Outsourcing in Next Generation Games Development:

Delivering cost and production efficiency

Contents

6 Outsourcing disciplines

This chapter will explore the current use, impact of the next generation and growth potential of the major outsourcing disciplines. Disciplines are listed in alphabetical order.

Art

The use of art outsourcing today

The market for art outsourcing has been growing fast since 2002. Where once the outsourcing of any content was seen as something akin to heresy by a majority of the development community, today the outsourcing of art to third parties is becoming commonplace. Initially, it was only low-value, often environmental artwork that was outsourced, but as the quality of art outsourcing companies grew, character artwork began to be outsourced too. Today, more than 40 per cent of games studios outsource background and environmental artwork, and the value of these contracts is rising fast. Internal art teams have been refocused on generating higher-value artwork such as initial concept work (which will always remain in-house), faces and other important features of main characters or game environments. For many studios, a number of these internal staff have already made the transition to act as project managers overseeing teams of outsourced artists, with minimal hands-on asset creation.

Art outsourcing today is characterised by three kinds of work: overflow, specialist and volume outsourcing:

- Overflow work normally consists of rushed, short-term contracts to provide a small number of assets for studios (internal and external) that have underestimated the available resources or budgets internally and now face an imminent deadline. These contracts are normally expensive on a man-day basis but not substantial in size, are mostly unscheduled and short-term.

- Specialist work is the outsourcing of very high-definition work to a specific outsourcing company studio with a core competency in a very tightly-defined type of art, for instance sci-fi or sports character work. The number of assets created is low, the man-day cost usually high, the overall contract value is low to medium (under $50,000), the engagement is short- to medium-term and largely planned well in advance. The kind of outsourcing company that specialises in this kind of work is normally local and very well known to the client studio.

- Volume outsourcing is when a significant proportion of asset creation is handed to a large team of outsourcing companies. The number of assets is high, the man-day cost low, but the contract value is usually high (over $50,000). The engagement is typically over 6-9 months, and, as such, is a highly planned affair. Typical examples of volume outsourcing would be car and track design for racing games, or multiple non-player character

design for crowded army scenes in strategy games.

## Art outsourcing in the next generation

Art outsourcing is already experiencing the fastest growth out of all outsourcing disciplines as the next generation comes online. High definition output requires anywhere from 3 to 4 times the polygon count of the last generation's graphical assets (rising from an average of 3-5k polygons per asset to 15-20k), driving up the amount of resource required to create content for a next generation game. In addition, the next generation requires a greater degree of subtlety in artwork – the environments are very rich; textures are denser and more complex; lighting effects require the use of layering techniques to capture realistically how light plays on and reflects off different surfaces and materials. One outsourcing company describes creating something as simple as a chair, which for PS2 would have taken 2-6 hours but for PS3 could take 2-6 days.

Undoubtedly, new techniques will help reduce the impact of this leap in required resources as the industry travels down the learning curve, but these learning effects are unlikely to kick in before 2007. The most immediate impact of the next generation platforms is that art (internal or external), already the single largest budget line within today's production budgets, will grow to represent around 50 per cent or more of the total production budget for a next generation title. Because the number and size of art assets is leaping forward so significantly, this becomes the single largest growth driver for a next generation budget and subsequently the single most important cost base to be controlled. Next generation budgets are conservatively estimated to grow by 50 per cent without containment, the growth in art assets is estimated to represent 75 per cent of that growth. Leading studios are banking on an increased use of outsourcing, which is correspondingly mostly targeted at art outsourcing, to help keep that potentially runaway growth down to nearer 20 per cent.

For studios working on major AAA rated titles with budgets over $5 million, outsourcing significant portions of artwork may be the only way to keep costs under control. Many publishers and console manufacturers publishing divisions already believe this and are planning or have begun major increases in the value of outsourcing contracts for artwork. This has a knock-on effect in the number of internal staff that will be tasked to handle the external teams, with one first party studio estimating half of its artists will become project managers, no longer creating assets themselves. Within two years of the launch of the next generation, many of the world's leading publishers will outsource almost all environmental artwork and nearly three-quarters of character artwork to third parties. Contracts valued up to and in some cases over $1m are being won by the larger art outsourcing companies, who report teams of 50+ staff being tied into 9 months contracts or longer by their major clients. Total global expenditure on art outsourcing is expected to rise rapidly from €124 million ($154 million) in 2005, rising to €866 million ($1,078 million) in 2010.

Chart 12: Global art outsourcing expenditure
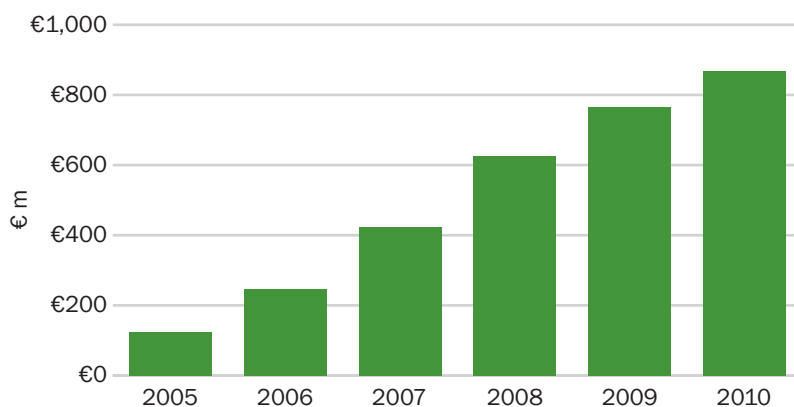
Source: Screen Digest

Global art outsourcing expenditure

	2005	2006	2007	2008	2009	2010
	m	m	m	m	m	m
total (€)	124	248	422	626	766	868
total (USD)	154	308	524	778	952	1078

Source: Screen Digest

Animation

The use of animation outsourcing today

Animation for cut-scenes and front end FMV sequences has long been outsourced to third parties when internal teams are at capacity, resulting in a valuable market for animation.

In previous generations, these kinds of high end, pre-rendered sequences often bore much of the narrative weight of a game, and often were handed to third party specialists. These specialists often utilised a mixture of key coded animation and motion capture. However, in-game animation, by its nature less discrete and harder to separate from the internal development process, has only recently been considered a discipline that can be successfully outsourced to third parties, and, as such, has so far been outsourced only infrequently. Like artwork, in-game animation was seen as a core competency of the games studio, and thus relatively sacrosanct. This has changed gradually since 2000 as specialist animators have gradually expanded their services to include in-game sequences as the hardware platforms grew in power and ability to render higher definition animation on the fly. The types of company vary widely in this field. Often, they are companies with a long client list of traditional media clients. Sometimes they are former developers moving down the value chain from handling a full game's development to becoming service providers, and, in such a small and insular industry, can be well known quantities to their clients, often in the same locale. Even so, today much in-game animation is still handled in-house.

Animation outsourcing in the next generation

Animation, like art, will see a significant boost in the next generation, mostly because the power of the new hardware will enable a leap in the number and complexity of animations that can be rendered in real time within a game, driving animation costs up. However, there are few outsourcing companies at scale which can provide large teams of animators, and while these South Asian, Asian and Eastern European art companies plan to expand to cover animation in the medium term, it is unlikely that many will be able to scale quickly to meet the requirements of the next generation market. Therefore, three solutions are expected to supply the market's needs.

- Boutique games animators in the west, which will quickly reach capacity.
- Traditional media animators to whom studios will turn to when more experienced games outsourcing providers cannot meet the demand. These companies today provide most of their services to traditional, so-called 'old' media (advertising, television, film). These old media companies have been watching the games market for cross-over opportunities. It is expected that the clusters of old media animators in Hong Kong, New Zealand and Vancouver will benefit the most from this undersupply. This will inevitably be a lower quality but higher cost solution, because such companies have little experience of the requirements for games animation, which differ substantially from that for TV and film.
- Middleware providers, whose increasingly sophisticated tools and middleware will supply an increasing amount of studios requiring quality animation. For a full discussion and financial forecasts for middleware, see the Middleware section below.

Animation is thus one of the fastest expanding outsourcing disciplines that is unlikely to be well serviced by dedicated games animation providers in the marketplace before 2006.

One interesting development in this area is the use of pre-rendered sequences used by publishers and console manufacturers to guide the pitches, prototypes and development of studios working on or bidding for important franchises. A small number of animation service providers have recently been contracted to help publishers reduce the risk of their third party studios delivering inappropriate product after the point where the game can be changed cost-effectively. This precedent allows the publisher's marketing teams to become more heavily involved at the earliest point in the game's development cycle, helping to target specific consumer groups by honing a pre-rendered animation sequence before production has begun. This practice will enable better pitching by third party studios competing to win valuable licences. This reasonably costly risk management exercise is another indication of the level of protectiveness that publishers feel about their most valuable IP, but is unlikely to become standard practice for non-AAA franchise titles.

Total global expenditure on animation outsourcing is set to rise from €34 million ($42 million) in 2005, rising to €237 million ($294 million) in 2010.

Audio and Music

The use of audio and music outsourcing today

Audio and music are relatively easy disciplines to separate from the development process and outsource. It is the most commonly outsourced discipline. However, small teams of musicians and audio specialists are still found within some games studios. The role of both of these types of specialists has changed over the years.

In-house musicians are today less likely to be originating scores and recording music than they are to be integrating, adapting and extending the work of external musicians. The likelihood of finding a full-time musician composing entire soundtracks in his/her own sound studio is receding. This is due to 2 major factors:

- Music production values have increased as quality original music becomes more important for quality games.
- As games adopt more techniques from the film and TV industries, music is

increasingly being recognised as a cost effective way to create pace and emotional attachment between the game and its player, which has a direct impact on reviews, thus warranting higher investment.

Both factors have highlighted the inadequacy of the 'one man and his keyboard' approach, which for several years has been unable to produce the required quality. Today the in-house musician is one who contracts composers to write scores for his games, who organises musicians, and sometimes complete orchestras, to perform original music and who oversees recording their output in professional sound studios that cater to the post-production film, TV and games marketplace. The scale of the project management task is not to be underestimated: some titles require nearly one hundred separate pieces of music, the majority of which are licensed externally. Sometimes, the in-house musician will buy original music by the minute from external providers, and then loop, extend and integrate external providers' music to service requirements of the remainder of the game.

The in-house audio specialist does still design and create sound effects but commonly doubles as an account manager, contracting specialist agencies to audition and hire actors to voice the increasing number of characters within a game. The audio specialist inside a publisher or console manufacturer studio has seen audio budgets rising because AAA games increasingly require well-known stars to voice the major characters. Subsequently, the unions representing actors are becoming more savvy towards the commonplace, royalty-free model of voice-over contracts with games companies, which has resulted in some recent public spats between games publishers and organisations such as the Screen Actors Guild. The in-house audio specialist is also being given increasing leeway to find authentic sounds, for instance high definition recordings of specific guns firing, or the engines of specific racing cars. Again, third party specialists are springing up to provide sound effects for the unique requirements of different games

Chart 13: Global animation outsourcing expenditure

Source: Screen Digest
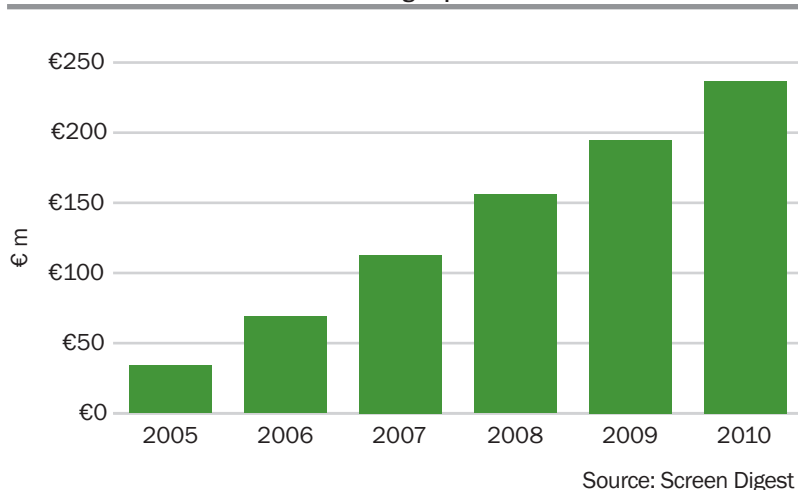
Global animation outsourcing expenditure

	2005	2006	2007	2008	2009	2010
	m	m	m	m	m	m
total (€)	34	69	113	156	195	237
total (USD)	42	86	141	194	242	294

Source: Screen Digest

genres.

Audio and Music outsourcing in the next generation

The outsourcing of both processes will experience growth in the next generation, but the main drivers for their growth will not substantially change now that they are well-understood, easily externalised processes, and that the importance of strong audio and high-quality music is growing as games adopt more sophisticated techniques from traditional media. The new technology platforms themselves provide only a mild boost to the outsourcing of audio and music. Many games already support 5:1 surround sound effects, and the ability of the next generation hardware to process complex sound in real-time will not rise as fast as other capabilities, especially graphics. More voiced characters are required in games, but this process is underway with the current generation. Total global expenditure on music and audio is expected to rise in line with production budgets from €70 million ($86 million) in 2005 to €142 million ($176

million) in 2010.

Localisation

### The use of localisation outsourcing today

Localisation is one of the best-understood of outsourced processes, with a number of well-established providers with long client and title lists. Localisation providers supply a service that not only translates the texts of in-game instructions, manuals, sales material and support websites, but also ensures that all translation is appropriate to the genre of the game, that the game in all of its features is culturally appropriate for the territory, that voice-over actors are auditioned, cast and recorded to the required standard, and even that the game is voiced by the appropriate (and often well known) local language voice doubles for the original actors that play characters in the game.

The standard geographical distribution of languages for most games is known as EFIGS (English, French, Italian, German and Spanish). Additional languages are added as required by the client, and can sometimes rise to over 10 languages. Economics drives the number of languages, and so the larger the franchise or the market in the target territory, the wider the distribution. The limited success of cross-over games to and from the Far East has tended to limit the number of titles localised into Japanese or Chinese.

The primary client for localisation providers is the publisher, who almost invariably drives the marketing and distribution of games titles. Publishers have to date adopted very varied approaches to localisation: some always outsource, some never outsource, and some only outsource when the volume of work overwhelms their in-house capacity.

Of those who tend to keep localisation in-house, some have large, distributed teams of localisation staff; often these are non-specialists co-opted from local sales and marketing operations to handle localisation. When localisation is handled in-house, the responsibility for localisation is often managed locally, which at times means that individual country or regional operations outsource localisation to multiple specialists. This is often a cost-inefficient and labour-

Chart 14: Global audio and music outsourcing expenditure
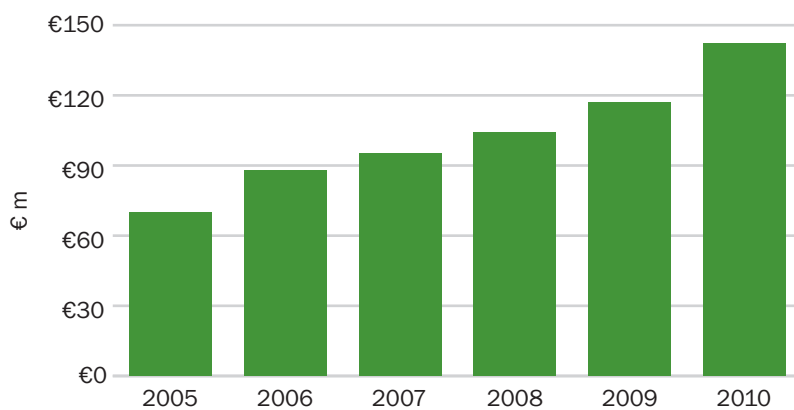
Source: Screen Digest

Global audio and music outsourcing expenditure

	2005	2006	2007	2008	2009	2010
	m	m	m	m	m	m
total (€)	70	88	95	104	117	142
total (USD)	86	109	118	130	146	176

Source: Screen Digest

intensive process that can produce uneven results, and drives up the publisher's costs as its staff juggle multiple points of contact, contracts and deliveries. These problems are further exacerbated by a gradual rise in the number of territories to which and platforms on which an average game is distributed.

These pressures and inefficiencies have given rise to a handful of large, multinational localisation specialists, who provide breadth of coverage, a single point of contact, economies of scale, speed and quality of delivery by maintaining a large number of full-time and freelance staff that can scale up to meet the client's needs. These companies provide services beyond the games industry to traditional media, and subsequently the traditional media post-production companies have begun to show an interest in moving into the games services sector, particularly as this sector is more resilient to the inherent seasonality and hit-driven nature of the games industry as a whole. See Chapter 8 for a more detailed analysis of the impact of new entrants into the outsourcing market.

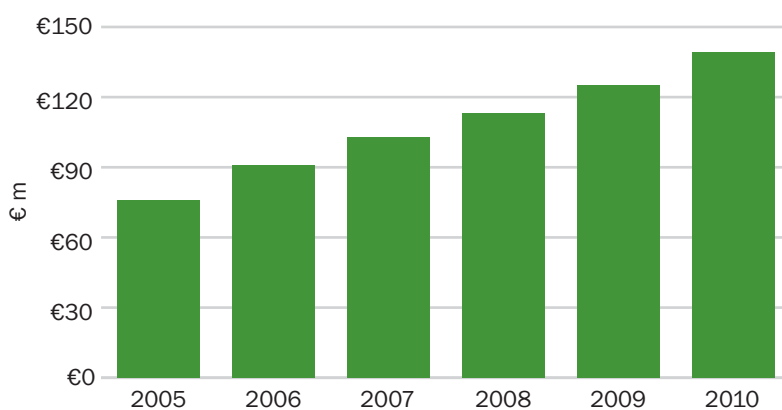## Localisation outsourcing in the next generation

Localisation outsourcing will continue to grow modestly irrespective of the advent of the next generation, largely driven by the proliferation of new platforms and territories. While there is little in the technology platforms themselves that will drive new growth, the overall rise in production costs and scale of next generation games will have a knock on effect on localisation outsourcing. Localisation providers bill by the number of words and languages into which they are required to translate, and therefore larger games equate to larger contracts.

Clients will be forced to stabilise or reduce their fixed cost bases, and will eventually rationalise their entire production process. The duplication, inefficiency and cost of in-house localisation is an easily identified and relatively discrete process that will be externalised by a larger number of publishers as the true costs of the next generation become apparent, and as the margins of the listed publishers are driven down by rising costs. Some of the most sophisticated and client-focused outsourcing companies are to be found in the localisation space. Effectively, this means that by the middle of the next generation cycle, most publishers' in-house localisation will migrate to external providers.

Total global expenditure on localisation is expected to rise in line with production €76 million ($94 million) from 2005 to €139 million ($173 million) in 2010.

Middleware

The use of middleware today

Because middleware has the same effect on studios' fixed costs as other outsourcing disciplines have on the development of games, it is included in this report. In this case, middleware reduces the amount of key coding and technology R&D which frees up internal development resource to focus on other areas.

Middleware is defined as a run-time component that functions in real-time within the game (as opposed to a tool, which assists in the creation of game assets but which does not function in real-time). Therefore our definition includes games engines. Middleware technologies tend to move across the boundaries of such definitions but our definition encapsulates the following broad areas of middleware:

Chart 15: Global localisation outsourcing expenditure

Source: Screen Digest

Global localisation outsourcing expenditure

	2005	2006	2007	2008	2009	2010
	m	m	m	m	m	m
total (€)	76	91	103	113	125	139
total (USD)	94	113	128	141	155	173

Source: Screen Digest

- Rendering – the core technology of a graphics engine that in some cases allows cross-platform development (such as the Quake 2 engine from id)
- Artificial intelligence ('AI') – how non-player characters react to and navigate through the game environment (such as Kynapse by Kynogon)
- Physics – how objects interact with each other and their environment (e.g. PhysX by Ageia)
- Audio – sound processing engines, usually supporting 5:1 sound (e.g. ISACT by Sensaura) and in-game communications (such as voice over internet protocol or instant messaging)
- Animation – a combination of physics and AI that animates characters that interact with each other independently (e.g. Endorphin by NaturalMotion)

Middleware has come a long way since the mid-90s, when the industry paradigm was the full service development studio, and third party technology was likely to be rejected as 'not invented here'. The use of Criterion's RenderWare in the commercially successful Grand Theft Auto 3 and GTA: Vice City, proved that game-play rather than game technology had become the most important factor in game sales. Middleware, despite sporting relatively unexceptional technology, can provide a relatively low-cost but effective alternative to continual internal technology R&D.

Today middleware in one form or another has become a common method for increasing efficiency, reducing time to market and mitigating technology risk within games development. Most publishers and many developers utilise middleware in one form or another, and it already represents a significant expense in the average games budget. Following the Criterion purchase, some publishers have been forced to develop proprietary middleware. In addition, the use of middleware in console manufacturer, and larger publisher and independent studios is reliant on the overall tool base stabilising. Most of these companies have yet to institute strict guidelines on which tools, extensions, and middleware are used for each different project by each different development team. The variety of requirements for these projects makes this task a difficult one for larger games companies.

Middleware in the next generation

Three main drivers for the use of middleware will accelerate its adoption in the next generation.

- Platform proliferation: as platforms proliferate in the next generation and the task of programming these multiple and increasingly different platforms by hand gets more complex, middleware is expected to provide at least a partial solution to these problems, and more importantly help cap porting costs. As discussed in Chapter 2, EA's acquisition of industry leading Criterion Software, producer of RenderWare, was in part driven by the need to enhance its existing cross-platform toolsets and proprietary middleware in the run-up to the next generation. The acquisition also dealt a blow to their competitors, in many cases reducing or slowing their capacity to code for the next generation as they dropped RenderWare as their chosen cross-platform solution.
- Rising research and development costs: the rising cost of internal development of graphics engines is increasingly becoming more difficult to justify as costs rise

Chart 16: Global middleware outsourcing expenditure
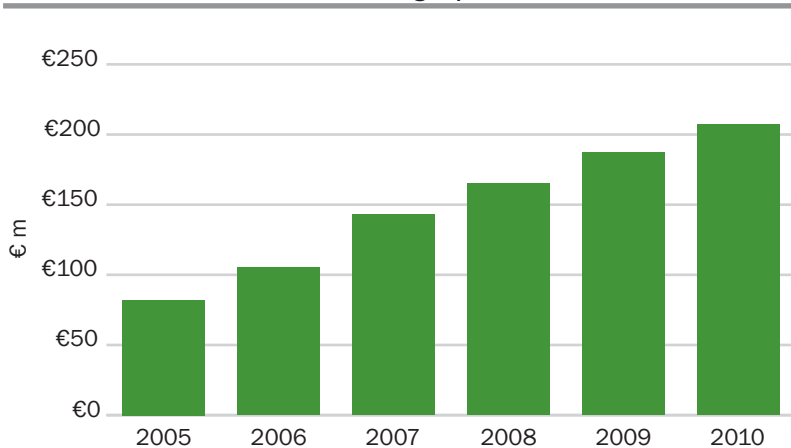
Source: Screen Digest

Global middleware outsourcing expenditure

	2005	2006	2007	2008	2009	2010
	m	m	m	m	m	m
total (€)	82	105	143	165	187	207
total (USD)	101	131	177	204	232	257

Source: Screen Digest