest development company in New Zealand, Sidhe is the obvious first port of call for a new graduate so it is important to ensure that the students are getting the necessary skills to make them employable for the business. This has proved a successful partnership and Sidhe offers a **scholarship** at the school.

Business Development Executive Jos Ruffell was recruited to the team from **Straylight**, a smaller game development company, but a lot of the staff begin their first job at Sidhe. The company prefers new employees to have a computer science degree rather than a polytechnic qualification; the difference being that the polytechnics teach people programmes whereas the universities



will teach the underlying theory. Because of the constant change in the industry that base level of understanding will serve someone much better than coming into work and saying “I know how to use this programme” because six months later that programme may not be used anymore.

Sidhe has one female programmer. In the United States a lot of women are in the game business but they tend to work in the marketing, advertising and business development areas. While there was a period where girls were right into games such as Sonic and Mario Brothers, it has increasingly become more popular with boys. There is a move now to develop games which will appeal especially to girls.

Sidhe is aware of the need for professional development for its staff. Sometimes the team leader will organise tutorials, where they have put together case studies and cover specific items. Staff also attend key events such as E3, the world’s largest electronic entertainment expo, held over three days in a huge convention centre. All the games publishers and hardware providers are there for this huge media event where retailers check out the latest products and the media is present to see what new products are being announced or displayed for the first time. Sidhe will send representatives to E3 where they attend meetings, every hour on the hour, as they promote their games.

Developers get a chance to ‘up skill’ at conferences such as the Games Developers Conference which has a different emphasis, very much on learning. They can attend tutorials covering programming, design, business law and short sessions run by some of the best in the industry. The developers then disseminate that information through their teams, so a lot of this upskilling is done in-house.

In its recruiting Sidhe has high technical/academic expectations but also recognises the importance of the right culture in the work place. The games industry is well known for its long working hours and especially the ‘crunch’ when people work long hours in order to meet a very specific deadline. The industry is aware of this in terms of quality of life issues and is something it’s working on, some companies better than others. Jos reflects on horror stories of some companies overseas where people have to work 80 plus hours a week for months on end with no overtime pay and the resulting employee ‘burn out’.

Games programmers have to be passionate about their work because, chances are, they could be earning more doing IT work elsewhere. They don’t have

to wear a suit and tie to work and can live and breathe games; this relaxed work style compensates for long hours. The company has an active social club running and staff might go to the movies or bowling together. A social activity might be organised to reward the team at the completion of a project or a special request honoured, which is why Managing Director Mario Wynands came to work in a giant penguin suit one unforgettable day!

May 2009 Update

Since the publishing of this case study in July 2006, by the middle of 2009 Sidhe Interactive has grown to employ nearly 100 staff, despite nearly two years of recession. “Our studio is growing and we have been hiring,” said Jos Ruffell in an article in *The Dominion Post’s* NZ Infotech feature, 11 May 2009. “There are great opportunities at the moment for studios that are flexible cross-platform developers like ourselves. In a downturn, people want entertainment.”

On 14 May Sidhe announced a new original title, Shatter™, which will debut on PlayStation@Network later in 2009, and the company has four other major projects in the pipeline.

Shatter, which joins GripShift as the second of Sidhe’s major self-published games, is a retro-inspired brick-breaking game that merges familiar action with a modern-crafted production approach.

“We were inspired by classics in the genre, but were very aware of the limitations that most examples don’t overcome, which means they don’t reach the full potential possible,” said Mario Wynands, Managing Director of Sidhe. “We stripped brick-breaking back to the base elements, and rebuilt it from the ground up. The result is a much more connected and visceral experience.”

Shatter is like the classic brick-breaking games but with twists that make it modern and unique, including:

- innovative controls, physics effects, power-ups, special attacks, and boss battles which combine to provide an experience that is always interactive;
- Standard, Boss Rush and Bonus game modes enhanced with leaderboards and trophies;
- vibrant 3D style presented across 10 distinct worlds in 4xAA 60fps HD; and
- a fully scored soundtrack featuring more than 90 minutes of original music.

For more information on Shatter, visit: www.shattergame.com



In 2009, Sidhe received a \$550,000 matching grant from the Foundation for Research, Science and Technology (FRST) TechNZ fund, which gives out more than \$50 million each year for innovative technology projects. Sidhe will use the grant to improve in-house development software so it can produce games for different gaming consoles without extensive rewriting. The \$1million-plus software project will make it much more viable for Sidhe to develop and self publish a range of original, high-quality titles, such as Shatter, for the console download market.

Shatter and Sidhe are trademarks or registered trademarks of Prodigy Design Limited. “PlayStation” is a registered trademark of Sony Computer Entertainment Inc. All rights reserved.