NORWEGIAN MINISTRY
OF CULTURE AND CHURCH AFFAIRS

Report No. 14 (2007–2008) to the Storting

Video games

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Translation from the Norwegian. For information only.

Contents

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Recommendation from the Ministry of Culture and Church Affairs of 7 March 2008, approved in the Council of State on the same date. (Stoltenberg II Government)

1 Background, goals and summary

1.1 Introduction and background

The Ministry of Culture and Church Affairs hereby submits a Report to the Storting on video games.

In the course of just a few years, the international video game industry has grown to become one of the largest industries within entertainment and media. In 2006, sales in the international video game market amounted to approximately NOK 190 billion. By way of comparison, sales in the international market for music records and lawful downloading of music amounted to approximately NOK 217 billion. The international film market sold for approximately NOK 487 billion.

The Nordic video game market is developing fast. Sales amount to approximately NOK 4 billion. By way of comparison, the cinema market is worth just over NOK 3 billion. The video game industry is a relatively young industry where most companies operating today have been established during the period after 2001.

Report No. 22 to the Storting (2006–2007), Veiviseren (The Pathfinder), provides the basis for the present report. The report states as follows:

> "Video games are a medium that has undergone a rapid technological and artistic development, and has become a major cultural expression. Today, video games are primarily played by children and young people, and form a major part of their daily cultural and media consumption, cf. chapter 3. However, adults also play video games, and increasingly greater demands are imposed on the content and technical quality of the games. Today, games are part of the modern technology and knowledge-based culture industry, where there is a Norwegian company at the forefront of the online games sector. There are also a number of small Norwegian companies that supply games of high quality. However, as a result of the large supply of foreign games, coupled with the limited Norwegian market, small companies have little potential to cover their investments in game development in the Norwegian or Nordic market. This particularly applies to originally developed Norwegian games that are not only extensions of concepts established in other media.
>
> There is a considerable need to ensure a supply to children and young people of alternative productions with Norwegian language and content. In 2007, we will begin to see the results of the state grant scheme for development of interactive productions. It is expected that eleven Norwegian video games will be released in Norway in 2007, of which eight are supported by the Norwegian Film Fund. Some of these games will also be released in the Nordic countries. In the view of the Ministry, the grant scheme has contributed to building up and professionalizing the Norwegian industry. There has been an increase in the number of companies, and a separate producer associa-

tion and various networks have been established.

The video game industry is experiencing rapid growth, and there is a need for an increased focus on the development of Norwegian video games. The Ministry will return to the Storting with a separate matter concerning this."

1.2 Main goals

The Government has a vision of Norway as a leading cultural nation that attaches importance to culture in all parts of society. The Government is revitalizing culture and the voluntary sector through targeted measures and general strengthening of artistic, cultural and voluntary work in the fiscal budget. The basis for this cultural focus has been laid through the goal of Kulturløftet [Cultural Endeavour] that 1 per cent of the fiscal budget shall be allocated to cultural purposes by 2014.

Development of video games shall be part of this cultural focus. The video game market constitutes a major and rapidly growing part of the culture and entertainment market. Video games are also a medium that has undergone a rapid technological and artistic development, and are used by an increasing number of people, particularly children and young people. It is therefore important to focus on this cultural expression through a Report to the Storting. Video games provide work and development opportunities to a number of occupational groups within art and culture. They are also a source of pleasure and entertainment for a large number of people in Norway. This sector is therefore an important one.

The Ministry proposes the following goals for state focus on video games:

– Good Norwegian video games of different genres, based on Norwegian language and content.

Video games have become a major part of daily cultural and media consumption of children and young people, and the use of games is on the increase. The market is dominated by imported games. It is therefore particularly important that children and young people have access to games of high quality based on Norwegian language and culture. The ability to ensure this provision is dependent on good support schemes.

– A viable Norwegian game production industry.

As a result of the rising demand for games, the video game industry is a growth industry, which creates new jobs. The Norwegian market is limited, and the companies need good framework conditions in order to achieve continuity and solidity.

– Expertise, innovation and technological development.

Development of video games is a profession founded on creativity, innovation and technical expertise. High quality research and training therefore play a major role in providing the industry with the necessary expertise. Video games may also in themselves be a source of learning and knowledge.

– Safe use of video games.

Certain games contain elements that are not suitable for children. Today, some people use a considerable amount of time on playing video games, and certain games may more easily give rise to dependency than others. Information and consciousness-raising are important measures for ensuring safe use of video games.

1.3 Summary

In *chapter 2,* the Ministry provides an account of video games as a medium, including the historical development and the various genres and types of game. The chapter also contains an account of the development of individual games from the idea stage to marketing. In *chapters 3* and *4,* the Ministry provides an overview of the video game industry, with the main emphasis on game development. The industry is described at national, Nordic and international levels. *Chapter 5* contains a survey of the use of video games in terms of how often users play and the amount of time they use on playing. The chapter also gives an account of attitudes to Norwegian video games, and describes various forms of social use of games. *Chapter 6* provides an account of research and training in the video games field. The Government will conduct a survey of major centres of expertise and of recruitment needs in the video game industry. In *chapter 7,* an account is given of the various support schemes for development of video games at Norwegian, Nordic and European levels. The Ministry proposes maintaining and

strengthening the Norwegian support scheme for development of video games. A support scheme will also be introduced for launch of video games. A public library loan scheme for Norwegian video games will be considered. The Ministry will make active efforts to ensure that the Nordic Games Programme continues according to intentions. The potential for strengthening support schemes for video games by increasing the sectoral levy on the sale of DVDs to include video games will be considered. *Chapter 8* describes certain issues associated with video games: violent content, problematical use and illegal copying. The Ministry proposes strengthening of the information activities of the Norwegian Media Authority concerning safe use of video games. The Ministry also intends to strengthen knowledge concerning the prevalence of problematical use of video games, and will allow for the allocation of proceeds from the Norwegian National Lottery to measures against dependency on gambling games also to apply to measures against problematical use of video games. In *chapter 9,* the Ministry gives an account of the financial and administrative consequences of the proposals presented in the report.

2 Video games as a medium

2.1 Introduction

In this chapter, the Ministry provides a brief introduction to the video game medium from the perspective of history, game genres, production and technology. The various concepts are explained. This, in conjunction with chapter 3, forms the basis of the discussions in the subsequent chapters of the report.

First we will provide a brief introduction to the history of video games. We will then present the various types and game genres. Finally, we will review the various stages of game development and present the various technological platforms used for games. The chapter explains concepts that are usual in game development.

2.2 The history of video games

The history of video games as a medium is relatively short. The first electronic games were developed in research institutions in the USA in the 1950s. These games were not intended for the commercial market, but were only for internal use in educational and research institutions.

The breakthrough for video games as a commercial phenomenon came in 1972 with the game *Pong*, a simple tennis game that was played on special game machines in shopping centres, fun fairs and game arcades. This was followed by a number of games of the same type, and the groundwork was laid for what was to become a major entertainment industry.

Two developments in particular played a central role in the spread of the video game medium to a greater public. Firstly, a number of companies developed game consoles that could be connected directly to a television, From this is derived the term TV games or video games. This simplified use for the majority of people, and resulted in the use of video games in the home. Secondly, it became usual for people to have PCs at home, and home PCs were increasingly used for playing video games.

The game market developed explosively during the 1980s. The market for game arcades died gradually out, and developments were concentrated on the systems in current use: PC games and special game consoles. From the end of the 1980s, game consoles included hand-held machines following the introduction in 1989 of Game Boy by the Japanese company Nintendo.

In pace with the spread of the Internet during the 1990s, a number of games appeared that allowed playing over the Net – so-called online games.

Both PCs and game consoles received increasingly powerful hardware, which enabled more advanced games and better graphic quality. The demand for high-quality graphics has resulted in the game industry driving the development of powerful hardware for home PCs and increasingly technically advanced consoles. In 1994, the Japanese electronics manufacturer Sony launched the console PlayStation, which has sold over 100 million units. After the turn of the millennium, the major participants on the market have increasingly developed new game consoles.

In the 1990s, the game market developed into an entertainment industry of Hollywood format, with increasingly larger budgets and consolidation of the largest stakeholders in game development, distribution and console production. In the development and distribution of video games, a group of American, Japanese and European companies gradually became market leaders. The console market is currently dominated by the companies Sony, Nintendo and Microsoft.

2.3 Types and game genres

In the course of the brief history of video games, a number of different game genres have developed. Games can be classified in genres based on actions performed during play (e.g. “shooting games”), topic (e.g. “football games”), who plays them (e.g. “children’s games”), etc. It may therefore be difficult to find standard definitions of the genres. Moreover, many video games are hybrids of different genres. Table 2.1 shows a simplified overview of the ten best known game genres.

Table 2.1 Overview of various game genres

Action games	Action games often involve steering a character whose intention is to carry out an assignment and overcome obstacles. The assignment may be to wipe out an enemy with the help of various types of weapon. The pace is often rapid combined with dramatic sounds. Such games demand rapid reactions, good eye-hand coordination and tactical skills.
Adventure games	Adventure games place the main emphasis on the story, and the pace is often slower than in action games. The objective is normally to gather objects and solve codes and mysteries in order to advance in the game. Players need to use logical problem-solving skills.
Role-playing Games	In role-playing games, the stories often take place in worlds derived from science fiction and fantasy genres. The objective is that the character shall develop skills, knowledge and powers by solving various types of assignment. The genre is often referred to by the abbreviation RPG.
Strategy games	In strategy games, the emphasis is on the use of tactics and strategy to solve challenges or defeat enemies. They may for example involve building up a civilization or leading an army into battle against another. Games in this genre typically contain elements of trade, resource management and warfare. The goal largely concerns attaining strength and power. Strategy games also contain elements of simulation, role-playing, sport and action.
Simulator games	This genre contains various types of simulation of the real world. These are driving games and sport games. The simulation may be more less realistic. Games demand rapid reactions and good eye-hand coordination as well as tactical skills.
Children's games	There are games designed for children in all genres. The term "children's games" is often used to refer specifically to simple games for the age groups from two to six years and from six to twelve years. Educational challenges, so-called play-and-learn, are a chief element of many of these games.
Puzzle games	This type of game mainly involves solving puzzles. These games do not usually have a story element. They include mathematical and timed problems.
Card and board games	This game genre simulates the familiar and classic card and board games. One can play against the PC or against another player online or on the same PC.
Play-and-learn games	Play-and-learn games are pure educational games aimed at children, young people and adults. Learning content included in such games includes everything from numbers and letters to geography and history.
Platform games	The main topic of this genre is problem-solving. The games involve steering a character from place to place without it falling down a hole, being "killed", etc. This is an old genre, and is the forerunner of the action games of today.

Source: Media Council for Children and Young People, Denmark

Most game genres include both single-player and multi-player modes. A number of games are also connected to the Internet. This particularly applies to strategy games and role-playing games.

2.3.1 Massive Multiplayer Online Role Playing Games (MMORPG)

Massive Multiplayer Online Role Playing Games, abbreviated MMORPG, has become a major genre in recent years. This variation on the traditional role-playing games is played online on the Internet, and has millions of players world-wide. The game manufacturer Blizzard's *World of Warcraft* is currently the world's largest MMORPG, with approximately 9 million players world-wide. In Norway alone as per September 2007, there are approximately 90 000 registered subscribers. The difference between online role-playing games and other types of game is that they take place "live". An ordi-

Figure 2.1 Elias.

The illustration shows a screen picture of the video game *Elias. Operation Lunvik*. The video game on the rescue boat Elias has been developed by the Norwegian company Artplant and released by PAN Vision. Elias is a typical example of simple children's games based on a familiar character from another medium. The film company Filmkameratene AS has produced both a full-length movie and a TV series based on stories about Elias.

Source: Artplant

nary video game can be temporarily interrupted without the action of the game continuing. In an online universe, the action always continues. This factor is instrumental in motivating players to remain logged on for as long as possible. Another important factor is that the player interacts with other players who are online and that players are members of so-called "clans". This motivates players to take part in the game.

2.3.2 Social games

In recent years, we have seen rapid development of a number of social games, such as *Eyetoy, Buzz, Guitar Hero*, and *SingStar*. This is a game genre where the social aspect is of central importance, and the aim is to include all types of players. Social games are well suited for family and friends to play together. With the help, for example, of hand controls and dance mats, it is easy for everyone to join in. This is a rapidly growing game genre.

2.3.3 "Serious Games" and educational games

The games often referred to as "Serious Games" spring from "The Serious Games Initiative" (2002), which focused on the use of video games in public sector administration and management. There is no simple definition of "Serious Games", the genre includes various types of game where the main intention is not to entertain, but where interactiveness and entertainment are a means of achieving other types of goal. "Serious Games" have many similarities to educational games ("play and learn"), but are mainly directed towards a public outside the school sector. "Serious Games" include different game genres, use various different game technologies, and can be developed for different platforms. The old term "edutainment" is regarded today as a subgenre of "Serious Games".

Educational games differ from "Serious Games" primarily by being aimed at the school system. There are several examples of experiments with video games as educational tools at different levels of the school. The Danish company Serious Games has developed the video game *Global Conflicts: Palestine*. Here the pupil plays a journalist covering the conflict in the Middle East. The game gives the pupil an opportunity to experience the complexity of the conflict while requiring him/her to be objective in meeting this situation. This ambitious project attempts to simulate issues from real life. The objective is to encourage pupils to learn by experience, solve problems and actively put together and adapt information and knowledge.

In collaboration with the Education Authority in Oslo, the company World Beside is developing a platform for game-based learning in maths and science subjects. This is a knowledge-based game concept where knowledge acquisition takes place in a virtual world. The game concept is an MMORPG, cf. 2.3.1. The first version focuses on natural science knowledge development in the upper secondary school but in future it will also be possible to use the game concept for areas such as languages, history, social studies, culture and economics.

2.3.4 Machinima

Machinima is a term for various types of film based on the graphics in video games. One can either use scenes created in the original game as a basis or modify the software on which the game is based. Game graphics can be used to create inexpensive animation which would otherwise have required expensive and complex software. The result can be films that resemble music videos, simple animation films, etc. Certain types of machinima also have artistic aspirations.

2.4 Video games – from idea to market

2.4.1 Introduction

Creating a video game is a complex process with many stages and different involved parties. During the period from the original idea until the game is on the market, programmers, graphic designers, musicians, salesmen, marketing experts and many other occupational groups are involved. In this chapter, the Ministry will give an account of the various stages of this process. Since technology is in many ways decisive during the development of a game, the description will take as its starting point the technological conditions for game development.

It is important to stress that this is a simplification of an extremely complex process. The purpose of this survey is to provide readers without special technological expertise with some insight into the development of video games.

Figure 2.2 Concept art from Conan.

The illustration shows drawings of landscape, buildings and details of buildings from the video game *Age of Conan. Hyborian adventures*. The game has been developed by the Norwegian company Funcom.

Source: Funcom

2.4.2 The idea stage

A video game generally begins as an idea. This may be based on entirely new and original characters and stories or may be based on universes derived from other media, such as comics, film or TV. If the latter is the case, the right to use characters, names, etc. is purchased or licensed from those who own the copyright.

The game company may also develop original ideas. In the game industry, this is often referred to as "original IP", where IP stands for Intellectual Property. In the game industry, developing one's own IP can be extremely lucrative, but is also very resource-consuming. The Danish company IO Interactive has done this with great success with its *Hitman* series. This has resulted in their being able to sell the IP on to Hollywood, which has made films about the main character of the game. The Swedish company DICE has also developed an original IP with its *Battlefield* series, while the Norwegian Funcom has chosen to build its next game, *Age of Conan*, on an existing IP.

Right from the idea stage, the game developers must make a number of decisions, such as whether the game shall have multiplayer functionality, which platform the game shall be developed for, who the target group is, etc.

2.4.3 The design phase

The game designer plays a central role in the development of a game. The designers decide the plot of the game, the design of the characters and the environment in the game, the challenges to be faced by the player, how the player is to solve these challenges and what the reward shall be. In the case of the larger games, there are often several game designers with responsibility for different parts of the game, but one person is then the chief designer.

At this stage, the game's manuscript is created. In collaboration with the game designer, game artists then create the visual expression of the game. A game artist draws characters, objects, surroundings, etc. These drawings later form the basis of the modelling, which is done on a computer. Detailed sketches and drawings make the modelling easier. It may also be appropriate to make a so-called shooting script for scenes in the game. The term "shooting script" is derived from the film industry, and involves presenting actions, sections, perspectives, etc. with drawings, like a kind of comic book. The scope of the visualization will vary according to the size of the game (and the budget).

The drawings produced at this stage are referred to as "concept art", and are also used in the marketing of the game. Many game developers therefore place great emphasis on detailed and professionally executed concept art.

2.4.4 Modeller and animator

It is the job of the modeller, with the help of the illustrations created at the design stage, to recreate the characters, the objects and the environment digitally on a computer. This task will vary considerably depending on whether a two-dimensional (2D) or a three-dimensional (3D) game is being developed. 2D games consist of characters and objects in two dimensions, whereas 3D provides the game with depth. The great majority of games developed for consoles today are in 3D but, games for mobile telephones are still usually 2D.

For creating games in 2D, one uses standard drawing software, whereas a 3D-modeller must use more advanced software of the same kind as is used for producing animation films.

3D modelling is time-consuming work. First, a framework of so-called polygons shall be built. Then textures, such as skin and textiles, are added. Finally, lighting is added to the model. As well as being time-consuming, working in 3D is resource-consuming with a view to requirements regarding storage capacity and processing power.

When the model is finished, the animator starts work on it. The animator gives life to the object by creating movements. This is carried out with the same software that is used for the modelling. The animator makes the character run, walk, laugh, shoot, etc.

2.4.5 Sound and music

Sound is a major ingredient of a game. The latest generation of consoles enables games to be created with sound corresponding to that of cinema films (Dolby Digital). Production of sound effects is not influenced by the medium to be used. The process is the same for films and games.

Background noise is important for conveying the mood of the game. Games can also include sound effects to be activated by the player's interaction with the environment. Examples of this are the sound of explosions, footsteps in the snow, glass breaking or someone swimming.

In addition to sound effects, dialogues and monologues in the game are read in by actors.

Music has become increasingly important in video games. Video games now have separate soundtracks that are released on CDs – as in the case of films. Both original music and music by other performers is used. During the launch of the game *Halo 3,* concerts were held all over the world, where music from the game was performed.

2.4.6 Programming

In the description so far, game development has been seen to have a number of similarities with the production of animation films. However, game development differs in the role played here by programming. Programming work is largely dependent on the platform for which the game is being developed. A number of different programming languages are used, the most usual of which is known as C++.

In simple terms, it is the programmer's job to create the interaction between the content of the game (the characters, the environment, the objects, the music, the sounds, the dialogues) and the player's actions. The interface between the real world and the digital world is therefore important. In the case of consoles, such an interface consists of a hand control. In the case of PCs, the interface will be the keyboard, mouse or joystick.

The basic principle of video game programming can be summarized as follows: If event A occurs, event B shall occur, and if A does not occur, C shall occur. An example of this may be that the character in the game falls in the water. Then, A will be "character in water" and B will be "activate the animation: swimming". The alternative to falling in the water may be remaining on land, and then C will be "keep the animation: walk".

As well as programming user-driven events in the game, the programmer can also define the conditions for how the other characters in the game shall behave. Characters not steered by the user, often referred to as NPCs (Non Player Characters), can be given so-called artificial intelligence. In recent years, considerable progress has been made in artificial intelligence. These are extremely resource-consuming processes, particularly when there are many characters in the game. Providing the NPCs with artificial intelligence is important for preventing them from appearing "dumb".

2.4.7 Game engines

As the game industry has matured, the so-called game engines have appeared on the scene. The game engine is used as a basis for creating the game and, in practice, when a game engine is used, much of the programming work has already been done. There is therefore no need for the game developers to start completely afresh when creating a new game.

The advantage of game engines is that they can considerably reduce development costs by

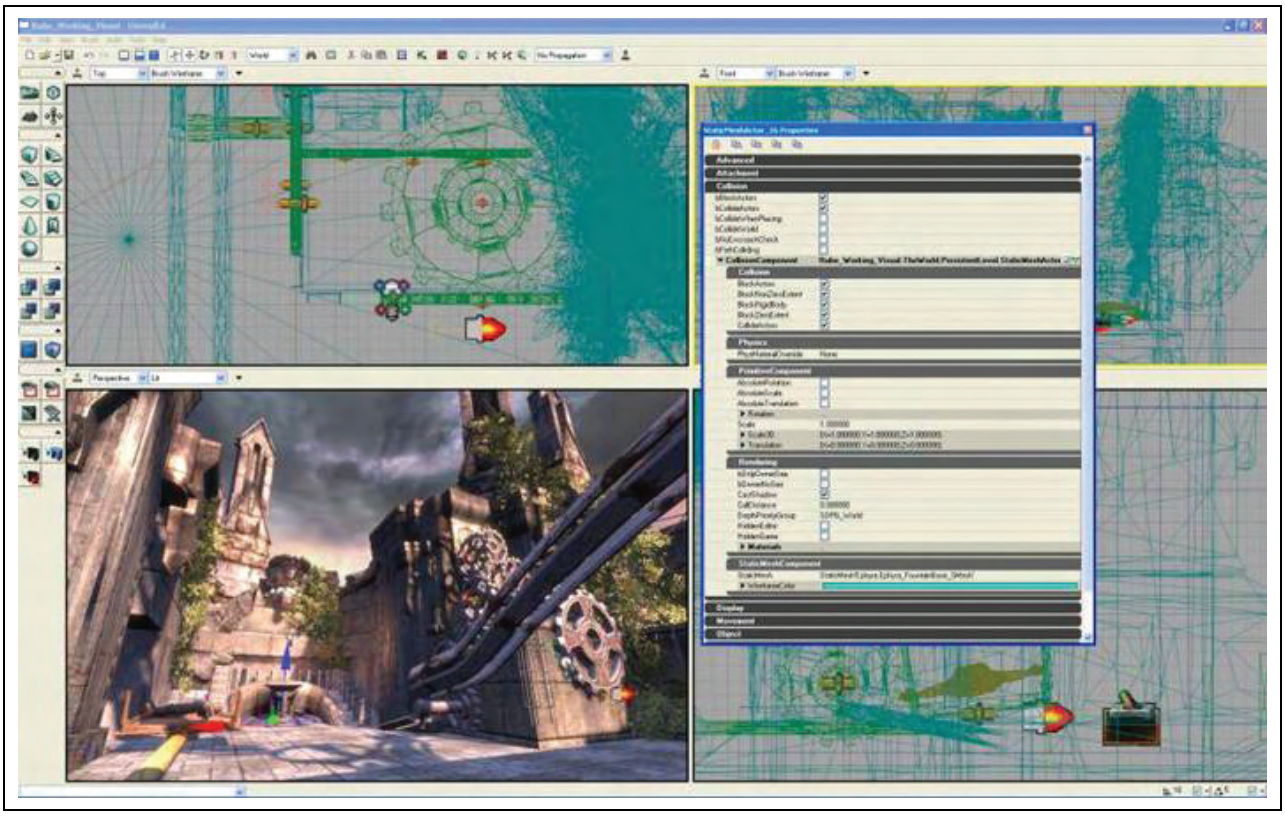

Figure 2.3 Game engine: Unreal engine.

Source: Unreal technologies

reducing the development time. The greatest disadvantage is that game engines do not give the developers full creative freedom. The developers are forced into a system set up by other developers. This has resulted in some game developers only using parts of a game engine while developing most of the game themselves.

One of the most used game engines is Unreal Engine. This is a powerful product that provides game developers with a set of tools for developing games. Unreal Engine contains technology for handling modelling, animation, programming and sound effects. The licence costs vary, but are in the region of USD 700 000 (single payment).

There are also game engines with low licence costs. One of the most well-known game engines among independent game developers is Torque-Game Engine. A licence for this product costs USD 150–750.

2.4.8 Testing

As mentioned above, the programming is carried out in a programming language, resulting in source code. The game may contain several million lines of code. It is therefore not surprising that there may be errors in the code so that things sometimes go wrong when running the game. The errors may lead to unforeseen events, or to the game "crashing". It is therefore important to have a game tested by players before launching it officially.

Such testers are referred to as beta testers. Depending on the size of the game, it may be appropriate to use several thousand beta testers. In April 2007, when Funcom invited people to beta test its new online game *Age of Conan*, the company received 100 000 applications from players who wanted to test the game.

The task of the beta tester is to play the game and report any errors and abnormal events that occur. By having a large beta test group, the developer increases the probability that the game will contain only a minimum of errors when it is launched. If errors are detected after the launch, the game developer usually provides a program that corrects the errors.

2.4.9 Launch

The strategy for the launch of video games has become increasingly important, since the compe-

tition has become keener. The major game companies invest an increasing amount of money on the launch, and one can see clear similarities to the film industry. Shops stay open in the middle of the night for some launches, celebrities are used in marketing campaigns, concerts and competitions are held, and there is often considerable pressure on the media during a launch.

Online games have much a longer lifetime than other types of game. This stems from the fact that in online games the story often has no beginning or ending. The game develops while one plays it, and other players have a considerable influence on what happens. Moreover, extension packages for the game are often launched. For example, *World of Warcraft*, the world's most popular online game, was launched in time for Christmas 2004, but receives considerable attention every time such an extension package is released.

2.5 Technological platforms for video games

The term "platform" is used in connection with games to refer to the basic technology required to play or develop a video game. "Platform" may refer both to computers and peripherals (hardware) and to various types of programs and operating systems (software).

2.5.1 Game consoles

A game console is a computer specifically developed for video games. The game console is connected to an external screen, usually a television. There are also hand-held consoles with built-in screens.

The major companies, Microsoft, Sony and Nintendo have in practice complete control of the console market. They have all launched their own versions of the so-called next-generation consoles, respectively Xbox360, PlayStation3 and Wii. Among the hand-held consoles, Nintendo is the market leader with the machines Gameboy and Nintendo DS. Sony also controls part of the market with its PlayStation Portable (PSP).

A console game developer must decide which console the game is to be produced for. Since consoles and hand-held units have a different type of hardware from the PC (with the exception of Xbox), the programming must be done on a computer with the same type of hardware as the console concerned. Sony, Microsoft and Nintendo all hire out or sell such equipment with the necessary software when the developers are granted a licence to develop games for their console (generally referred to as a Developer Kit). The same applies to hand-held consoles.

It is extremely difficult to be granted a licence to develop console games. The console manufacturers require developers to have extensive experience of game development. In some cases, Nintendo requires developers to have developed games for Nintendo previously. Licences for Developer Kits cost several thousand dollars. This is expensive for developers since they generally require several licences.

PlayStation3 (PS3) is regarded as the most demanding game console to develop games for. This has been a challenge for Sony, since the success of PS3 is entirely dependent on the development of good games for the console.

Microsoft's Xbox360 has an advantage in that development for this system corresponds to the development of Windows-based games (PC). This means that the game developer can release the game both for the PC and Xbox360 without additional costs, thus increasing the market.

Table 2.2 The different generations of game consoles

	Period	Examples of consoles
Generation 1	1972–1977	Pong, Magnavox Odyssey ++
Generation 2	1976–1984	Atari 2600, Emerson, Epoch ++
Generation 3	1983–1992	Nintendo Entertainment System
Generation 4	1987–1996	Super Nintendo, Sega Mega Drive
Generation 5	1993–2002	Sega Saturn, Sony PlayStation, Nintendo 64
Generation 6	1998–	PlayStation 2, Xbox, Gamecube, Sega Dreamcast
Generation 7	2004–	Xbox 360, PlayStation 3, Nintendo Wii

Source: PricewaterhouseCoopers

2.5.2 PC games

There are a number of similarities between developing games for the PC or Mac and for consoles. The biggest difference is that PC developers do not need to purchase a licence for Developer Kit from the console manufacturer. The initial obstacles for game development for the PC are therefore much smaller than for consoles, which makes it easier for small companies to develop games for this platform.

However, licensing of game engines is widespread among PC game developers.

The small initial obstacles combined with a large range of development tools has led to a major growth in the number of independent game developers and hobby developers. "Modding" is a concept that has emerged as a result of this. Modding is modification of games by players when the source code has been made public. The very popular game *CounterStrike* started as a hobby project when two university students modified the *Half Life* game.

Developers of PC games face major challenges because the games are not developed for a single system. By this is meant that there are a number of different hardware suppliers in the PC segment. By way of comparison, game developers for PS3 have no need to take into consideration that the player can use different types of hardware. This challenge can be met by developing games for a platform that is system-independent. Two examples of system-independent platforms are Java and Shockwave.

2.5.3 Online games

Games that can be played over the Internet are defined as online games. Online games exist both for the PC and for consoles. There are three main categories of online games. The first two categories are very similar: Multiplayer games, where two or more players can play at the same time, and Massively Multiplayer Online (MMO) games, which differ from multiplayer games in that several thousand players can play at the same time. The third category of online games is browser-based games, i.e. games played in browsers such as Internet Explorer, Mozilla Firefox and Opera.

In the case of the first two categories, it is usual that the game is purchased on a physical medium (CD-ROM or DVD-ROM). It is also possible to purchase some online games via the Internet, but purchase over the counter is still the most usual. This particularly applies to major titles, such as *World of Warcraft*.

When one has purchased the game, one must register online and create an account in order to be able to play. As a rule, a time-limited subscription (usually one month) is included when you buy the game. If you want to continue playing for longer than this, you must pay extra. A number of the major online games charge players approximately 15 US dollars per month.

The PC platform has been the market leader in the online segment. The console segment has also joined the online bandwagon. Both Microsoft and Sony provide online services enabling players to play against each other (XboxLive and PlayStationNetwork).

2.5.4 Mobile games

A number of developers produce games for mobile telephones. When developing a game, the developer must take into consideration the different types of telephone – a game produced for one type of telephone can often not be played on another. However, mobile telephone games are relatively cheap to develop.

The games are developed for different operating systems and platforms. The two most popular operating systems are Symbian OS and Windows Mobile. Symbian OS is owned by the mobile telephone manufacturers, of which Nokia has the largest shareholding. Sixty-seven per cent of mobile telephones sold in 2006 had Symbian OS. Windows Mobile is the second most popular operating system for mobile telephones with a market share in 2006 of 15 per cent. The operating system is also available for use by Pocket PC and Portable Media Centers such as Creative Zen.

In addition to the operating system, most new telephones today also have technological platforms that shall in theory be independent of the operating system. This means that the programmer can create games based on these platforms without focusing on the operating system itself. It has nevertheless proved necessary for the programmer to test the game in the various telephones in order to ensure compatibility. This increases development costs. The two most relevant platforms in this category are Flash and Java.

There are a number of ways of installing the games in mobile telephones: by loading the game via a PC, from another mobile telephone via Bluetooth or an infra-red connection, by downloading the game directly to the mobile telephone by

sending an SMS message to a specific telephone number or by using the mobile telephone's built-in browser.

2.5.5 Peripherals

Peripherals are not a separate platform, but an element that the developers must take into consideration when creating a game. By peripherals is meant various types of control or steering mechanism that can be connected to the PC or game console. The oldest example is perhaps the joystick, which could be connected to a PC in order to control a game that would otherwise have been controlled by means of a keyboard or mouse. Very advanced peripherals have now become available: separate steering wheels and seats for car games, pistols for shooting games, etc.

In recent years, it has become very popular to develop games based on peripherals. Dance mats can be connected to PlayStation or Xbox, simulated guitars are used in the *Guitar Hero* game and microphones are used in *SingStar,* a game that has sold extremely well in Norway and has been released in a number of editions.

2.6 Summary

In this chapter, the Ministry has provided a description of the video game medium from the perspective of history, game genres, production and technology. Video games emerged as a mass medium in the 1970s, and up to the present day have developed to become a major entertainment industry. During this period, the game medium has become increasingly advanced in pace with technological developments. Production and distribution of games and game consoles is dominated by large international stakeholders.

Like films and other media, video games have developed a genre system based on the games' content and functionality. This genre system is relatively stable. A major genre during recent years has been role-playing games via the Internet.

Development of video games is a technologically and artistically demanding process, involving a number of different professional fields, from game designers, game artists, modellers, animators, musicians and programmers to testers and marketing experts.

Video games are developed for different technological platforms. The most important of these are the PC, the various consoles, online, and mobile telephones.

3 The structure and economy of the video game industry in Norway

3.1 Introduction

In this chapter, the Ministry gives a presentation of the video game industry. This is done by briefly describing the general characteristics of the video game market and then providing an account of the stages of the value chain. In connection with the value chain, the Ministry will provide a description of the structure of the Norwegian industry.

3.2 General characteristics of the video game market

Although the video game industry is relatively young, competition is keen. The success of industry stakeholders is dependent on a number of factors, and these vary somewhat between the various markets. National success factors, for example, differ somewhat from international success factors. In the following, the Ministry discuss some of the most central success factors for Norwegian game developers.

The quality of the game is of decisive importance. The game must have a good story, be fun to play (playability) and be well crafted as regards graphics, sound and music. The balance between good graphics and story/playability varies considerably. An increasing number of games focus more on playability than on graphics, particularly following Nintendo's success both with the new game console Wii and with the hand-held console Nintendo DS. It is also decisive that the game does not have many errors. A product that is released with technical errors will quickly lose the interest of the users, not least when there is keen competition from other game developers, cf. 2.4.8.

The keen competition in the game industry results in increasingly bigger demands from users. Experienced users generally expect a game to have something new. The largest international game successes have been games that were regarded as innovative when they were first released. This applies for example to the *Battlefield* series, *Halo, Grand Theft Auto* and *Metal Gear Solid*. These games have in different ways renewed the genres to which they belong.

A proper launch and well functioning distribution are major success factors. Despite the fact that digital technology has opened up a number of new possibilities, access to a good distribution channel and a well marketed launch will be decisive.

Being the first out with new game concepts has proved decisive for a company's success. The developer is forced to keep the development time as short as possible, which may impair the quality of the product. Striking a balance between development time and product quality is therefore important in the game industry, as in system development.

The game industry is largely a knowledge-based industry, and access to qualified manpower is therefore decisive. As regards manpower, game development companies are in competition with companies in other industries. For example, good programmers are generally in short supply. The competition for manpower is a challenge not least in Norway, since the petroleum industry can easily outperform game companies with regard to pay conditions for designers and programmers.

As in all other industrial sectors, the success of game developers depends on succeeding in attracting capital. The Norwegian company Funcom is listed on the stock exchange, and has attracted various types of investor. Both large and small stakeholders in the Norwegian capital environment have therefore gained a certain experience of the video game industry, which may make it easier for game developers to obtain capital.

3.3 Participants in the video game market

The Ministry will describe here the various links of the value chain. The value chain in the video game market, cf. figure 3.1, provides the basis for

Figure 3.1 The value chain of the video game industry.

Source: PricewaterhouseCoopers

an overview of the most important participants and of how the market functions. The various links of the value chain will also form the basis for an account of the participants and economy of the Norwegian video game industry. The account of the links "publisher" and "developer" supplements the account in chapter 2, which describes the technical development of video games.

As regards the console segment, the console manufacturers also influence the value chain at an early stage. The reason for this is that the console manufacturers demand a licence fee for each game sold, and games developed for their platform are subject to their approval.

3.4 Publisher

In the international game industry, the publisher and the developer are generally the same concern. For example, the large American game publisher Electronic Arts (EA) owns a number of development companies that develop games based on licences EA has obtained. The publisher is responsible for licensing the rights and the concept on which the game is to be based. Large publishers/developers also handle both the marketing and distribution themselves. However, small developers normally use a distributor.

In Norway, there are currently no pure publishers in the traditional sense. Pan Vision was such a publisher before the company decided recently that it would no longer continue with this type of activity. However, there are companies that, in addition to other activities, wish to have games developed based on rights they already own. NRK and Pinjata are examples of such companies.

3.5 Developers

Several of the Norwegian game developers started as companies that developed games on contract. This means that the companies were engaged by a publisher to develop games. Today, the great majority of developers are independent game companies that develop games based on their own rights, and publish the games themselves. Most Norwegian game companies can thus be regarded as both publishers and developers.

Figure 3.2 Concept art from Age of Conan.

The picture shows concept art from Funcom's game *Age of Conan – Hyborian adventures*. Funcom is the dominant company in Norwegian game development. In autumn 2007, the company had 280 employees in five countries. The administration and development department is located in Oslo. Funcom focuses mainly on development of Internet-based games (MMORPG, cf. 2.3.1), but has also launched adventure games, such as *Dreamfall* and *The Longest Journey*.

Source: Funcom

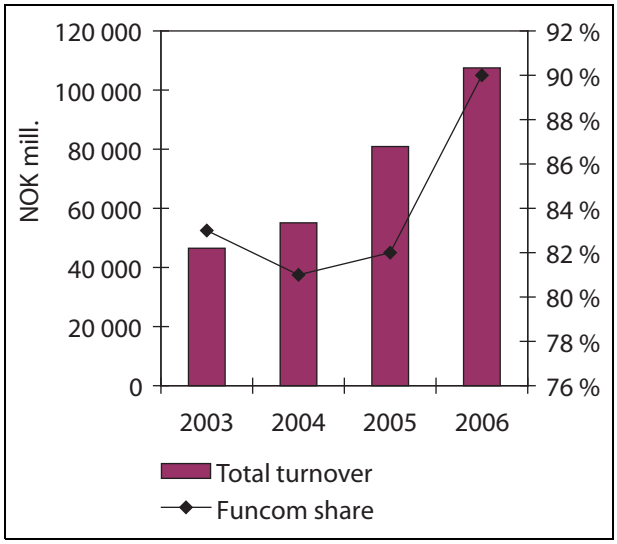

Figure 3.3 Sales by Norwegian game developers.

Source: PricewaterhouseCoopers

3.5.1 Game developers in Norway

Figures from the Norwegian game developers show that their total sales have increased by 131 per cent since 2003. In 2006, sales were in excess of NOK 100 million. As long as the Norwegian video game industry has existed, the company Funcom has dominated the market. In 2006, the company accounted for altogether 90 per cent of the total sales. Figure 3.3 illustrates these two characteristics of the Norwegian market.

Several of the Norwegian game developers are members of Spillprodusentforeningen [Norwegian Game Producers' Association], which was founded in 2002. The association is an interest organization for Norwegian companies that produce video games for all formats for entertainment purposes.

Table 3.1 shows an overview of game developers that are members of the Norwegian Game Producers' Association.

The sales figures are drawn from the official accounts of the companies, and do not provide a complete picture of activities. In addition to the game development companies that are members of the Norwegian Game Producers' Association, there are a number of companies that have games as their main business, and various small, newly started companies. The table nevertheless gives a good picture of Norwegian game developers. The company Funcom dominates both in relation to sales and the number of employees, while the other game development companies have a limited number of employees and little sales. It must however be noted that the sales figures tend to fluctuate from year to year since significant income is only generated in years when new games are launched. This applies to all of the companies. It is therefore important to build up a portfolio of titles and to develop business operations in order to ensure the stability of the companies. This can for example be done by means of various types of contract. Access to public funds will also be of major importance for the liquidity of the smaller companies.

3.5.2 Geographical distribution

The great majority of game developers are located in the Oslo area. The same applies to distributors and publishers. Geographical distribution of game developers is illustrated in figures 3.4 and 3.5.

Table 3.1 Financial key figures for members of the Norwegian Game Producers' Association

Company	Established	Sales 2006 in NOK 1000s	Number of employees	Platform	Games (examples)
Funcom	1993	96 870	173	PC, online, console	Dreamfall, Age of Conan
Capricornus	1999	4 683	1	PC	Flåklypa Grand Prix (three versions)
Artplant	2001	4 078	10	PC	Captain Sabertooth, Elias
Skalden	2003	557	4	PC	Bubbins
Inludo Studios	1993	432	-	PC	Ragnar Rock
Ravn Studios	2002	205	10	PC, console	Englekræsj, Snakeball
Minimedia	2005	1 006	2	PC	Ungene i gata
Brilliantly Blond	2006	-	2	PC	Polarkameratene

Source: PricewaterhouseCoopers

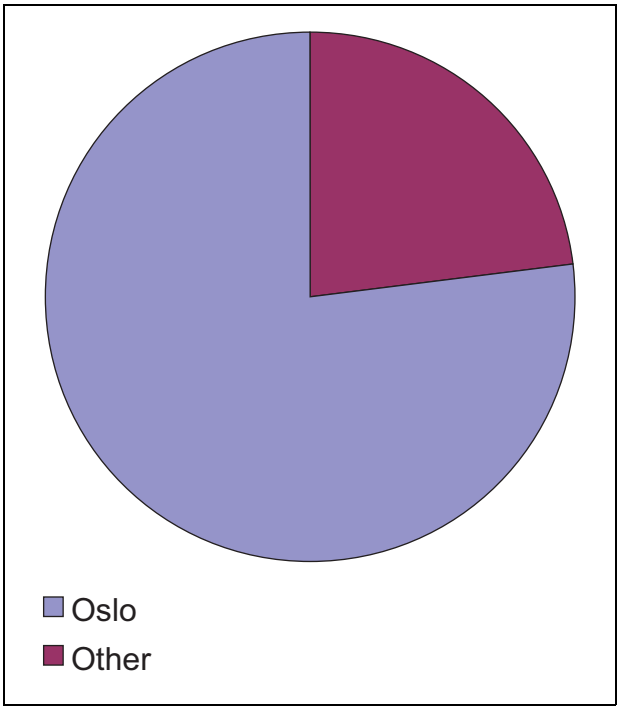

Figure 3.4 Companies in game development. Geographical distribution.

Source: PricewaterhouseCoopers

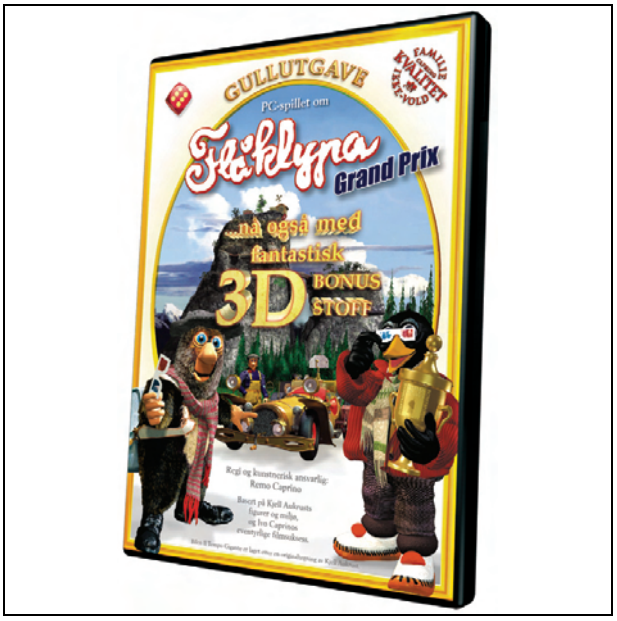

Figure 3.6 Flåklypa Grand Prix.

The game *Flåklypa Grand Prix* was developed by the company Capricornus, on the basis of Kjell Aukrust's characters and the film of the same name. 270 000 copies of the game have been sold in Norway.

Source: Capricornus

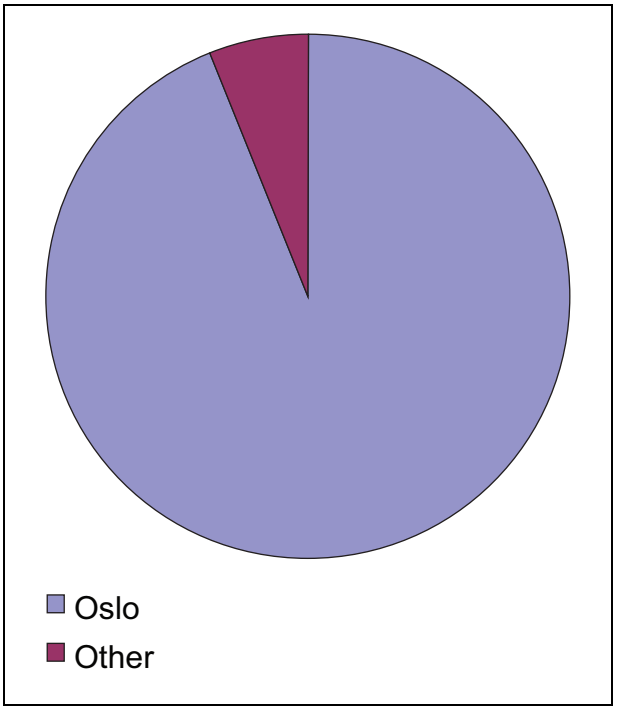

Figure 3.5 Employment in game development. Geographical distribution.

Source: PricewaterhouseCoopers

The figures show that, regarding both the number of companies and the number of employees, the game development industry is concentrated in the Oslo area. The heavy dominance of this area in employment is due to the fact that Funcom is located in Oslo, cf. table 3.1.

3.5.3 Public stakeholders

Among stakeholders, there are two state-owned companies: the Norwegian Broadcasting Corporation (NRK) and Norsk Tipping AS (the Norwegian National Lottery). Neither of these two companies regards video games production as its core area, but they operate as purchasers or publishers. The Norwegian National Lottery's game activities consist primarily of gambling games, where the participant pays a deposit and can win a money prize. Such game activities fall outside the scope of the present report.

Through its subsidiary NRK Aktivum, the NRK administers the rights to a number of content concepts. For example, a video game has been produced on the basis of NRK series such as *Jul i Blåfjell* and *Linus i Svingen*. The NRK also produces simple games for its web pages. NRK P3 in particular has used this form of alternative content on the web pages of some of its radio pro-

grammes. Most of these simple games are produced internally. When the NRK needs more advanced productions, the company purchases services from game developers.

NRK P3 has just launched a video game portal[1] offering editorial content concerning video games. This portal may in time be further developed as a distribution channel for video games. In connection with its focus on children, the NRK uses simple video games to market various programmes. This applies mainly to licensed products from abroad (for example from the BBC), but games have also been developed on the basis of the NRK's own productions.

3.6 The Distributor

The job of the distributor involves marketing the game, handling packaging and transport and in some cases providing user support. The international publishers sometimes function as distributors for small game developers. In such cases, the distributor owns no rights to the product, but helps in making it available on the market.

[1] www.nrk.no/spiller.

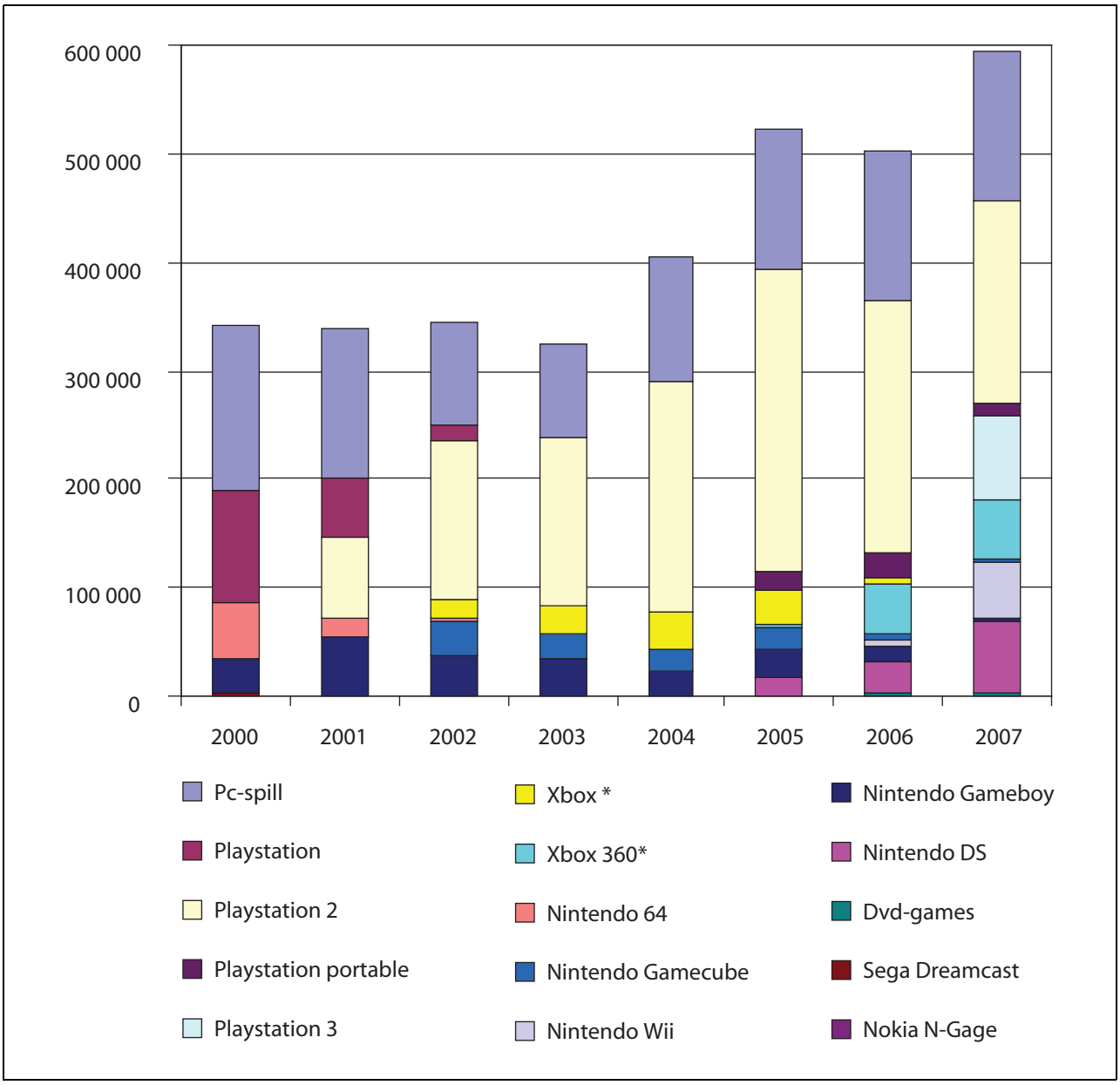

Figure 3.7 Sales by members of the Norwegian Association of Game and Multimedia Suppliers. In NOK 1000s.

* Microsoft does not release figures for its own game titles

Source: Norwegian Association of Game and Multimedia Suppliers

In the foreign game industry, the companies that are both publishers and developers also distribute their own games. Independent game development companies can have their games distributed by one of the large publishers/developers. Since the large companies are primarily interested in promoting their own games, it may be unfavourable for independent game companies to make such agreements. This has led to the establishment of small distribution companies, which specialize in distribution of games developed by independent game companies. Digital technology has also made it easier for developers to distribute their games via the Internet, and thereby lower the barriers for entry into this link of the value chain.

Like most other national game markets, it is the large international game companies that dominate the Norwegian distribution channels. These companies are represented through their own subsidiaries.

Other international game and machine manufacturers establish collaboration agreements of an international or regional character. For example, distribution of games and hardware in Scandinavia for Sony and Nintendo is handled, respectively, by the Danish company Nordisk Film and by the Swedish Bergsala.

There are also Nordic companies that are exclusively involved in distribution. The Danish KE Media and the Swedish Pan Vision, both of which distribute international and Nordic video games, are examples of this. The Norwegian company Norsk Spill Distribusjon AS has been established as a counterbalance to the large companies in order to promote games produced in Norway. Through the website godespill.no, they distribute the children's games produced in Norway.

3.6.1 The sale of video games by Norwegian distributors

The Norwegian association Spill- og Multimedia Leverandørforening [Norwegian Association of Game and Multimedia Suppliers] (NSM) is a trade organization for Norwegian manufacturers and distributors of PC and console games. The association was established in 1998, and has the following members: Atari, Bergsala, Caprino Videogames, Electronic Arts, Microsoft, Nordisk Film, Ubisoft, Pan Vision, Vivendi Universal Games, KE Media and Norsk Spill Distribusjon. Since 2000, the association has compiled surveys of the wholesale sale of games by members of the association (with the exception of Microsoft, which does not release figures for its own titles). The surveys show the distribution between the various technological platforms. No surveys have been compiled of market shares distributed by country of origin, but the market share for games developed in Norway is assumed to be less than 1 per cent.

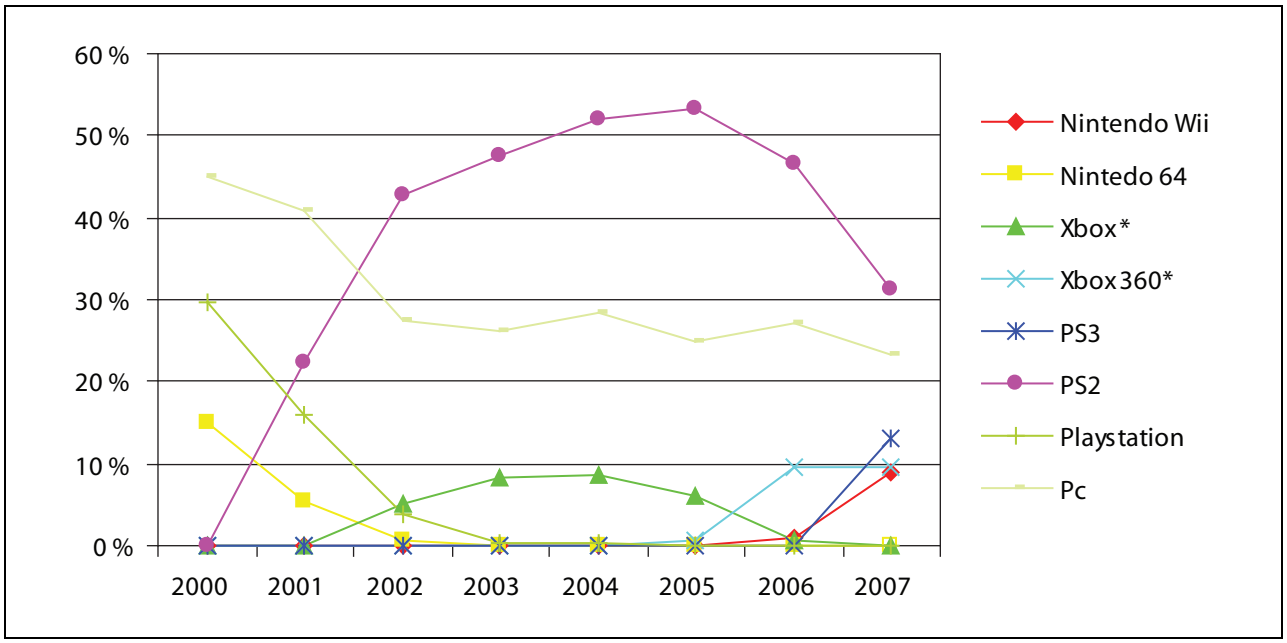

Figure 3.8 Market share of the various platforms 2000–2007.

* Microsoft does not release figures for its own game titles

Source: Norwegian Association of Game and Multimedia Suppliers

Figure 3.7 shows that sales have almost doubled since 2000, from NOK 342.9 million in 2000 to NOK 593.8 million in 2007. Sales were fairly stable until 2003, but have shot up in recent years. This is probably associated with the introduction of new consoles. Figure 3.8 shows how the various platforms such as PlayStation, PlayStation 2 and Xbox 360 are phased in and out of the market. The market share shown for Xbox is somewhat lower than it is in reality, since Microsoft does not release figures for its own game titles for the platform. Otherwise, the figure clearly shows how new platforms capture market shares on introduction, and how older platforms are phased out. The only platform with sales throughout the whole period is PC games. The figure shows how the market share for PC games has fallen heavily. This may be due to illegal copying, which encourages more companies to focus on developing games for consoles.

An important factor in the market is the market penetration of the various platforms in units sold. Figure 3.9 shows the penetration of newer consoles in the Norwegian market, with the exception of Xbox. The figure shows that Nintendo is dominant in the market for the hand-held platform, while Sony's PlayStation 2 dominates with considerable penetration of the console market. Microsoft's figures are not available.

3.7 Sales channels

The Internet has made a number of new sales channels available. Video games can be sold via ordinary net trading, where the customer receives the game in the post or downloads it. The customer can also play games directly on the Internet, for example, in a browser (so-called browser-based games). However, most games are still sold over the counter.

It is usual to distinguish between traditional (offline) and digital (online) sales channels. Online sales channels have helped to lower the barriers for small game developers. Game developers can now distribute their games on the Internet without needing to be associated with a distributor. Although the digital technology provides opportunities for new ways of distributing games, the distribution process is nevertheless resource-demanding for small game developers. The game must be marketed, a payment solution must be chosen, the security aspects of illegal copying must be considered and, if the game is not to be sold via downloading, it must be packaged and made ready for dispatch. It is not sufficient just to make the game available on a website and expect that people will buy it.

Very few online sales channels offer digital downloading of games. The usual procedure is to

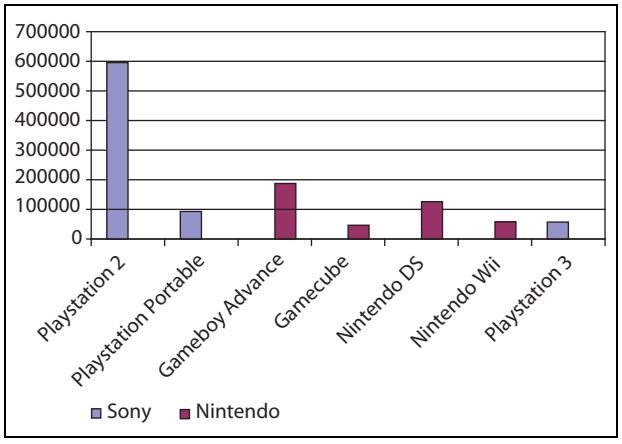

Figure 3.9 The market penetration of consoles in Norway on 30.11.2007 (number of units sold).

Source: Norwegian Association of Game and Multimedia Suppliers

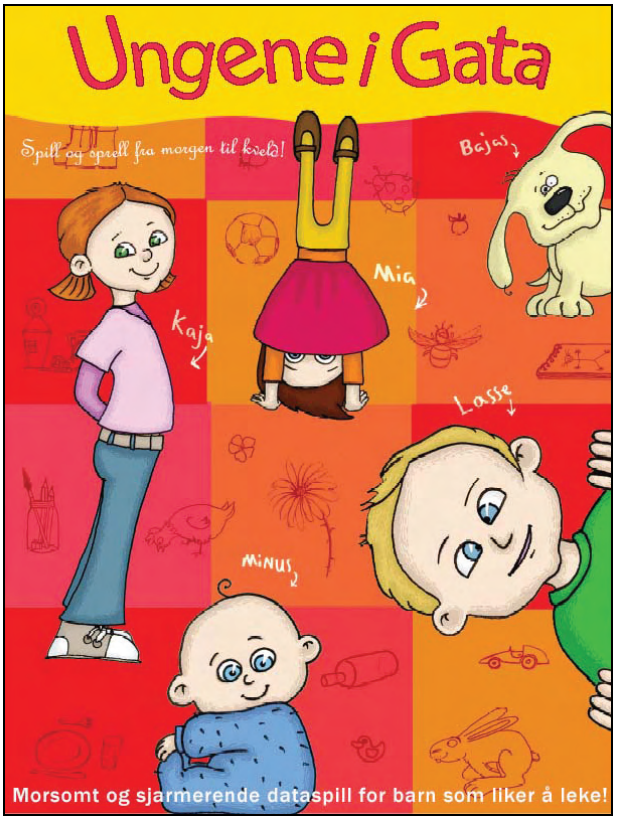

Figure 3.10 Ungene i gata.

The game *Ungene i gata* has been developed by the Norwegian company Minimedia. Minimedia is a typical example of small Norwegian game developers who produce simple children's games for the PC platform.

Source: Minimedia

provide access to ordinary net trading whereby the customer orders the goods online and receives them in the post. There are many such net shops, both Norwegian and foreign. Most chain stores also offer net trading.

The game console manufacturers provide good sales channels for game developers who have achieved a position where they can develop games for these platforms. Microsoft sells games via Xbox Arcade and Sony sells via its PlayStation Network (PlayStation Shop).

Online games have their own business model. In the case of such games, it is usual that players must pay a monthly fee to be able to play. This provides an income to the game company in addition to the income from sales of the game. Such games may also derive an income from the sale of objects that can be used in the game (these can also be sold between players) and from advertising placed in the game universe. Advertising and product placement can also be found in offline games.

Mobile telephone games can be sold in a number of ways. The customer can for example send a code word to a specific telephone number (code words and telephone numbers are often marketed in newspapers and weekly magazines), download the game to a PC, and then transfer it to a mobile telephone or download it directly to the mobile telephone via the telephone's built-in browser. When the game is sold in this way, it is paid for either via the telephone bill or by credit card.

A number of websites offer free browser-based games. Examples are the Norwegian websites 1001spill.no and elitespill.com.

As mentioned above, the great majority of games are sold over the counter, i.e. through traditional sales channels. In pace with the increasing interest in video games, the interest for distributing video games has also increased. In the same way as the number of points of sale for videos of cinema films has increased enormously over the years, the availability for purchase of video games over the counter is expected to increase in future.

3.7.1 Sales channels in Norway

Traditional counter sales of games in Norway take place in three types of shop: electronics chains, multimedia shops and specialist shops. Games are also available over the counter in some supermarkets and sales outlets such as post offices. Since the large electronics chains and multimedia shops dominate the Norwegian market, distributors experience strong pressure on prices.

In recent years, business models have also been developed in Norway for the sale of games via the Internet. The Norwegian company ESP Group has focused on subscription-based game services, which they refer to as SoIP. The company holds distribution rights for over 500 game titles. The ESP Group has signed agreements with Telenor, VG, Dagbladet and RTL for supplying game services to their portals.

3.8 End users

Customers have been given a number of options as regards the various types of hardware, game products (genres and user interfaces) and availability (online and offline). The purchase of games is largely dependent on the hardware used by the end users. When end users have chosen a platform (console or hand-held) and have invested in the necessary hardware, it would involve additional cost for the user to transfer to another platform. The choice of hardware mainly depends on factors such as price, quality and available content.

Some game media are originally intended for other uses. This applies both to mobile telephones and to PCs. Some other hardware is primarily intended for video games, but has added other services, such as DVD player, connection to the Internet, etc. This applies increasingly to newer game consoles.

For more information, see the account of the use of video games in chapter 5.

3.9 Summary

In this chapter, the Ministry has provided a general introduction to the video game market by means of a brief description of the links of the value chain and the chief success factors.

The review of the value chain shows the structure of the video game industry. The range comprises large companies, which control all of the links from idea development until the game is in the homes of the end users, and an organizational network where each link consists of independent stakeholders. The increasing prevalence of online games and online distribution is influencing the

structure of the value chain. For example, lower barriers to market entry are a consequence of the latter. The Norwegian game development industry is dominated by one large company: Funcom. The other companies are relatively small.

4 The international video game industry

4.1 Introduction

In this chapter, the Ministry will give a presentation of the Nordic video game industry.

In order to illustrate the importance of the industry, we describe finally developments in the sales of video games on the world market, partly by drawing comparisons with other media industries. The video game industry is international, and the various international markets are of varying size and structure. The Ministry has limited the scope of the account to the markets that have most international significance, those of the USA, Asia and Europe.

4.2 The Nordic video game market

The Nordic game market is currently in a growth phase. Counter sales already amount to over NOK 4 billion. By way of comparison, sales in the Nordic cinema market are worth just over NOK 3 billion.

Figure 4.1 shows figures for counter sales of video games, i.e. excluding online games and mobile telephone games in the different Nordic countries.

Sweden constitutes the largest game market in the Nordic countries, with annual sales amounting to approximately NOK 1.4 billion as against approximately NOK 1.3 billion in Denmark. The Norwegian market, with sales of approximately NOK 0.7 billion, is only half the size of the Swedish. The Finnish market is NOK 0.54 billion and the Icelandic market is the smallest at NOK 0.08 billion.

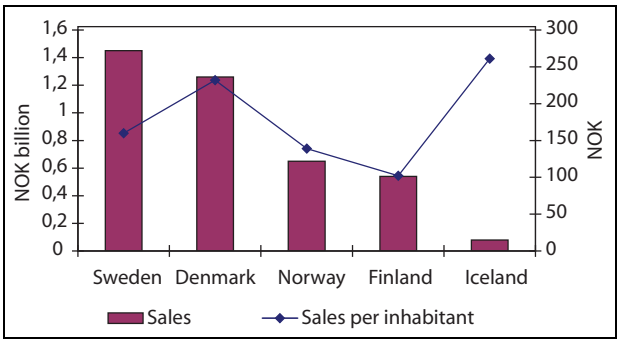

Figure 4.1 Counter sales of video games in the Nordic countries (2006).

Source: PricewaterhouseCoopers

It is also possible to read out of the Icelandic figure that Iceland consumes most video games per inhabitant. Average sales per inhabitant in Iceland are approximately NOK 260. Sweden and Denmark consume approximately as much per inhabitant.

Consumption per inhabitant is relatively low in Norway, which is in fourth place with sales of approximately NOK 140 per inhabitant.

4.2.1 Video game developers in the Nordic countries

In the following, the Ministry will describe the Nordic game development industry. The purpose of this is partly in order to enable comparison between the structure of the industry in the four Nordic countries. In this connection, it is important to examine how consolidated the industry is. One expression of this is the stability of the companies, in terms of the duration of the companies' operations. Figure 4.2 shows when the largest development companies were established in each of the Nordic countries.
In all of the Nordic countries, most companies still operating were established between 2001 and 2005. This gives a picture of an industry strongly characterized by relatively newly established companies. On the other hand, all of the largest companies were established prior to this period. With the exception of Sulake, which established itself in the online segment in 2000, the largest companies were established prior to 1998.

The large companies represent a considerable proportion of the total sales in their respective home markets. For example, five of the largest companies in Sweden accounted for 79 per cent of sales in 2006. The large companies develop their own technology and invest considerable resources in this. The companies have considerable significance for the development of the video game industry in the home market, and function as locomotives in innovation and recruitment of fresh talent. With the exception of the Danish IO Interactive, the largest Nordic companies now focus on the online segment.

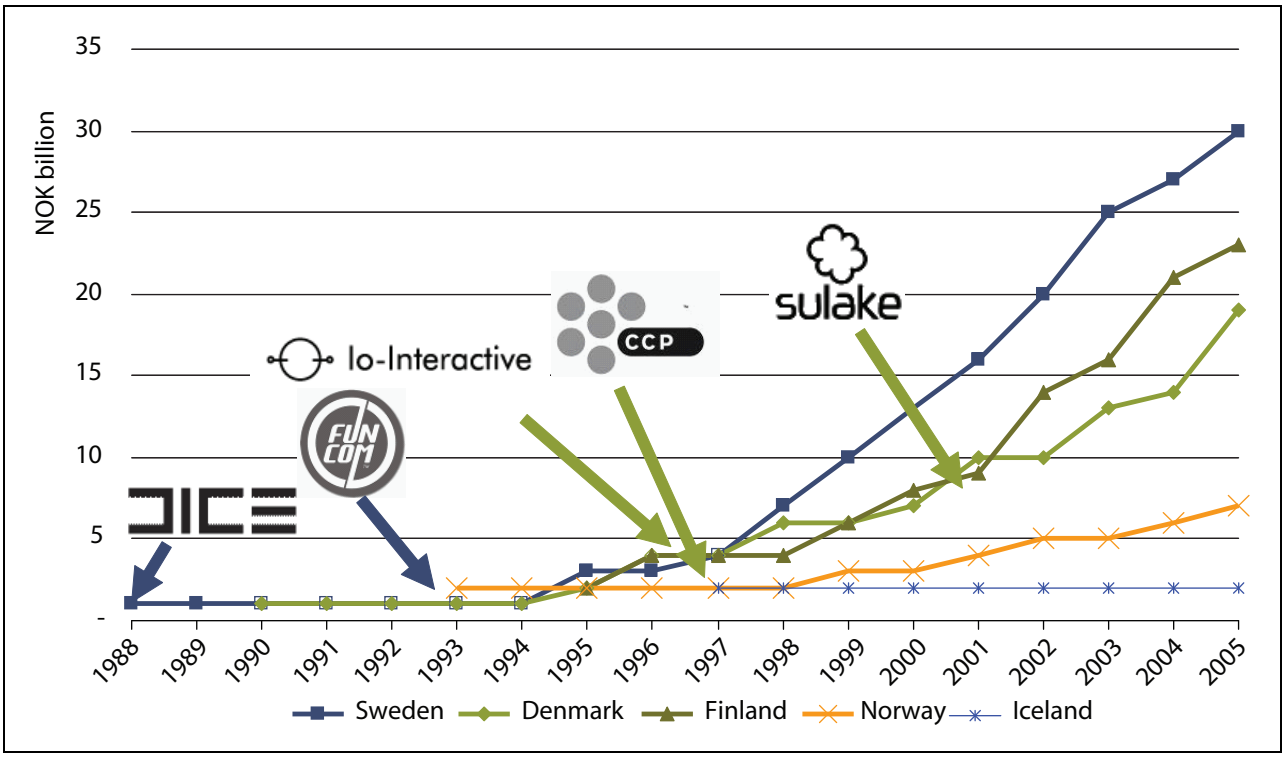

Figure 4.2 Date of establishment of game development companies still operating. Nordic countries.

Source: PricewaterhouseCoopers

4.2.2 The number of employees in the development companies

Figure 4.3 gives a picture of the structure of the Nordic market. Since the markets are not especially large, the basic data is somewhat limited. The figures nevertheless clearly indicate that Norway differs from the others. In Norway, just over two-thirds of the companies have no more than five employees. In addition, Norway has no medium-sized companies. This indicates an immature industry. By way of comparison, the other Nordic countries have more even distribution, i.e. companies of all sizes.

4.2.3 Sweden

The Swedish game industry is the most mature of those in the Nordic countries. This is reflected, among other ways, in the existence of a number of companies that function as suppliers to the established game developers. These are companies that can either perform part of the development work or can supply technology such as game engines.

Stockholm and Malmö are the main areas in the Swedish game industry. However, the participants in the Swedish market are scattered geographically. Some of the participants are attached to educational and research institutions at Swedish universities and university colleges.

The Swedish game industry has been characterized by takeovers and mergers, particularly during the period 2000–2003. Figure 4.4 shows the historical sales figures of companies still operating. In 2006, there were 30 game development companies, which represented total sales of NOK 524 million and employed 691 persons.

Most companies develop PC and console games. In 2002, the two largest mobile telephone game developers were taken over by the content supplier Aspiro, which is one of the largest suppliers of mobile telephone content in Northern Europe.

DICE is the oldest of the large game companies in the Nordic area. It was established in 1988 by two students at Växjö University. In 2000, the company took over Refraction Games and 90 per cent of Synergenix Interactive. The takeovers continued in 2001 with the takeover of Sandbox Studios, which is a company based in London. However, in November 2004, DICE itself was taken over by Electronic Arts. In 2006, the company, which has 218 employees, had sales amounting to NOK 206 million.

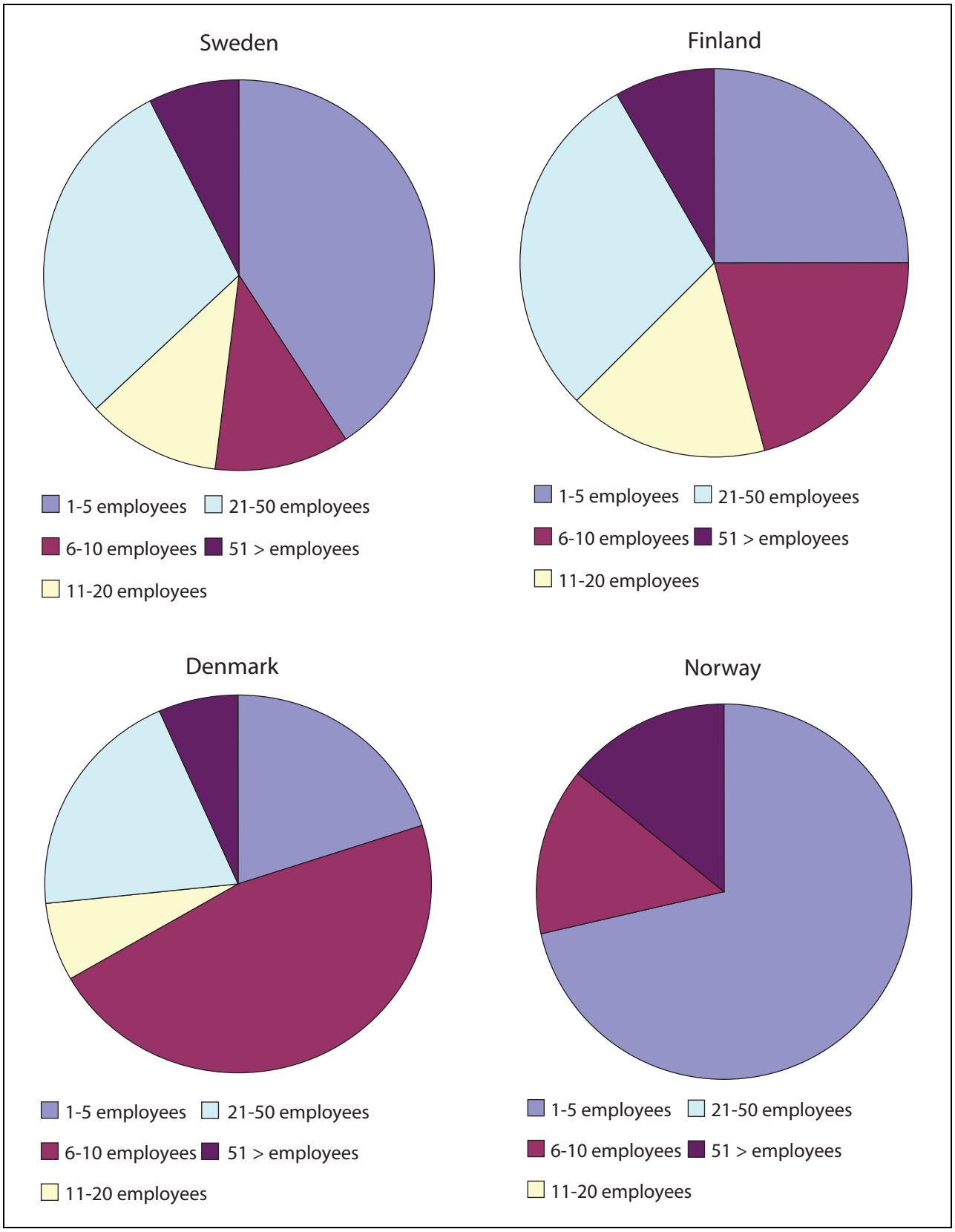

Figure 4.3 The sizes of development companies in the Nordic countries.

Source: PricewaterhouseCoopers

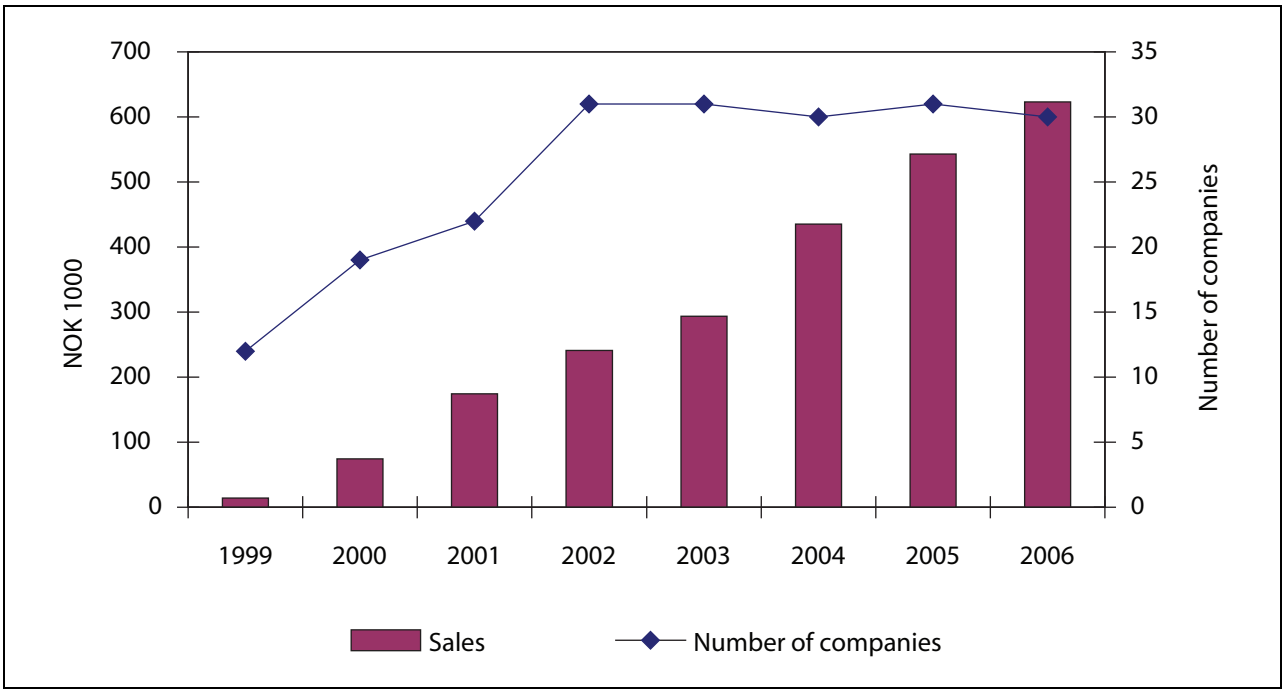

Figure 4.4 Sales and the number of game developers in Sweden.

Source: PricewaterhouseCoopers

4.2.4 Denmark

In Denmark, almost the whole environment for game development is centred in Copenhagen, with the exception of a small community in Odense. There are also individual companies in Århus and Ålborg. One of the reasons that there are or have been game companies in these three regions is that the universities of Ålborg, Århus and Copenhagen all offer training in the production of video games.

The Danish company IO Interactive was established in 1997 and, in 2006, had sales amounting to NOK 108 million and had 142 employees. The company has sold a total of 8.8 million units of video games world-wide, and has achieved considerable success with the popular *Hitman* series. The *Hitman* story has been sold to Hollywood, where a film has been made about the mysterious hired assassin. IO Interactive has also developed its own game engine, which is used for its games.

4.2.5 Finland

The great majority of game development companies in Finland are located in Helsinki and Espoo. The first companies were established in the middle of the 1990s, but most were established after 2000. Over half of the Finnish game companies develop games for mobile telephones, which is atypical in the Nordic context. Two companies develop games exclusively for hand-held consoles.

Sulake is Finland's largest video game company. It was established in 2000, and is responsible for the biggest online success in the Nordic countries, *Habbo Hotell*, which is an online game that draws elements from social gaming and net chatting.

In 2006, Sulake's sales amounted to nearly NOK 500 million and it had 300 employees. This makes Sulake by far the largest company in the Nordic area, and illustrates the potential income that lies in the online segment.

4.3 The international video game market

4.3.1 Video games in relation to music and films

In the space of a few years, the video game industry has grown to become one of the major industries of the entertainment and media sector. Figure 4.5 shows the historical sales figures in the video game, film and music markets up to 2006, with forecasts for further developments in the coming five years.

The model shows that sales in 2006 amounted to approximately NOK 190 billion in the interna-

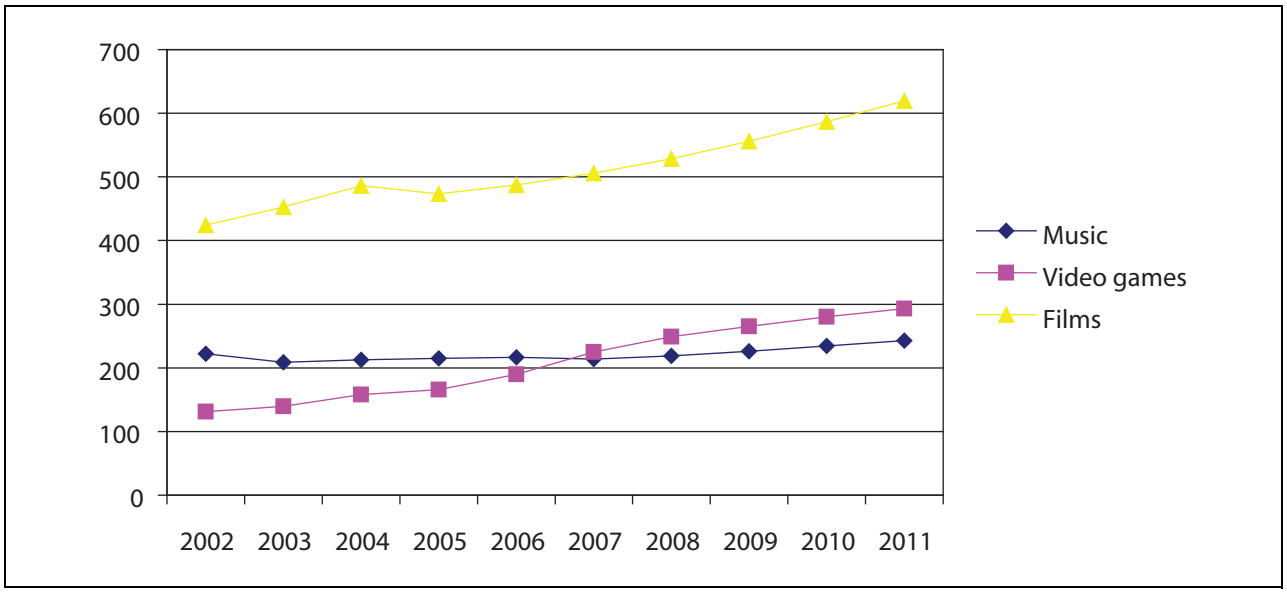

Figure 4.5 Sales of music, video games and films in the international market 2002–2011.

Source: PricewaterhouseCoopers

tional video game market. The introduction of new game consoles and the use of net-based games resulted in a global increase in the video game market of 14.3 per cent from 2005 to 2006. An average annual growth of approximately 9.1 per cent has been forecast for the period from 2007 to 2011. This involves sales of approximately NOK 294 billion in 2011.

By way of comparison, sales of music records in the international market, including legal downloads, amounted to approximately NOK 217 billion in 2006. As a consequence of a higher annual growth, it was estimated that video games would exceed sales in the record industry during the course of 2007.

As shown in figure 4.5, the film industry, with sales in 2006 of approximately NOK 487 billion, is more than double the size of the video game industry. This is largely due to DVD sales and TV income. If the size of the film industry is based on cinema box office alone, the video game industry is larger than the film industry.

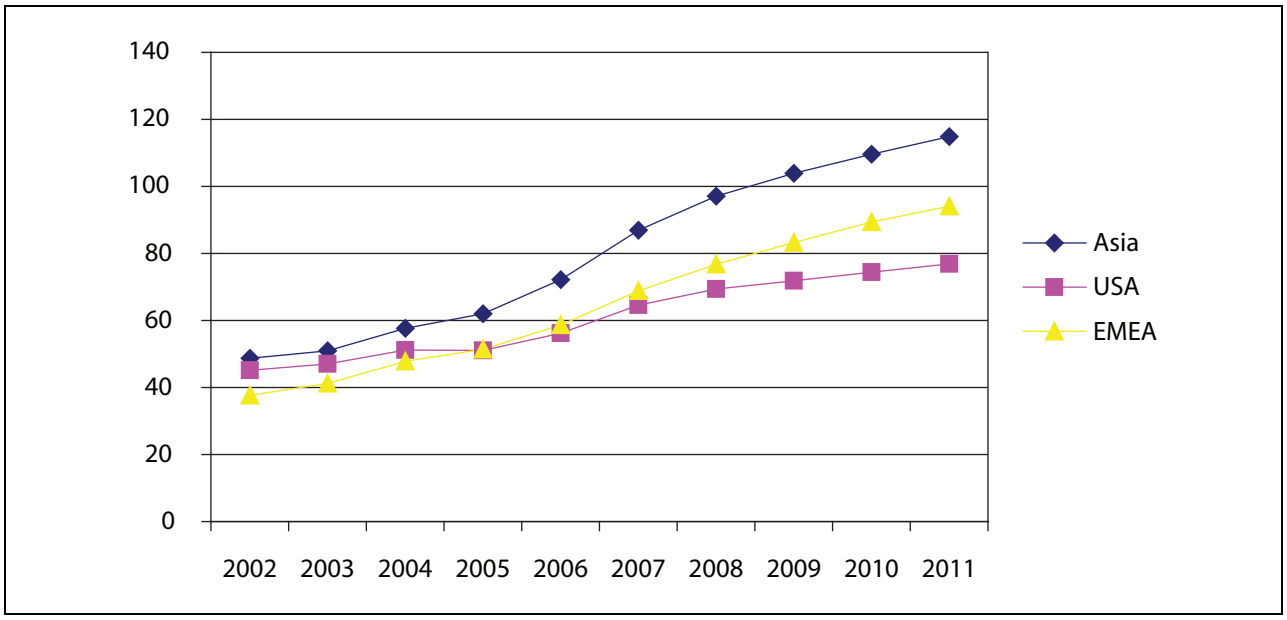

Figure 4.6 Market size and growth distributed by region. Amounts in NOK millions.

Source: PricewaterhouseCoopers

4.3.2 The Development of the international video game market

Asia, Europe and the USA have the largest markets for the sale of video games. Figure 4.6 shows the development of the three markets with a forecast for the development during the next five years. 2007 is expected to be the year with the keenest growth in percentage in most national markets. This is mainly due to the introduction of new game consoles.

Asia (including Australia) is the region with the largest sales. In 2006, sales amounted to approximately NOK 70 billion and sales in 2011 are forecast to be approximately NOK 113 billion. This represents an annual growth of approximately 10 per cent.

Europe, South Africa and selected countries in the Middle East (abbreviated to EMEA) were the second largest region in 2006 with sales of approximately NOK 56 billion. On the basis of an annual expected growth of 10.2 per cent, sales will increase to approximately NOK 92 billion in 2011.

The USA is the largest national market with sales in 2006 of NOK 54 billion. This is forecast to increase to NOK 75 billion in 2011, which involves an annual growth of approximately 6.7 per cent. This is somewhat lower growth than in the other markets.

4.3.3 Game platforms in the various markets

Figure 4.7 shows historical figures and estimated development in international game sales by platform during the period 2002–2011. In addition to the various technological platforms, this includes figures for developments within advertising in games.

Internationally, the growth of the console market has been influenced by the introduction of an increasing number of more sophisticated consoles. Growth is expected to flatten out from 2008.

PC games that are not online are losing market shares. This segment has also been facing major challenges associated with illegal copying. Although the market for PC games is falling, new operating systems and other technological improvements may check this fall somewhat.

Online games account for the largest growth in the market. Much of this growth can be explained by the increased broadband penetration and the availability of online services for consoles. Moreover, online games for the PC are far more difficult to pirate. Game manufacturers are therefore launching an increasing number of online games for the PC.

The fact that the new consoles are equipped with connection to the Internet may be expected to contribute to growth of the online market.

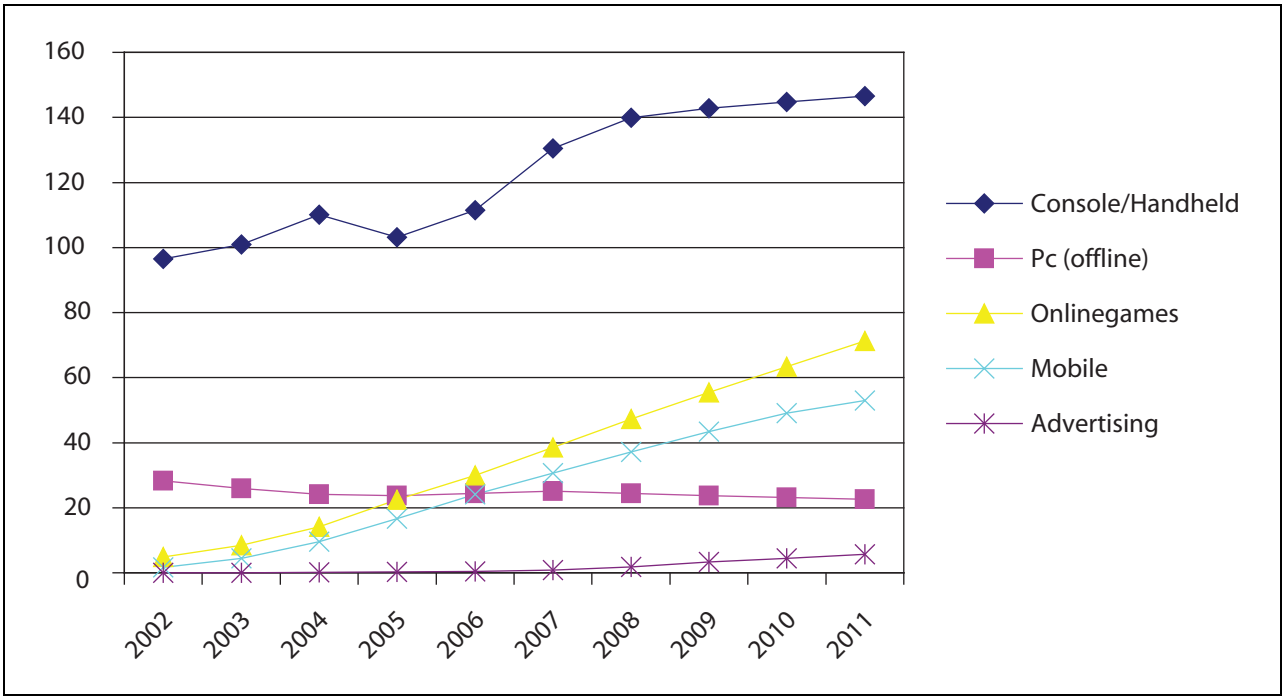

Figure 4.7 International game sales by platform during the period 2002–2011.

Source: PricewaterhouseCoopers

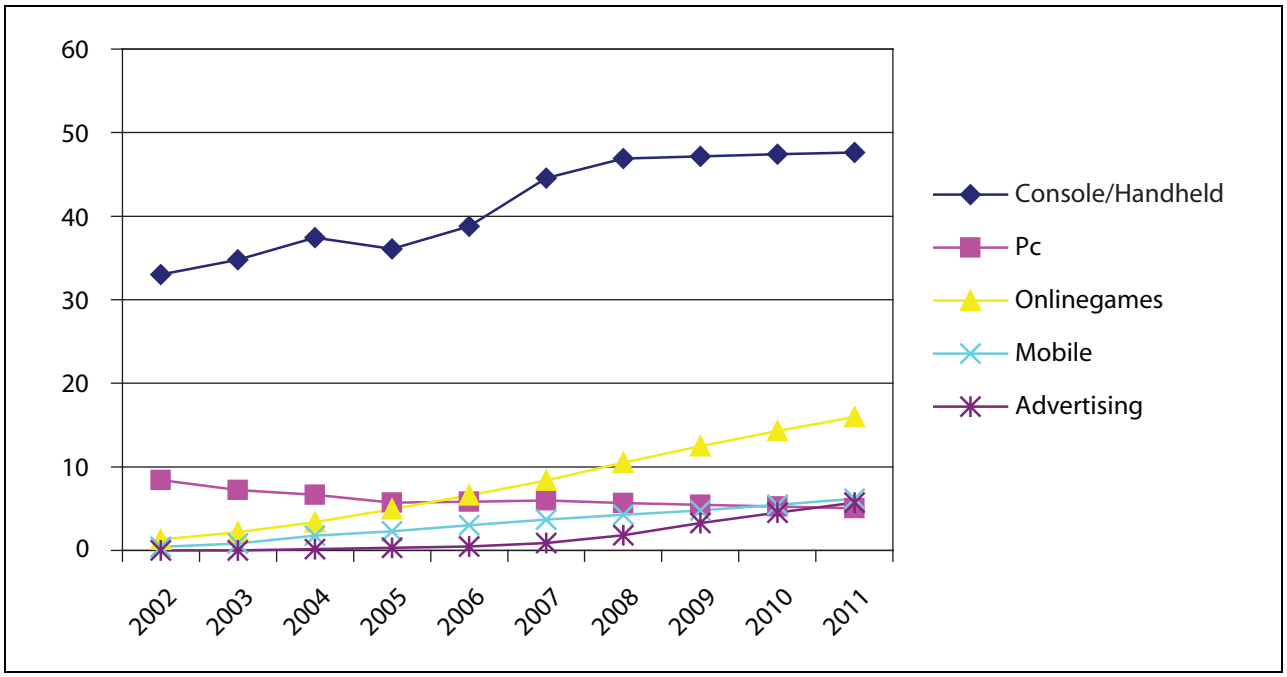

Figure 4.8 The USA. The development of the various platforms 2002–2011.

Source: PricewaterhouseCoopers

Greater broadband penetration and access to increasingly greater bandwidths are also conducive to the use of online games.

Mobile telephone games too have shown keen growth in recent years. This growth is expected to continue. The expansion of the 3G mobile telephone network contributes to this growth.

Advertising in games in the form of advertising posters and product placement has grown in pace with the great popularity of video games. Technological developments also play a role here. The games have acquired better graphics and the potential to make continuous changes to advertising in online games.

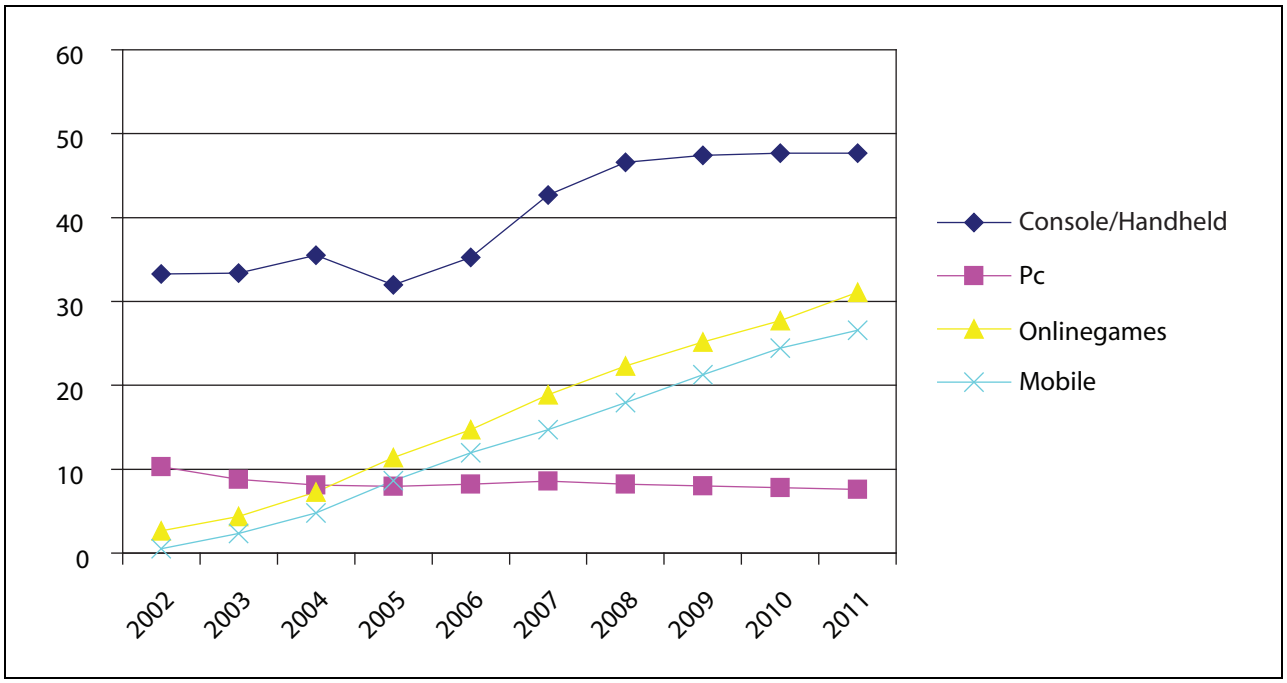

Figure 4.9 Asia-Pacific. The development of the various platforms 2002–2011.

Source: PricewaterhouseCoopers

The USA

As mentioned above, the USA constitutes the largest single market in the game industry with sales in 2006 amounting to NOK 54 billion. Figure 4.8 shows the historical development of the various platforms in the American market and provides forecasts for future development.

The market differs somewhat from the world market in that the console and hand-held market is in process of maturing, and a reduction in growth is therefore expected. As early as 2005, there was a fall in this market. However, the market has rallied owing to the launch of next-generation consoles and upgrading of established consoles.

Development of the market for mobile telephone games has moved more slowly in the USA than in many other markets and regions. While mobile telephone game units occupy a larger segment than PC games in most markets, they are not expected to outdistance PC games before 2011 in the USA. This is largely due to the fact that the USA has not progressed as much in its expansion of the 3G mobile telephone network as the other markets (Europe and Asia).

Online games are the segment of the American market that is showing rapidest growth. During the period from 2006 to 2011, an average growth of 19.3 per cent per year is forecast.

Figures are also available for advertising in games in the American market. In 2006, sales from this market amounted to nearly NOK 0.5 billion.

Asia

The area referred to as "Asia-Pacific" includes Asia with the exception of the Middle East, but including Australia and New Zealand, and is the region with the largest sales in the video game market. In 2006, the sales in this market amounted to approximately NOK 70 billion. Figure 4.9 shows the development of the various platforms in the Asian market.

The console and hand-held market constitute the leading segment. This segment is expected to stagnate in 2008. This is largely because the consoles increasingly allow games to be played online.

It is forecast that PC games will fall steadily in the region. In this segment too, the consumers will probably move to online products. Parallel to this, high growth is expected for online games and mobile telephone games in pace with the expansion of broadband and the 3G mobile telephone network. This will particularly apply to the heavily populated market of China.

Japan is the world's second largest national market with sales of NOK 28.8 billion in 2006. Two of the largest manufacturers of consoles and hand-held game machines, Sony and Nintendo, are located in Japan.

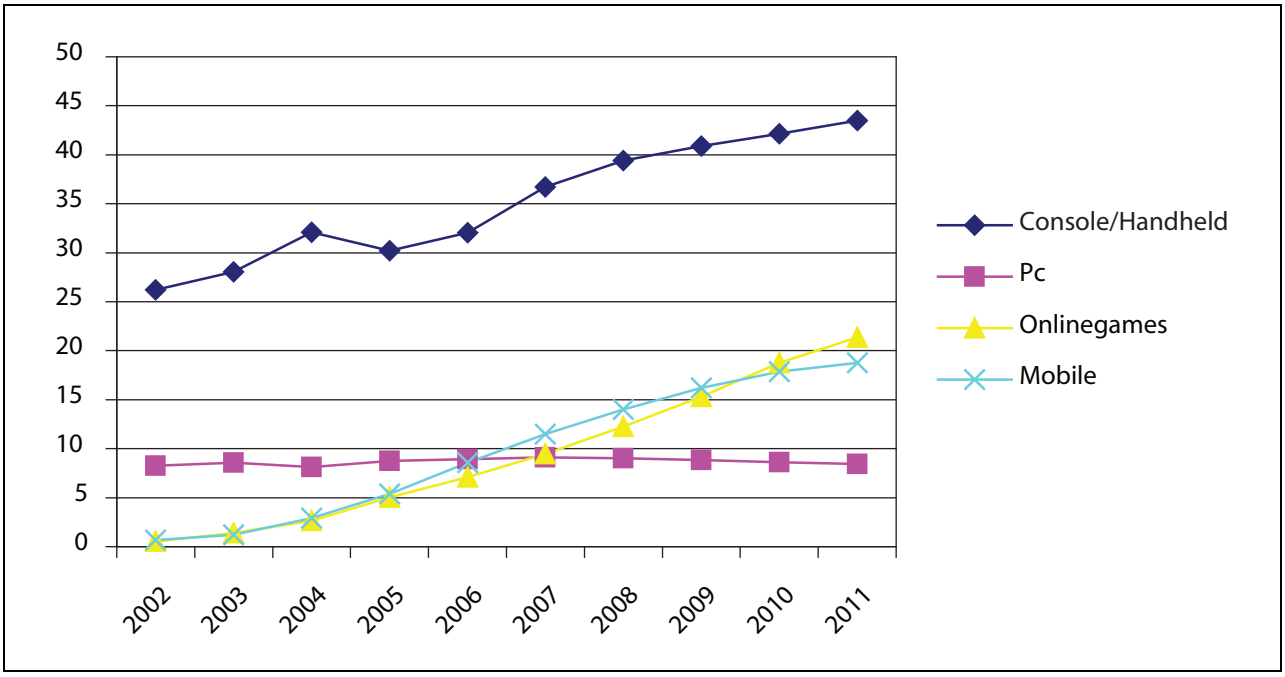

Figure 4.10 Europe (EMEA). The development of the various platforms 2002–2011.

Source: PricewaterhouseCoopers

Another large market in the region is South Korea with sales of NOK 18 billion in 2006. Owing to the major penetration of broadband, online games occupy the largest segment of this market.

In China too, online games are the dominant segment according to the registered figures. It is larger than the three other segments together but, according to PricewaterhouseCoopers, this is mainly due to widespread illegal copying of other games. In 2006, sales in the market amounted to NOK 6 billion. The country has the highest expected growth rate in the region at 14.3 per cent.

Europe

The statistics for Europe include Europe, South Africa and selected countries in the Middle East (EMEA), but are regarded as descriptive of the European market as a whole. Here continued growth is expected in the console market. On the other hand, the market for PC games remains relatively stable.

In Europe, the mobile telephone games market is larger than the market for online games. This is due to the early expansion of the 3G mobile telephone network and the use of advanced telephones, and to the fact that it mainly uses a common technological platform. Not until 2009 is it expected that the market for online games will outdistance the mobile telephone games market.

The UK is the largest market in Europe and the world's third largest national market with sales amounting to NOK 16.8 billion in 2006. Germany is the region's second largest market with sales of NOK 12.6 billion in 2006. In the German market, unlike the other markets, the PC segment is the largest. France is the region's third largest market with sales amounting to NOK 9 billion in 2006.

4.4 Summary

The Nordic video game market is developing rapidly. The Swedish market is the only national market showing signs of maturing. In all of the Nordic countries, most companies still operating were established during the period between 2001 and 2005. This gives a picture of an industry strongly characterized by relatively newly established companies. On the other hand, all of the largest companies were established prior to this period. Moreover, the largest companies account for a considerable share of the total sales in their respective home markets.

In the USA, the use of games for hand-held units is not so developed as in other parts of the world. This is a consequence of the slower development of the 3G mobile telephone network in the USA compared with other countries. In Asia, the 3G mobile telephone network is rapidly expanding. The consequence of this is that use of pure PC games in this area will probably die down, while the use of games for mobile telephones and hand-held units will probably flourish. It is assumed that this will particularly apply to China. In Europe, early development of the 3G mobile telephone network and large sales of advanced telephones have provided the basis for extensive use of games designed for mobile units.

5 Use of video games

5.1 Introduction

In this chapter, the Ministry provides an overview of the use of video games. We will first present general statistics on the players, distributed by age and gender. We will then present figures showing how often the various groups play and how much time is spent playing games.

Statistics will also be provided for financial conditions associated with the purchase of video games and indicating which technological platforms dominate among players. Finally, we will present a separate study associated with knowledge of, use of and attitudes regarding Norwegian video games.

The statistical material in this chapter focuses on children and young people, who constitute the main target group for the Government's policy in the area of video games.

The chapter is based on a number of sources. An important source is surveys conducted by Synovate (formerly MMI) on contract from the Norwegian Film Fund. Statistics have also been obtained from TNS Gallup and from Statistics Norway's publication Norwegian Media Barometer 2006.

5.2 Who are the players?

The general conception of a "video game player" is a young boy. This is a conception that the video game industry has attempted to modify. A number of American reports attempt to depict the average user of video games as a responsible adult, cf. figure 5.1. For example, statistics from the American trade association Entertainment Software Association (ESA) show the average age of a "video game player" to be 33.

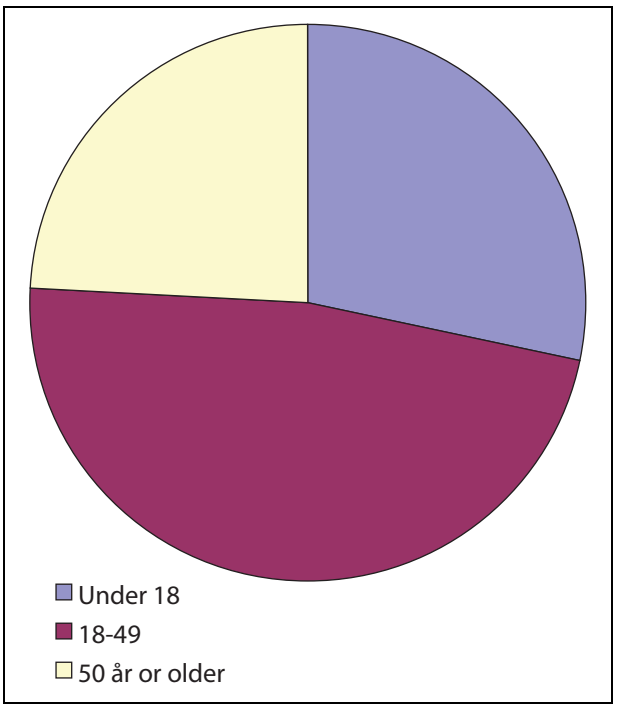

Figure 5.1 Age distribution of video game players.
Source: Entertainment Software Association, USA

The statistics do not clearly show how this average has been arrived at, but it is probably based on everyone who states "I play video games ". By asking the question in this way, it is possible to arrive at an average of 33. However, this is a somewhat one-sided interpretation. If we base the statistics on frequency of play, the picture is quite a different one. All Norwegian surveys show clearly that the frequency is greatest among children and young people. This is, for example, shown by the figures in Statistics Norway's Norwegian Media Barometer for 2006, cf. table 5.1.

The typical video game player is thus seen, on the basis of this definition, to be much younger than 33. The figures in the ESA survey are conse-

Table 5.1 Distribution by age of users of video games on a random day (2006)

Age	9–12	13–15	16–19	20–24	25–44	45–66	67–79
Per cent	51	39	22	19	8	5	5

Source: Norwegian Media Barometer 2006, Statistics Norway

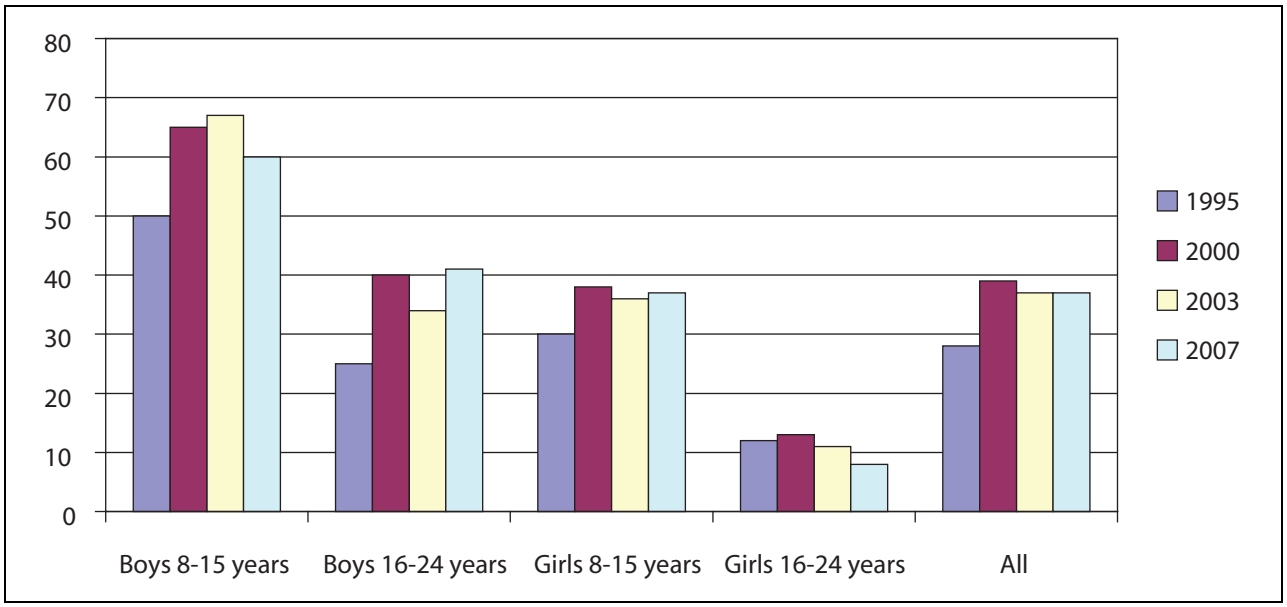

Figure 5.2 Use of video games on a random day 1995–2007. 8–24 years. Expressed as percentages.

Source: Synovate

quently hardly based on frequency. The following presentation gives a more detailed account of frequency of use and time spent on using video games, distributed by gender and age.

5.3 How often do people play?

5.3.1 The age group 8–24 years

The above presentation provided an overview of which age groups play video games most frequently. Other interesting factors in this connection are distribution by gender and whether the frequency has increased over time.

Synovate has measured the media habits of children and young people over a number of years. One of the main questions in the survey is whether one has used a specific medium on a random day ("did you use … yesterday?"). Figure 5.2 shows the results for the video game medium during the years of 1995, 2000, 2003 and 2007.

The use of video games on a random day showed a marked increase from 1995 to 2000, and rose from 28 per cent to 39 per cent in the category "all". Use has remained quite stable during the period 2000 to 2007 at approximately 37–39 per cent. In the age group 8–24 years taken as a whole, four out of ten use video games on a random day.

Figure 5.2 shows clearly that it is boys aged 8–15 who play most often. Sixty per cent of all boys in this age group had played video games on a random day.

At the other end of the scale, we find girls between 16 and 24. Here the proportion who have used video games is extremely low, only 8 per cent in 2007. This clearly shows that video games are a medium with considerable variations of use in relation to gender and age.

An interesting characteristic of these two groups is that use has fallen in both of them. Among boys, use has fallen by seven per cent, which is not dramatic, but breaks the trend seen in previous year of increasingly more frequent play. The fall in frequency may be associated with competing media activities and the availability of attractive games for the various groups. The game industry has nonetheless had little success in raising the proportion of players among young women.

In the case of boys aged 16–24 and girls aged 8–15, the proportion of players lies relatively stable at around 40 per cent. Previous assumptions that boys and girls will continue with their game playing habits when they grow older do not hold water. The fall is marked for both sexes when they grow older. Taken as a whole, figure 5.2 shows that video games are still a medium that is most popular with young boys.

5.3.2 Children of 3–13 years

The above surveys only cover the age group 8–24. For the age group 3–7, Synovate has conducted a separate survey. Frequency in the use of video games for this age group is shown in figure 5.3.

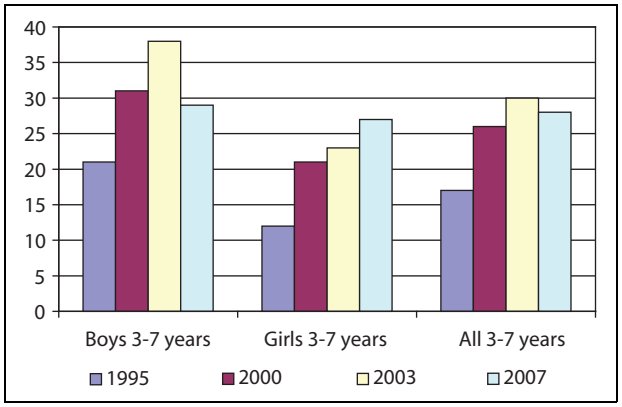

Figure 5.3 Use of video games on a random day 1995–2007. Children 3–7 years. Expressed as percentages.

Source: Synovate

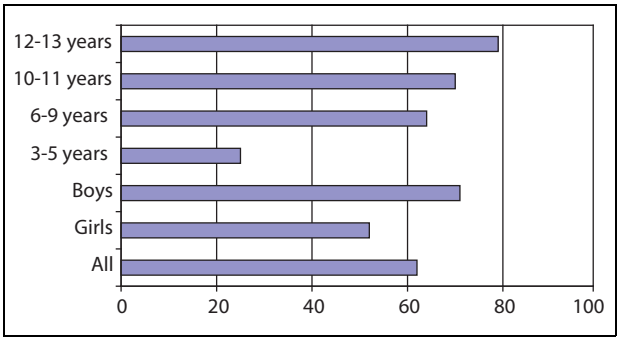

Figure 5.4 Proportion who have played electronic games on a random day in 2007. Expressed as percentages.

Source: TNS Gallup

The figure shows that the average use of games by this group is lower than in the higher age groups. Only three out of ten used video games on a random day in 2007. In the case of this group of children, we do not find great differences between boys and girls. In 2007, girls play as often as boys. An interesting development is that girls in this group have increased their use of video games considerably during the period, from 12 per cent in 1995 to 27 per cent in 2007.

Figures from TNS Gallup may further alter this picture, cf. figure 5.4. In the age group 3–13, the proportion who have played daily increases with age. This is a phenomenon that is not detected by the age categories that Synovate operates with.

This figure too shows that boys play more frequently than girls. It shows moreover that the proportion who play every day rises steeply from 25 per cent in the age group 3–5 years to 79 per cent in the age group 12–13 years. Thus, eight out of ten 12–13 year-olds play video games on a random day.

Viewed as a whole, one can say that video games are used increasingly often until one is 13–15 years old, and that the use then falls. Boys play video games much more often than girls.

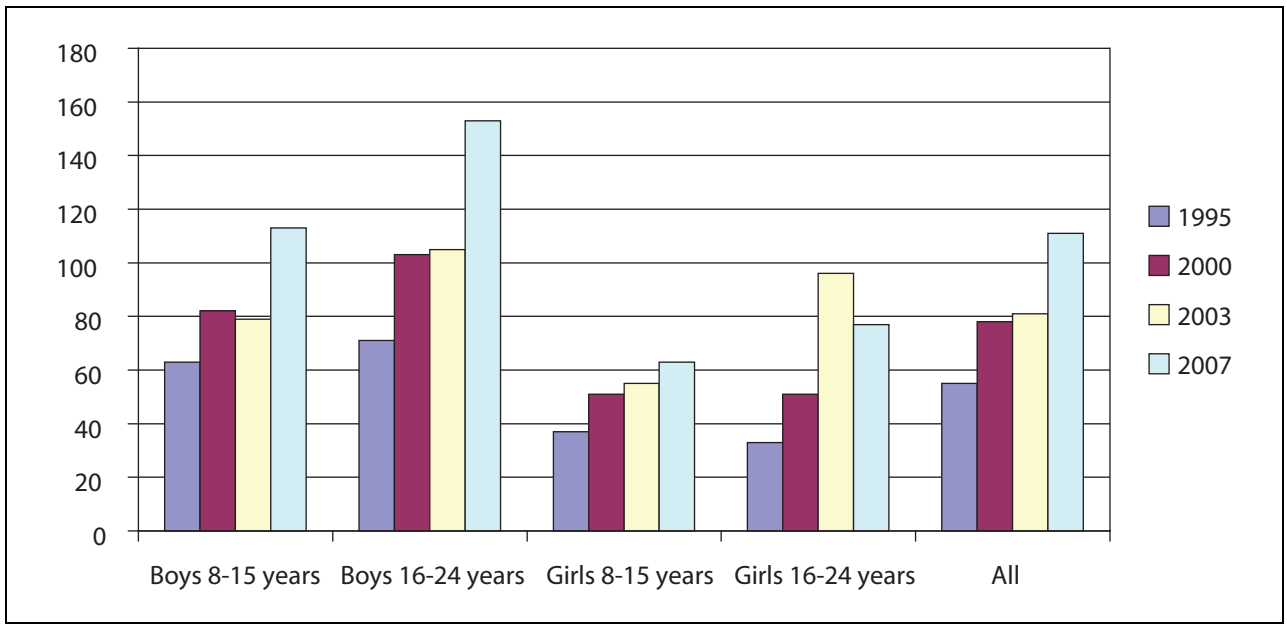

Figure 5.5 Time spent on video games on a random day, 1995–2007. Average time in minutes among those who used the medium. 8–24 years.

Source: Synovate

5.4 How long at a time do people play?

5.4.1 The age group 8–24 years

Even if one plays often, one does not necessarily play for long at a time. An interesting question is therefore how much time is used to play video games, and whether the time consumption increases. This is associated with different explanations of the factors that influence the time consumption. Here, new popular games, such as online role-playing games (*World of Warcraft, Anarchy Online*, etc.) may have significance. These are games that players usually use a lot of time on. On some games (so-called "casual games") people use little time.

Figure 5.5 shows how much time players between 8 and 24 (i.e. those who answered "yes" to the question of whether they had played video games) used on average on playing games.

The figure shows a clear tendency for increased time spent on video games by all groups during the course of the period, except for girls between 16 and 24. Although the frequency has remained stable or fallen, the time consumption has increased considerably. In the case of the group that used video games most often (boys 8–15, cf. figure 5.2), the figure shows that the time consumption increased by 34 minutes from 2003 to 2007. Those who play, play for considerably longer than they did in 2003. This may be associated with the above-mentioned increase in popularity in recent years of online role-playing games, which demand a great deal of time from players. Even more striking is the increase among boys aged 16–24. Here, the time consumption by players has increased by approximately 50 per cent from 2003 (almost 50 minutes). Players in this age group also use considerably more time on playing than the younger boys; on average, approximately 2.5 hours per day. Thus, they play less often, but those who play use more time on it.

Among girls, we find a small increase in time consumption in the age group 8–15 years, while time consumption has fallen – after increasing steeply from 1995 – for the age group 16–24 years. Both age groups use approximately half as much time on this activity as boys in the same age groups.

If we compare figure 5.2 with figure 5.5, we see that boys between 8 and 15 play most often, while boys between 16 and 24 play for longest/most.

5.4.2 Children 3–7 years

As regards time consumption too, Synovate has conducted a separate survey of smaller children. Figure 5.6 shows the time consumption for, respectively, all boys and girls in the age group 3–7. Here too, we find great similarities between boys and girls in this age group. The time spent on video games fell slightly from 2003 to 2007 for both boys and girls, although the fall was somewhat greater for girls. Of course, this age group uses much less time on media consumption as a whole than the older age groups since, as a rule, they have less time at their disposition before bedtime. However, there is time for over half an hour of video games. The range of video games available to children in this age group is not very large.

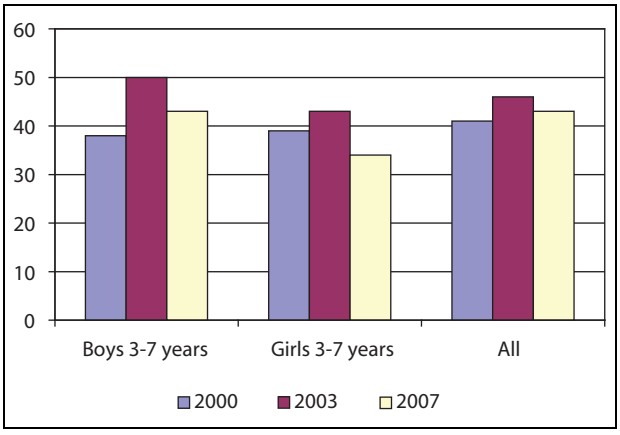

Figure 5.6 The number of minutes used on video games. Children 3–7 years.

Source: Synovate

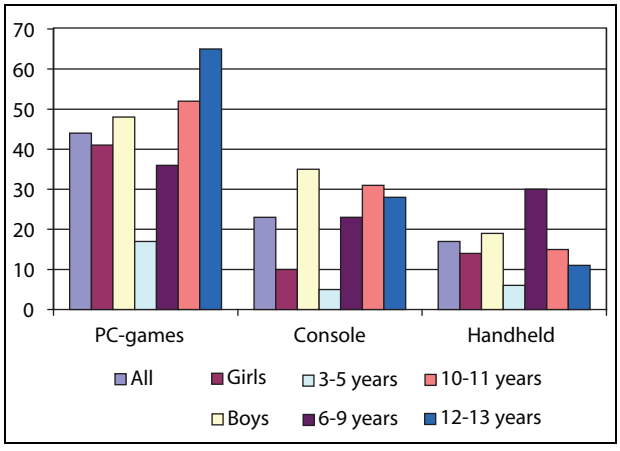

Figure 5.7 Proportion who have used the various platforms on a random day 2007 (percentage).

Source: TNS Gallup Mediebarn 2007

5.5 Use of different platforms

5.5.1 Frequency, children 3–13 years

In the survey MedieBarn 2007, TNS Gallup has surveyed what types of platform children play on. In this connection, platforms are PCs, consoles (PlayStation, XBox, etc.) and hand-held consoles (Gameboy, etc.). Figure 5.7 shows the distribution of the use of the various platforms.

PC games are unquestionably most popular among the older children, where 65 per cent of the age group 12–13 years have used such games on a random day. It is also clear that there is a steady increase in the use of PC games with increasing age. There are no major differences between boys and girls.

As regards consoles (TV games) there is a big difference between the sexes. Only 10 per cent of the girls use such games, whereas 35 per cent of the boys do so. In this case, use increases markedly from 3–5 years of age to the older age groups, but the difference is not very great between the three other age groups.

Hand-held games are by far the most popular in the age group 6–9 years. Altogether 30 per cent of these children play hand-held games on an average day. There is a clear drop in the use of these games when children reach 10–13 years. There is a certain tendency for boys to play more hand-held games than girls.

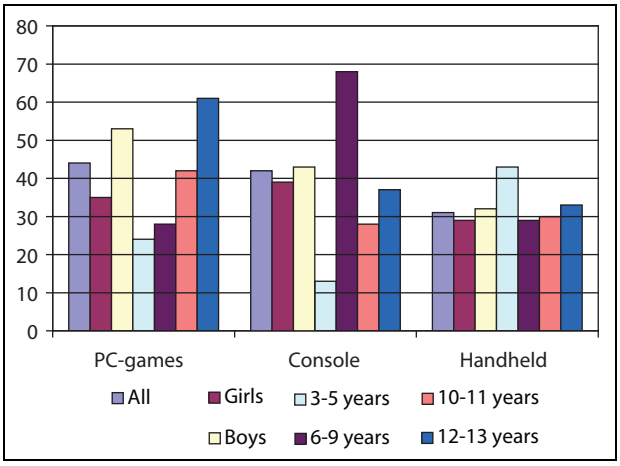

Figure 5.8 Time consumption of the various platforms distributed by age and gender 2007.

Source: TNS Gallup Mediebarn 2007

5.5.2 Time consumption children 3–13 years

TNS Gallup has also measured the amount of time this group of children use on the various platforms. Figure 5.8 shows time consumption distributed by age and gender.

There is a clear tendency to use more time on TV games (consoles) and PC games than on hand-held games. There are also big differences in time consumption between the various age groups. 6–9 year-olds use 68 minutes per day on TV games as against only 28 minutes on PC games and 29 minutes on hand-held games. 3–5

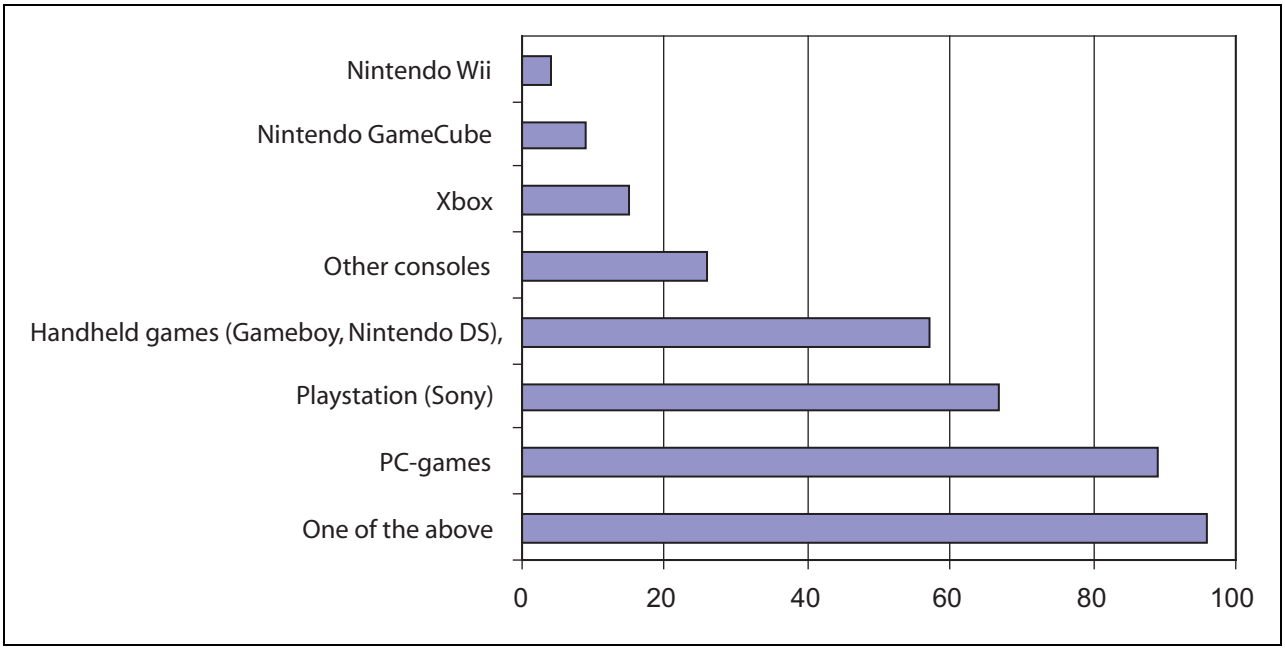

Figure 5.9 Access to video games equipment in the home 2007. Children 3–13 years.

Source: TNS Gallup Mediebarn 2007

year-olds, for their part, use only 13 minutes on TV games and 29 minutes on hand-held games.

5.6 Access to equipment

In order to be able to play video games, one must have access to equipment: PCs, consoles of different kinds or hand-held consoles. In the above-mentioned survey, TNS Gallup has determined the access to game machines of the age group 3–13 years.

According to TNS Gallup's survey, virtually all children (96 per cent) have access to technical equipment in the home that video games can be played on. The greatest access is to PCs, but Sony PlayStations and hand-held consoles are also found in very many homes. The newer consoles (Xbox, Wii) are not yet widely available.

5.7 Spending and purchasing patterns

Synovate has also asked children and young people whether they use money on games or persuade their parents to do so. Figure 5.10 shows the development since 1995.

The proportion who themselves use money on games has increased considerably, from 12 per cent in 1995 to 33 per cent in 2007. In this group, one out of three children uses his or her own money to purchase games. This may reflect increased purchasing power for children and young people during the period since there is little to indicate that the price of games has gone down. The decision concerning which games to buy is thus made relatively often by the children

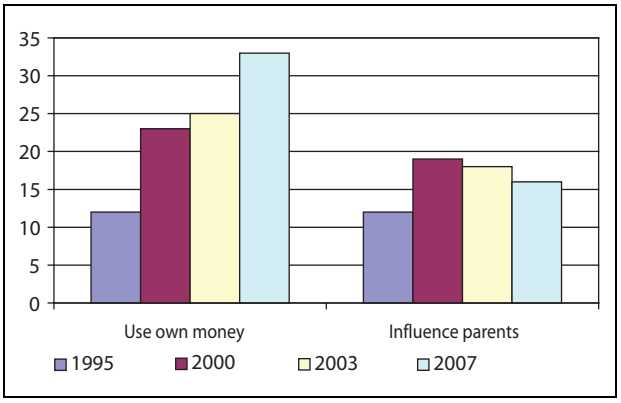

Figure 5.10 Proportion who use money on games/ influence their parents to purchase games, 1995–2007. 8–24 years.

Source: TNS Gallup Mediebarn 2007

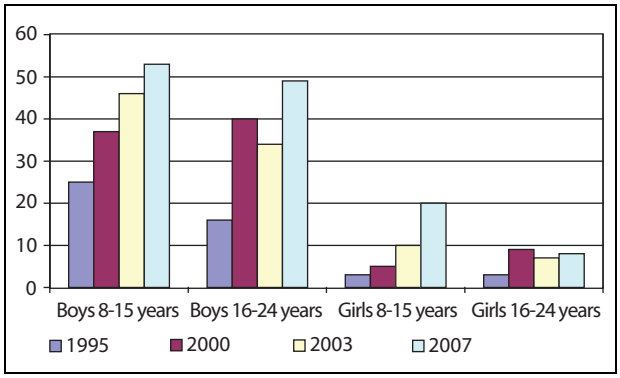

Figure 5.11 Proportion who use their own money on video games, 1995–2007.

Source: TNS Gallup Mediebarn 2007

and young people themselves. Figure 5.11 shows how this is distributed in the various age groups and between boys and girls.

We see here that approximately half of the boys in both age groups use money themselves on video games, and that the proportion is increasing. The proportion of girls who use money themselves on games is considerably lower, although it has increased somewhat in the youngest age group.

5.8 Norwegian video games – knowledge and attitudes

In October 2007, on behalf of the Norwegian Film Fund, Synovate conducted a survey of parents' knowledge and attitudes concerning Norwegian produced video games. The target group for the survey were parents with children in the age group 5–12 years.

5.8.1 Use

The parents were asked how often their children play Norwegian games. Figure 5.12 shows how often the parents assert that their children play Norwegian games.

The figure shows that children in this age group play Norwegian games relatively seldom. Seventy per cent play once a month or less often. Since the knowledge of Norwegian games among parents is generally low (they do not know which games are Norwegian), there is also some uncertainty associated with the responses. Some localized foreign games with Norwegian language may have been regarded by the parents as Norwegian games. A certain over-reporting can therefore be assumed.

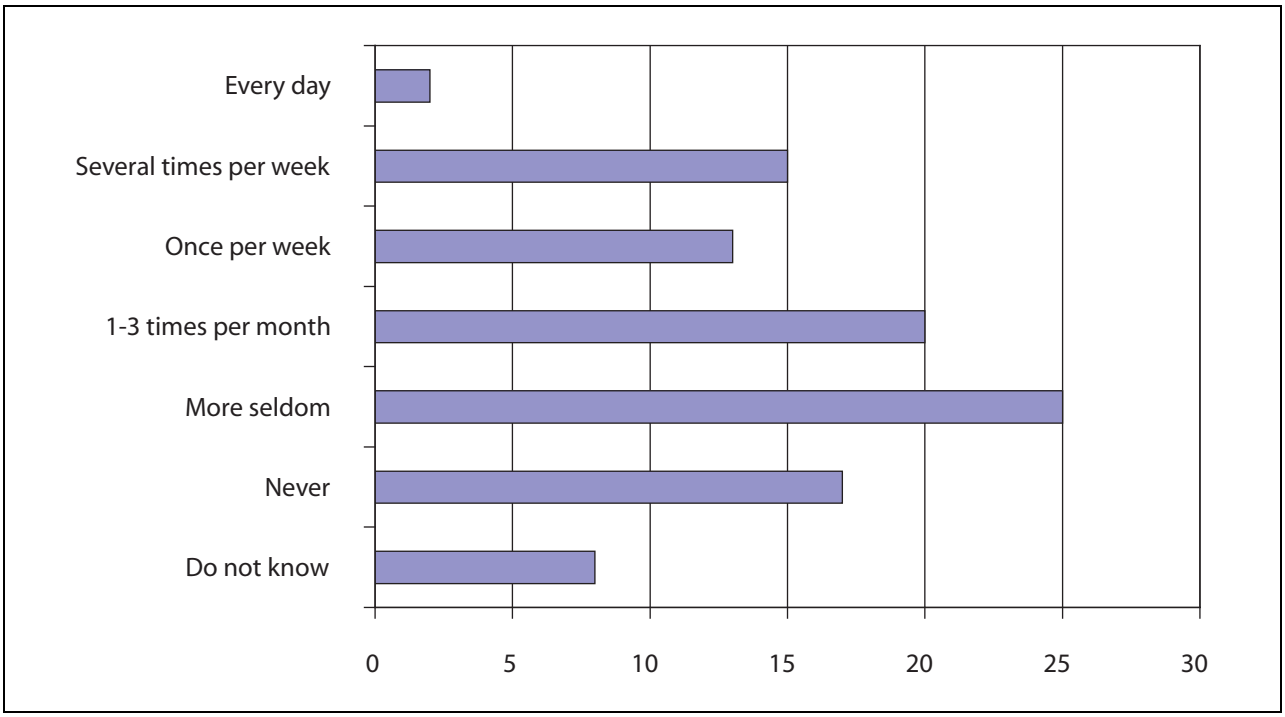

Figure 5.12 How often children play Norwegian games, 5–12 years.

Source: Synovate

5.8.2 Knowledge

A number of Norwegian produced games have been released in recent years. Some of these are based on well-known brand names from films, television or the like, while others are original concepts. Synovate asked parents which Norwegian video games they can name without being given titles – so-called "unassisted knowledge". This gives an indication of consumers' lack of awareness concerning Norwegian video games, cf. figure 5.13.

The unassisted knowledge of Norwegian video games is extremely low. Two games, *Josefine* and *Flåklypa*, are the only ones that have suc-

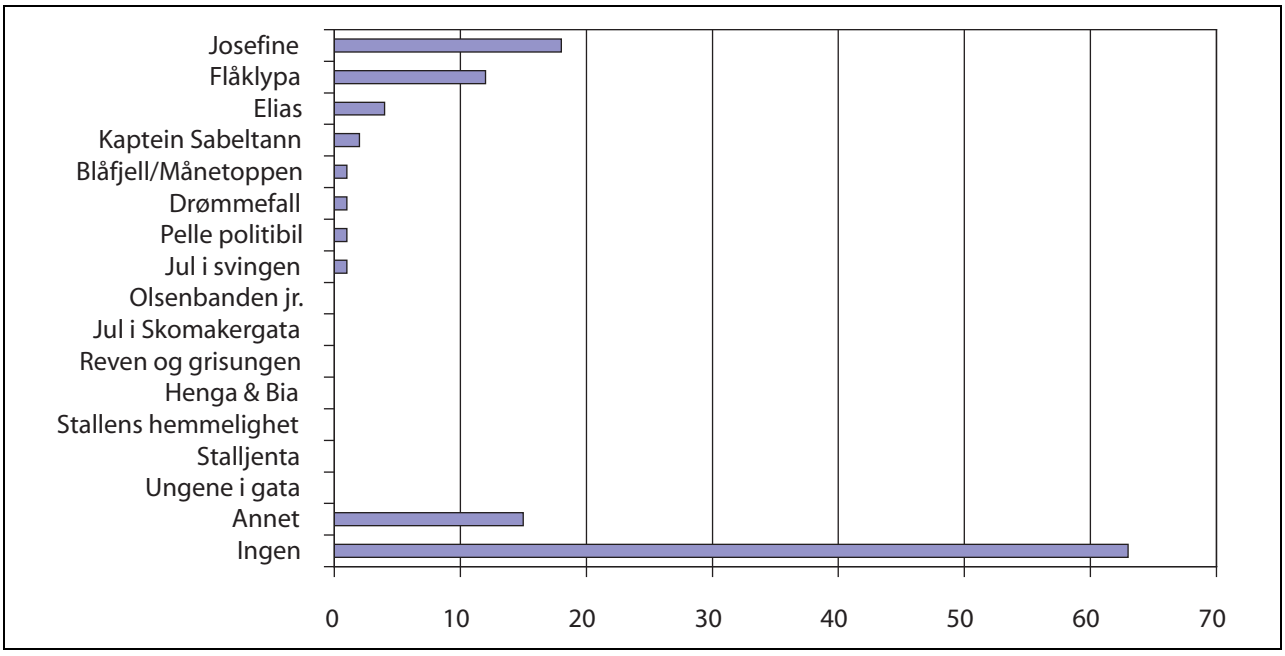

Figure 5.13 Unassisted knowledge of Norwegian video games. Parents.

Source: Synovate

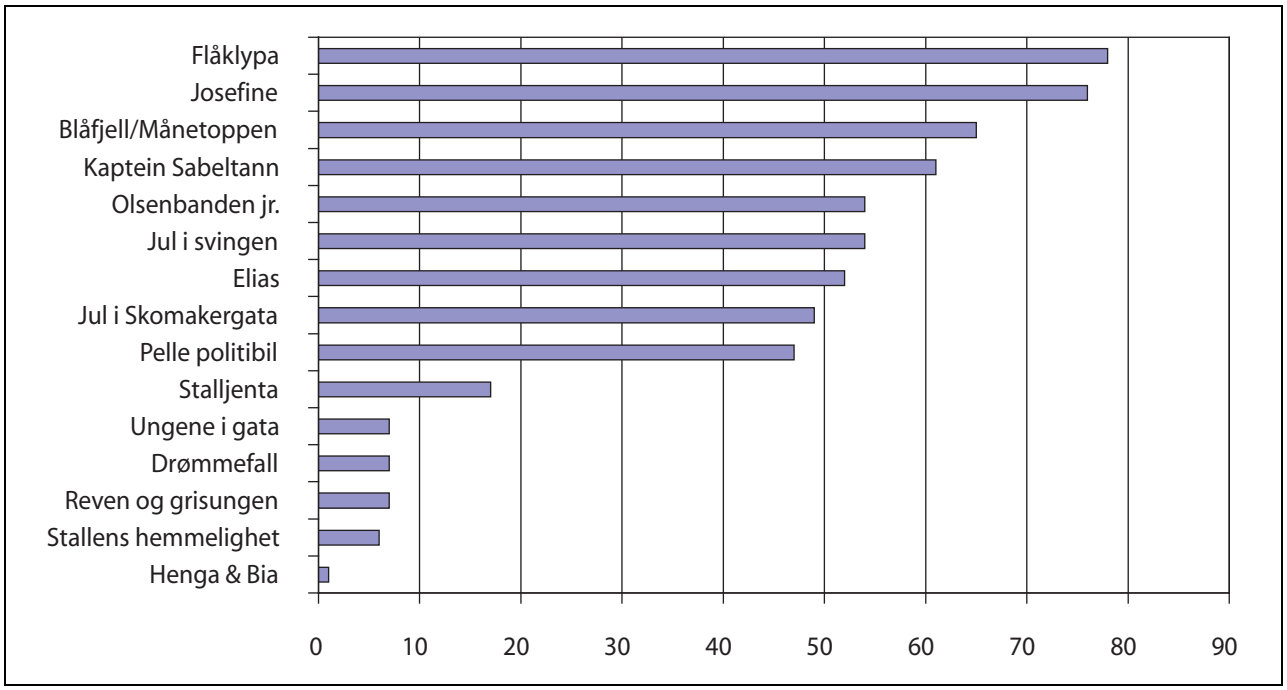

Figure 5.14 Knowledge of Norwegian games when the names are provided. Parents.

Source: Synovate

ceeded in creating names for themselves in the market. Well under half of those asked managed to give the name of a single video game without assistance. Background data indicates that the proportion is somewhat higher in groups with high education and high incomes, but knowledge is generally extremely low. This indicates that the Norwegian games are poorly marketed towards parents.

Knowledge is much greater when the parents are given the names of the games. This is probably because most of the games are based on popular products. Figure 5.14 shows knowledge when the names of the games are provided.

Titles that are familiar through TV series and films have a particularly high recognition factor. *Flåklypa* scored 78 per cent, *Jul i Blåfjell* 65 per cent and *Captain Sabertooth* 61 per cent. It is nevertheless uncertain whether the consumers know of the game or are only familiar with the film or TV series. On the other hand, the figure for *Josefine* is very high – 78 per cent. This is a game that is broadly marketed via comics, activity magazines, etc., but which is not based on a well-known IP, cf. 2.4.2.

5.8.3 Attitudes

Synovate has surveyed the attitudes of parents to Norwegian games. Here, the result is relatively very positive, when one takes into account the low use and knowledge of Norwegian games. Figure 5.15 shows the main results.

The attitudes were on the whole positive, and very few of the parents were negative to Norwegian games. This may indicate a certain potential market for more Norwegian games, although only just over half of those asked held the view that there should be a greater available range of these games. However, most considered it important that Norwegian games were available.

5.9 Gender differences

The survey presented in this chapter shows considerable differences between the sexes. This may be associated with the content of the games.

Surveys conducted in 2003 and 2006 by the Norwegian Media Authority, cf. 8.4, also indicate the existence of differing game preferences between boys and girls. As regards the choice of games, boys state a preference for action in the form of sports games and shooting, as well as military strategy games. Girls prefer social strategy games and games where violence and conflicts are concealed in the story. The girls also state that they prefer to have control of the game situation, for example in games such as *The Sims*.

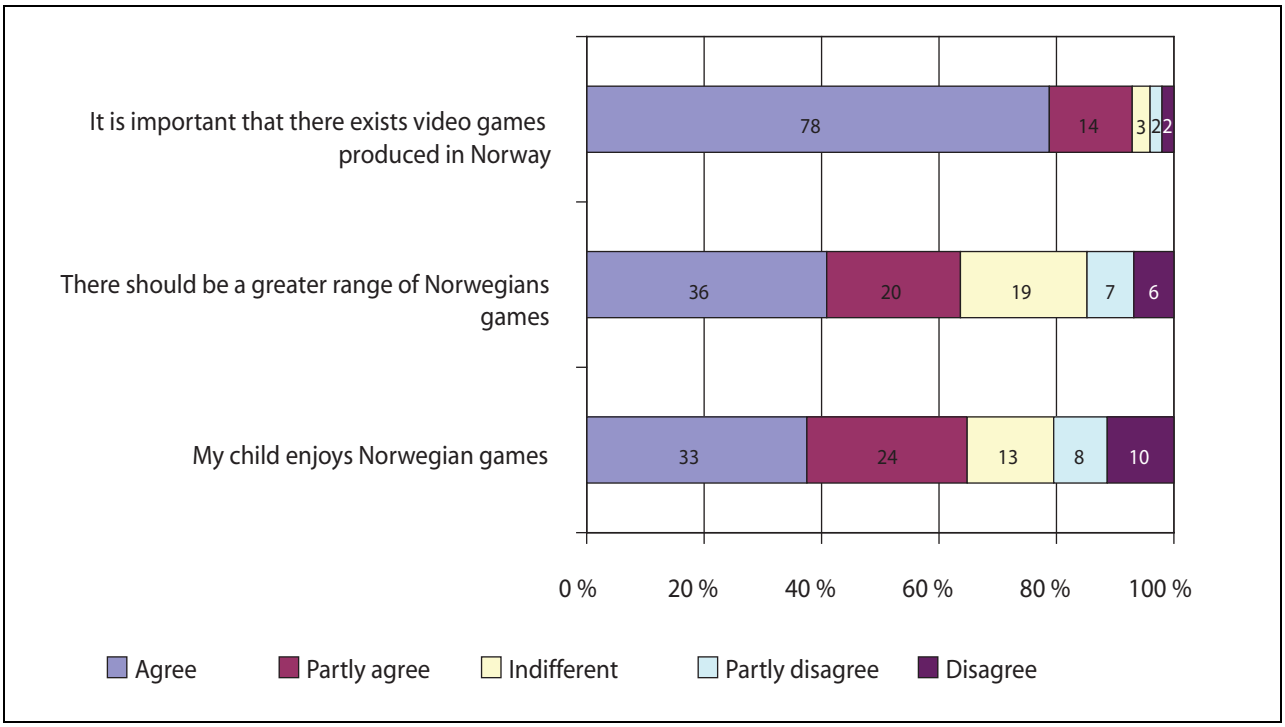

Figure 5.15 Attitudes among parents regarding Norwegian games.

Source: Synovate

Many popular video games allow building of characters and complex stories, and reward problem-solving and patience as much as aggression. These are game qualities that are attractive to both boys and girls.

Recent research shows that online games have become extremely popular among women. This is an indication of the importance of the social elements in video games for the pleasure they provide. In some people's view, this change may be related to the anonymity and reduced stereotypical behaviour towards female players in an online setting. In the virtual world, women have the opportunity to compete against male participants regardless of gender.

5.10 Game cultures

A traditional picture of a game enthusiast is that of a socially isolated individual sitting in front of a screen all day. This view is no longer correct. Playing habits and use of the game medium have changed radically. Games are increasingly becoming a social activity that takes place both in the form of various types of social gathering and on the Internet.

5.10.1 The computer party, The Gathering

A popular game event in Norway is the computer party The Gathering. Every Easter, approximately 5000 computer-interested young people participate in this event at the Vikingskipet Olympic Arena in Hamar. Professor Birgit Hertzberg Kaare at the University of Oslo has studied this game culture for several years. Her survey shows that when the young people themselves describe their culture, they stress that they appreciate cooperation, social relations and friendship. The participants also tell that they view their interest in computers as an important doorway to job opportunities. Professor Kaare points out that technology-oriented young people are a resource that should be exploited more and should be cultivated by the authorities, researchers and the school system.

The Gathering has become a great success, and is one of the high points of the year for many game enthusiasts. For many people, this is a social gathering where they meet friends and acquaintances, other game-interested persons and, not least, people they have got to know via chat groups on the Internet. The social aspect is therefore a major reason why The Gathering has become so popular. The Gathering is very tech-

nology-oriented, and is therefore often associated with a male culture. Previously, very few girls took part in these gatherings, but in recent years the picture has changed somewhat, and the female contingent has increased to approximately 20 per cent.

The Gathering is run by the NGO KANDU: Kreativ Aktiv Norsk Dataungdom [Creative Active Norwegian Computer Youth]. KANDU is a member of Hyperion – Norsk Forbund For Fantastiske Fritidsinteresser [Hyperion – Norwegian Federation for Fantastic Freetime Interests]. Hyperion receives support from Frifond (NOK 1.56 million in 2007).

5.10.2 Net communities

In parallel with the strong increase in online games, a number of net communities for video game players have been established. These are websites dedicated to video games. Net communities for players can be classified as follows:

1. General net communities devoted to almost everything that has to do with video games. These do not necessarily make any distinction between console games and PC games. Norwegian net community www.gamer.no is an example of this category.
2. Net communities that focus on a few specific online games, but are open to most players. An example is www.battlefield.no.
3. Net communities that are reserved for a small group of players. These restrict membership, and are often referred to as "clan sites". An example is www.dmscrew.org.
4. Net communities dedicated to a single type of game platform, regardless of game. An example is www.wii-fan.net.

The distinction between the second and third categories may be somewhat vague. This particularly applies to large "clan sites", where admittance criteria are not very strict. Net communities in category 2 have grown rapidly throughout the world.

The Norwegian net communities for video game players are mainly run by groups of enthusi-

Figure 5.16 Josefine.

The many video games about the rabbit Josefine and her friends were developed by the Norwegian company Pinjata. The Josefine character is also used in comics and other products, and is the original brand name that is best known of all Norwegian video games.

Source: Pinjata

astic amateurs. This means that articles written and published on the websites as well as the graphic work and operation of technical equipment are all carried out by people who are so dedicated to the net community that they are willing to work for it free of charge.

On a net community, users can play against each other by logging on to specific game servers, hire server capacity, discuss in forums, read game reviews, upload their own videos recorded during play (so-called "frag movies"), etc.

5.10.3 eSport

eSport is a concept that has emerged in recent years. It involves regarding video game playing as a serious branch of sport. Not all games are suitable for eSport. The games must have multi-player functionality. It is also important that the game has a large user group. Some of the most popular eSport games are *Counter Strike, Half Life, Battlefield* and *Warcraft 3*.

Competitions, where teams can win large and small money prizes, are held world-wide. Such competitions are particularly popular in Asia, where money prizes can be equivalent to several hundred thousand Norwegian kroner, and where the finals of such tournaments are often shown on TV.

eSport communities around the world organize themselves in different ways. In Germany, where the eSport community has become very large, there are a number of leagues (one for each game). Terminology mirrors that of the world of sport with terms such as *Counterstrike Premier League*. In Norway, players interested in eSport have organized themselves in an association called the Norwegian e-Sport Community.

A group of players who train together is called a clan. Clans may train together for several hours each day in order to develop tactics and skills. Some of these clans have attained legendary status in video game communities.

The traditional media have taken an interest in developments within eSport. This has resulted in increasing coverage of big events and matches where high-profile teams compete. The NRK, among others, has shown a direct broadcast of a *Battlefield* match on web TV.

5.11 Summary

Viewed as a whole, children are seen to use video games increasingly often until they are 13–15 years old, and the frequency of use then falls. Boys play video games much more often than girls. The average frequency of the use of games by small children in the age group 3–7 years is lower than in the older age groups. Only three out of ten have used video games on a random day. In the case of the smallest children, we do not find big differences between boys and girls.

Among persons between 8 and 24 years of age, there is a clear tendency for increased time consumption on video games in all groups, except for that of girls between 16 and 24. However, the time used on video games by smaller children fell somewhat from 2003 to 2007 for both boys and girls, although the fall was rather greater in the case of the girls.

According to TNS Gallup's survey "MedieBarn 2007", virtually all children (96 per cent) have access to technical equipment that video games can be played on. PC games are unquestionably most popular among the older children, and there is a steady increase in the use of PC games with increasing age. There are no major differences between boys and girls. As regards consoles (TV games) there is a big difference between the sexes, and the use of consoles increases markedly with age. Hand-held games are by far the most popular with the younger age groups, and falls with increasing age. There is also a clear tendency to use more time on console and PC games than on hand-held games.

The proportion who use their own money on games increased considerably from 1995 to 2007.

A survey shows that children between 5 and 12 years play Norwegian games relatively seldom. The knowledge of Norwegian video games among parents is extremely low. The attitudes towards Norwegian games are primarily positive.

Surveys show that game preferences differ between boys and girls. Boys prefer action in the form of sports games and shooting as well as military strategy games. Girls prefers social strategy games and games where violence and conflicts are concealed in the story.

Various types of social community have sprung up in relation to video games, both in the form of net-based play and various kinds of game party. Video games are regarded by many people as a serious branch of sport, so-called eSport.

6 Research and education

6.1 Introduction

Game development is, on no uncertain terms, a knowledge and innovation-driven field that is dependent both on research and development (R&D) and on the provision of training in the area. Video games can also be used in various learning contexts.

R&D is an important framework condition for the video game industry. This applies both to the research and development that is aimed directly at the video game industry and to the research directed at adjacent areas. In the following, the Ministry will give an account of relevant research into video games.

Game development involves a number of occupational groups, cf. 2.4. This entails a need for training and expertise in several different fields in order to meet the need for highly qualified manpower in the video game industry. In this chapter, the Ministry will briefly describe the course programmes directly geared towards development of video games. Game development companies will also be able to recruit manpower from more general course programmes, such as computer science, animation and graphic design.

Video games have arrived in the school, and are used as educational teaching aids at all levels from pre-school to higher education. The Ministry provides a brief description of this area, with reference to Report No. 17 to the Storting (2006–2007) An Information Society for All.

6.2 Research into video games

Since 2000, research into video games has had an explosive development. According to the Norwegian game researcher Torill Mortensen, there is research into video games in the fields of law, philosophy, literature, art, media studies, education and psychology – in addition to the technologically oriented research. Conferences are held all over the world with video games as a main topic, and increasing numbers of books are published on the subject.

Until now, research into video games in Norway has had its centre of gravity at the University of Bergen, with a number of game-related doctorates, and the foundation of the game journal Game Studies in 2001. In pace with the increasing interest for video games as a medium, the perspectives within game research have become increasingly broad. Today, there are research institutions, doctoral research fellows and master's students who focus on video games at several Norwegian universities and university colleges.

Research into video games can be divided into two main categories: research into the use of video games and research into the development of video games.

The research into the use of video games lies at the intersection between ICT and humanities, sociology and psychology. A major aspect of such research is studies and surveys of the very phenomenon video games, the social role of video games and their influence on individuals (cf. 8.2). The question of the effect on the user of violence in entertainment has been the subject of considerable research. Attempts have been made for several decades to find answers to questions surrounding the effects of media violence, resulting in a large number of published articles and publications on the subject. The research community is divided into two schools of thought. Some researchers draw parallels between media violence and children's aggressive behaviour, while others maintain that there is no correlation. The studies that have been carried out specifically in relation to video games and such effects arrive at similar conclusions.

Research into the development of video games has traditions in fields such as computer technology, but also includes other fields, such as art, graphic design, storytelling and sound/music. Research into the development of video games therefore includes both the technological and the expressive aspects of the process of creating a video game. Such research has a wide range and intersects with many fields. A major aim of such research is to try out, improve and create new

technology, game concepts, tools, methods, processes, ways of interacting and new styles. Another aim is to investigate how game technology can be used in new areas and in new ways. For example, in the field of applied mathematics, SINTEF ICT assisted the company Capricornus with mathematical models for 3D modelling when it began production of video games. The Centre of Excellence in Applied Mathematics (University of Oslo / SINTEF), the University of Bergen and Narvik University College have leading researchers who are recognised for their expertise in the development of methods and algorithms for sound mathematical and geometrical representation of visual effects.

Development of video games requires multiprofessional expertise, which is also reflected in the development of the research environments. NTNU for example has a more technologically oriented tradition for research related to the development of video games. This research has focused on various aspects of video game development, such as graphics and visualization, games and simulation, mobile telephone games, artificial intelligence and "serious games". A greater multiprofessional focus on video game research is currently being established at NTNU, where there is a desire to view the research fields within a common context. In addition to this, several master's theses have been written on the topic of video games, concerning both the video game phenomenon and the development of video games. Other Norwegian universities and university colleges have similar research in different areas of video game development.

Research and coordination of research into video games may contribute to innovative technologies and solutions, which in their turn will strengthen the industry. Another effect is that such a focus will also stimulate innovation within the games' artistic and visual expression.

6.3 Training and expertise

The diversity of the video game market results in a demand for a large variety of competence. At one end of the scale are companies that develop simple games to promote a product or service, or as a supplement to other entertainment services. These companies need basic expertise. At the other end are game development companies such as Funcom, where specialized knowledge in areas such as data technology is decisive for success. This type of game development demands high-quality expertise in a number of different areas.

In terms of the number of employees, the Norwegian video game industry is a relatively small niche of the IT industry. It is difficult to estimate recruitment needs since no survey of this has been conducted, but Norwegian manufacturers report challenges, particularly associated with the recruitment of graphic designers and programmers. The industry competes for expertise with industries such as the petroleum industry, where in recent years technology such as remote control of drilling operations has resulted in an increased need for expertise in simulation, visualization and artificial intelligence. There is a generally large shortage of IT-expertise in Norway. According to the company survey for autumn 2007 of the Norwegian Labour and Welfare Service, there was a shortage of 1 900 system developers and programmers and 850 computer engineers and technicians. Computer engineers and computer scientists are occupational groups vulnerable to trade cycles. Unemployment is currently extremely low for these occupations, and many people are now offered jobs before they have finished their training. Employment expectations in the ICT sector are very high. There is therefore reason to believe that recruitment problems in the video game industry will increase during the time ahead.

Provision of courses in video games is subject to student demand and to the priorities of the institutions. The market's demand for people with short courses in IT and graphic design is probably limited. There is a greater need for specialized knowledge to be applied to the development of new technology, for example for further development of game engines for advanced graphics and artificial intelligence, further development of processors for hand-held game machines and mobile telephone, and communications technology for games via the net. This demands considerable expertise in computer technology and mathematics.

In recent years, a number of different course provisions have been established in Norway that are promoted as course programmes in video game development. These have received a relatively large number of applications compared with similar course provisions not actively promoted in this way. In the following, we provide details of universities and university colleges that have begun to provide courses with an element of specialization in video games. However, a number of

educational institutions provide education in game-relevant disciplines without offering any specialized training in video games. This applies for example to various mathematics, computer science and simulation technology environments. These are not discussed here.

6.3.1 NTNU

The Norwegian University of Science and Technology (NTNU) is in process of strengthening its focus on training in video games. NTNU will provide video games as part of the master's programme in computer technology from autumn 2008. Similar provision will also be included in the computer science programme. NTNU has also initiated two research projects in video games with three associated doctoral research fellowships.

Measures such as the game development competition Norwegian Game Awards and the resource network JoinGame should increase the visibility of NTNU in the industry in the coming years.

NTNU has taken the initiative to establish AV Arena Norway. This is an academic network that aims to strengthen Norwegian media competence in general, and to bridge the gap between research and development, industry and the public authorities. AV Arena Norway has a number of collaborators, among others, Sør-Trøndelag County Authority, Trondheim Municipality, Innovation Norway, Lyse, Uninett and others.

A resource network, JoinGame, has been established, the aim of which is to strengthen research, development and cooperation between different institutions engaged in video games. The main aim of the project is to provide a meeting place for the use and development of video games in order to strengthen research and innovation in video games in Norway. In order to achieve this goal, JoinGame intends to survey the available resources in the video games field in Norway, and to highlight current research into video games across the various academic disciplines and institutions engaged in the development of video games. The network also aims to be a link between research and industry in the video games area.

JoinGame holds two gatherings each year. The participants in these gatherings come both from the industry and from a wide range of academic institutions. The purposes of the gatherings are network building, exchange of research results, ideas, technology, research projects, etc. The gatherings are open to all institutions engaged in development and research of video games.

JoinGame is funded by means of support from the Research Council of Norway and contributions from collaborators.

6.3.2 Hedmark University College

Hedmark University College was the first University College in Norway to provide courses in video game development, and has today two bachelor's programmes in video games. The college has succeeded in creating relations to the industry. For example, the first students to qualify had during their project work close cooperation with ARM Norway, which develops computer chips for mobile telephones.

In cooperation with Kunnskapsparken Hedmark AS [Hedmark Knowledge Park], Hedmark University College has developed a separate incubator programme for game developers known as Hamar Game Studio. Partly as a result of the incubator programme, a number of students from Hedmark University College have chosen to start their own game development companies as well as companies providing other types of interactive technology.

Each year, the Knowledge Park and Hedmark University College hold Hamar Game Challenge, a competition where students at Hedmark University College present their game ideas before a professional jury.

The Norwegian National Lottery, which has its head office in Hamar, is a potential future collaborator, cf. 3.5.3.

6.3.3 Narvik University College

Narvik University College began already in 1998 to provide game design as a specialization in computer technology at bachelor's and master's levels. The college has a keen focus on technology, in areas including:

- game design, game theory and learning systems
- object-oriented programming/analysis, metaprogramming, GPU programming
- structuring of heavy software systems and massive multi-user systems
- geometrical modelling and special effects
- virtual reality, graphics, animation and sound modelling
- simulations and computations
- artificial intelligence (AI)

Narvik University College cooperates closely with the industry and, in the subject "Prosjekt IT – Ekstern aktør" ["Project IT – External Participant"], provides students with the opportunity of working on a real case for a company. The college cooperates with SINTEF ICT and NORUT IT.

In order to equip the Virtual Reality Centre, the college has received support from the Research Council of Norway. With these funds, the college will equip the centre with "motion tracking" equipment, laser and flying-spot scanners, VR helmets and VR gloves, in addition to a general upgrade of the centre (projectors, machines, etc.).

6.3.4 NITH

The Norwegian School of Information Technology (NITH) is a private university college that provides a bachelor's programme in game programming. The course focuses on programming, design and communications. The programme started in 2005, and has technology as its main focus. As in the case of the other course programmes, most of the disciplines are general programming disciplines, but several disciplines have games as their main focus. NITH wants to extend the course provision in video games with two new course programmes, and is engaged in a dialogue with the industry on the development of a course programme to meet the needs of game development companies in Norway.

6.4 Video games and learning

Video games have made their arrival in the school. The survey ITU Monitor is conducted every other year. Its purpose is to survey professional and educational use of ICT in the Norwegian school. ITU Monitor 2007 shows that 24 per cent of the pupils in the 7th grade, 16 per cent of the pupils in the 9th grade and 22 per cent of the pupils in the second year of the Upper Secondary School use video games daily or weekly.

Report No. 17 to the Storting (2006–2007) An information society for all states as follows:

> "The relationship between children and young people's use of video games and learning has still not been established, and the issue has to a great extent been marked by public concern about negative influence. (…) However, with a view to the explosive development during recent years of multi-player online games and other forms of computer games, where thousands of young people participate in the various communities and networks in order to solve problems, it is very relevant to ask how the concept of learning can be associated with such activities. The relationship between video games and learning is also an interesting topic because it is difficult to understand without playing a great deal oneself. The genre video games is very diverse, perhaps more diverse than other media genres."

The report further draws attention to research findings that, when children and young people play video games, they are involved in complex learning situations. Play requires that one has a command of various forms of expression, such as written and oral language, pictures, symbols, tools, etc. in order to communicate. Research into video games in the school points in several directions concerning how video games should be used in teaching, and what benefits can actually be derived from using video games.

The report suggests that video games could be used as a point of departure for discussions in the classroom by the teacher demonstrating a game followed by class discussions or exercises. Games may have a motivating effect on weaker pupils. In order to succeed in using video games in the school, it is necessary that teachers familiarize themselves with the games that are used, and that the games are adapted to the pupils. The games must be used in accordance with stated learning objectives, and not as rewards.

A number of games have been developed with a view to training and instruction, cf. the account in 2.3.3.

6.5 The Ministry's assessments and conclusions

The video game industry is dependent on investment in training and research. In Norway, we see a tendency for various educational institutions to focus on both research and education in game development. This plays an important role in meeting the competence needs of the video game industry and in ensuring the necessary innovation for the Norwegian video game industry to be competitive.

No collective survey has been made of the video game industry's need for competence. Nor are there any available analyses of recruitment needs in the various areas of activity that are nec-

essary for game development. The Government will therefore conduct a survey of major centres of expertise and of the recruitment needs of the video game industry.

Video games may also be useful teaching aids. In connection with development of the provision of electronic teaching aids, cooperation with the video game industry might prove interesting.

7 Support of game development

7.1 Introduction

In this chapter, the Ministry provides an account of existing schemes for support of game development. Firstly, we present the support scheme for interactive productions administered by the Norwegian Film Fund (which, from 1 April 2008, is to be merged with the Norwegian Film Institute and Norwegian Film Development under the name the Norwegian Film Institute). The scheme has existed since 2003, and the Ministry will present its main results. Some regional bodies have also begun to provide support to games, and these will be briefly presented. The Ministry will then give a brief outline of the Nordic and European schemes in the area. Finally, the Ministry proposes maintaining and strengthening the Norwegian support scheme for development of video games. The Ministry will implement a new scheme for launch support and consider introducing a loan scheme under the auspices of the public libraries.

7.2 Support for interactive productions

Today, support is provided for development of interactive productions (video games) over chapter 334 of the fiscal budget. The support scheme was introduced in 2003, cf. Proposition No. 1 to the Storting (2002–2003):

> "Video games are an area in rapid growth, and the development is controlled by large international companies. The products are primarily aimed at children and young people. There is a need for alternatives to the often violent and action-filled entertainment that young people meet with through these games. In order to ensure better access to alternative products with Norwegian language and content, it is proposed that a trial scheme be established providing support to project development in new media. The target group for the scheme shall be independent manufacturers."

The Storting endorsed the proposal. The trial scheme was made permanent in connection with the fiscal budget for 2004.

Administration of the support scheme was assigned to the Norwegian Film Fund, which administers the other state subsidies to audiovisual productions. The regulations concerning the scheme are included in the general regulations of 8 August 2007 No. 979 *concerning support to audiovisual productions,* which are administered by the Norwegian Film Fund (from 1 April 2008, the Norwegian Film Institute). Pursuant to the regulations, funds shall be provided for "project development of interactive productions […] that use Norwegian or Sami language." In this connection, project development means that support shall only be granted for the first phases of the development of a video game. This was an important condition for approval of the support scheme by EFTA's Surveillance Authority ESA. The term "interactive productions" is defined in the regulations as "video games and other interactive productions that tell stories with live pictures". The majority of applications and grants have in practice been for traditional video games.

The Norwegian Film Fund has excluded from the support scheme games for use in an educational context, advertising games and localization of existing games from for example English to Norwegian. The Film Fund provides development support of up to NOK 1.5 million per project. The support can be given in several stages. The development support shall not be repaid.

Applications are considered by the Norwegian Film Fund in consultation with an expert group. In order to ensure a thorough overall assessment of the projects, the expert group is composed of experienced industry participants with varying backgrounds. The projects are assessed on the basis of artistic, production, financial, technical and market criteria. The amount of support granted is decided on the basis of a collective assessment of these criteria.

7.2.1 Grants

Since the support scheme was not approved by the ESA until October 2003, no funds were distributed until 2004. A total of NOK 24.4 million has

Table 7.1 Applications and grants – interactive productions 2004–2007

Year	2004	2005	2006	2007
Number of applications	39	23	20	37
Amount applied for in NOK millions	45	29.5	21	28.7
Number of grants	7	6	7	9
Amount of support in NOK millions	8	5	5.4	6

Source: Norwegian Film Fund

been distributed via the support scheme. Table 7.1 shows applications and grants during the period 2004–2007. The amount distributed in 2004 includes funds transferred from 2003.

The scheme has developed positively during the years that it has existed, as regards both the number of qualified applicants and the quality of the various applications. The first year, the number of applications was relatively large, but many of the applicants were unqualified because the projects were of poor quality or because they fell outside the scope of the support scheme. During the period 2004–2006, applicants became more professional. From 2006 to 2007, the number of applications increased by 45 per cent.

According to the assessments of the Norwegian Film Fund, the applications are now of a high quality, and there are more qualified applicants than there are funds for in the support scheme. This bears witness to a positive trend among Norwegian game developers, where there is both a greater professionalism and a greater willingness to develop new projects than was previously the case. It is the assessment of the Film Fund that the support scheme has contributed to this professionalization, both by providing funds to the companies, and through the competence raising brought about by the application process itself.

Figure 7.1 Screen picture from Captain Sabertooth – The Curse of Gory Gabriel.

The game about Captain Sabertooth has received support from the Norwegian Film Fund and has been developed by Artplant. The game is distributed by Norsk Spill Distribusjon.

Source: Artplant

7.2.2 Results

The support scheme is aimed at development of projects, and many games have only received support for the initial stages of the development. It is therefore natural that a number of projects do not reach the stage where they can be launched onto the market. This is mainly because the developer has not succeeded in financing the remainder of the development process. Table 7.2 shows how many games have been launched of those that have received support in the given years.

From 2007, the Film Fund will provide support for a greater part of the development process, which will probably result in a greater percentage of the games being launched onto the market. The fact that approximately 50 per cent of the games that have received development support have been launched is not necessarily a poor result. In the film industry too it is usual that a number of projects that receive development support do not reach realization. It should nevertheless be a goal that the projects that receive up to NOK 1.5 million for development are so well prepared that they can in all probability be financed and launched. As regards the sales figures for the various game titles, no material that can document this is currently available from recipients of support.

Table 7.2 Support and number of games launched 2004–2006

Year	2004	2005	2006
Support	7	6	7
Launched	3	4	3
Percentage Launched	43	67	43

Source: Norwegian Film Fund

7.2.3 The gender factor

The video game industry is traditionally perceived as exclusively involving (young) men. This is not the case among Norwegian game developers. Here there is a relatively high proportion of women, particularly if one compares with the film industry, cf. Report No. 22 to the Storting (2006–2007) Veiviseren [The Pathfinder]. Figures from the Norwegian Film Fund show that, in projects that have received support, one-third of the persons in key positions have been women (key positions are here defined as creative manager and producer). Compared with the film industry, where only 20 per cent of key positions are held by women, (manuscript, director, producer), this is a good result. The relatively large proportion of women can be associated with the fact that support is aimed at games for children, an area where women have traditionally played a major role.

7.3 Regional support

Regional film centres and film funds provide support to and invest in various types of audiovisual productions, including short films, documentary films, full-length films and television series. Most of these are also able to provide support to or invest in development of video games. The Central Norway Film Fund, The Central Norway Film Centre and Filmkraft Rogaland have explicitly mentioned video games in their statutes. Table 7.3 shows the approach to games of the various regional film centres and funds.

Table 7.3 Support of game development by regional centres and funds

Regional centre/fund	Support	Laid down in statutes
North Norway Film Centre	Yes	No
FilmCamp	No	No
Central Norway Film Centre	Yes	Yes
Central Norway Film Fund	Yes	Yes
Eastern Norway Film Centre	Yes	No
Film 3	Yes	No
Western Norway Film Centre	Yes	No
Film Fund FUZZ	Yes	No
Filmkraft Rogaland	Yes	Yes
Southern Norway Film Centre	Yes	No

Source: PricewaterhouseCoopers

The Central Norway Film Fund is the only one of the regional film funds that has advertised funds specifically aimed at video games. The fund received two applications following the advertising in autumn 2007, and has granted NOK 30 000 in development support to two regional companies. It is assumed that other regional film centres/funds will also receive applications for support of game development if the opportunity for support becomes better known.

7.4 Innovation Norway

Innovation Norway has a separate sectoral focus on culture and activity industries. The goal of this sectoral focus is to stimulate increased growth and profitability in culture and activity industries by increasing competence, innovation and professionalization in these industries. Among the target groups for this focus are commercial stakeholders in the video game industry.

In 2007, the Ministry of Trade and Industry, the Ministry of Local Government and Regional Development and the Ministry of Culture and Church Affairs launched an action plan for culture and industry. One of the measures in the plan involved allocating funds to "innovative projects, R&D projects in culture and industry with the greatest possible potential for wealth creation". NOK 15 million was allocated for 2007. The funds were advertised by Innovation Norway in autumn 2007, and are also available for game companies.

In addition, NOK 4 million has been allocated in the action plan to FRAM culture, which is a strategy and management programme under the auspices of Innovation Norway. This programme is also offered to commercial stakeholders in the video game industry.

Industrial stakeholders in the video game industry are free to apply for the same funds from Innovation Norway as industrial stakeholders in other sectors. The GRO programme – aimed at established companies operated by women – is an example of this. In 2006, the game company Ravn Studio AS received funds from this programme.

Owing to the industrial coding, there is no collective overview of game manufacturers who have received support/loans via the various support

schemes such as Innovation Norway. The following are examples of grants to game companies:

- SkatteFUNN (tax deduction): Funcom AS, Ravn Studio AS, Skalden Studio AS and Hybris AS
- Support (GRO funds): Ravn Studio AS NOK 0.5 million
- Establishment grant: Ravn Studio AS NOK 0.3 million
- Risk loan: Ravn Studio AS NOK 1.5 million
- Guarantee for operating credits: Caprino Video Game Distribution NOK 1.5 million
- Risk loan, development support (culture) and establishment grant: Game Index NOK 1.1 million, NOK 0.51 million, and NOK 0.2 million
- OFU/IFU (R&D contracts): Hybris Film NOK 1.305 million and NOK 4 million

Innovation Norway supports the Norwegian participation in the Game Developers Conference (GDC) in February 2008 – in cooperation with Nordic Game Program. Innovation Norway is co-hosting the Nordic pavilion at this trade fair and provides support to companies that have stands on the pavilion.

The Government contributes funds to county authority support for industrial development. The county authorities have considerable autonomy in the use of these funds. Most of the county authorities choose to use the local office of Innovation Norway as an operator for distributing funds to company-oriented measures. The county authorities steer the use of the funds by means of the regional development plans and through dialogue with Innovation Norway. Sør-Trøndelag County Authority is engaged in such a dialogue in connection with the regional focus on video games.

7.5 The Nordic Council of Ministers

In 2004, at the request of the Nordic Council of Ministers, a report on video games in the Nordic countries was published. This was the first broad collective survey of the video game industry in the Nordic countries.

The report concludes that only 1 per cent of the games sold in the Nordic countries in 2003 could be regarded as "entirely Nordic", 0.7 per cent of the games were "entirely Nordic releases", and 5 per cent of the games contain "a Nordic element". The basis for the report was approximately 5 500 games.

In this cultural area, the national market share was approximately 1 per cent. This is extremely low compared, for example, with the film area, where the national market share lies between 15 and 25 per cent, although with considerable variation between the Nordic countries. In the game area, the share is low in all of the Nordic countries.

Figure 7.2 Concept art from Englekræsj.

The game *Englekræsj* is being developed by the Drammen company Ravn Studio AS. The game has received support from the Norwegian Film Fund and from the MEDIA programme of the EEA Agreement. Ravn Studio AS has also received several types of support from Innovation Norway.

Source: Ravn Studio AS

The Icelandic chairmanship stated the following motivation for the study:

> "Video games are gradually becoming one of the essential elements of the cultural consumption of children and young people. As a central element of the Icelandic chairmanship programme, Iceland therefore wishes to strengthen a clearly Nordic element and the creative diversity in the range of video games available to children and young people. During the Icelandic chairmanship, the range of Nordic video games and electronic information material for children is therefore described and surveyed in the present report. By means of this survey, the Icelandic chairmanship wishes to investigate the basis for establishing a joint Nordic media programme, to be designed with the intention of ensuring greater production and better availability of video games with a clear Nordic element for children and young people."

The Nordic Council of Ministers followed up this initiative by establishing a separate support scheme for Nordic video games. The purpose of the programme is as follows:

Table 7.4 Applications and national results Nordic Game Program (amounts in Danish kroner)

	2006			2007		
	Applications	Support	Amount	Applications	Support	Amount
Norway	8	1	400 000	12	3	850 000
Sweden	20	2	700 000	37	4	1 400 000
Denmark	16	2	900 000	29	5	1 650 000
Finland	10	0	-	19	1	300 000
Iceland	3	0	-	3	0	-
Greenland	1	0	-	1	0	-

Source: Nordic Game Program

> "The purpose of the Nordic Game Program is to ensure the availability of high-quality material with a distinctively Nordic profile in video games for children and young people".

As in the case of the Norwegian support scheme, the programme is geared towards games for children and young people. However, the programme has more measures than the Norwegian scheme. Support is given to game development, marketing and export, participation in competitions and festivals, training and research, infrastructural measures and information and network building.

According to plan, the total support provided via the scheme will be increased throughout the period towards completion of the project in 2012. For 2006, DKK 6 million will be allocated and for 2007 DKK 10.2 million.

Development support for 2006 and 2007 has been distributed by the Nordic Game Program (NGP), cf. table 7.4. In addition, support has been provided to a number of activities in marketing, export and competitions/festivals as well as support for planning of development projects.

A major priority area for the NGP is the joint Nordic pavilion at the game trade fairs in San Francisco, Leipzig and Lyon. The NGP arranges for participation by Nordic game developers and contributes financially. These markets are important for obtaining financing for Nordic games from international publishers and for international marketing of games that have been developed.

7.6 The MEDIA programme of the EEA Agreement

The EEA Agreement's programme MEDIA 2007, which is to run from 2007 to 2013, has a separate

Table 7.5 Support by MEDIA for Norwegian interactive projects

Manufacturer	Project	Type	Year	Amounts in EUR
Sygna Media as	The Snowboarding Detective	Development phase 1	1998	30 000
Pinjata AS	Sirkeline	Distribution	1998	?
Merkur Film	Facing the Trolls – the Game	Development phase 1	1998	20 000
Hybris Film	The Dance of Life	Development phase	1999	20 000
Sygna Media as	The Snowboarding Detective	Development phase 2	2000	250 000
Capricorners	Flåklypa Grand Prix	Development phase 2	2000	250 000
Hybris Film	The Dance of Life	Development phase 2	2000	137 500
ePress	Winter in Troll Valley	Development phase 1	2000	20 000
Varthom	Odd Bendick Show	Development	2001	50 000
Capricorners	Askeladden	Development	2003	50 000
Pinjata AS	Josefine og tidsmaskinen	Development	2003	50 000
Ravn Studio	The Cuddly Angel	Development	2004	30 000

Total EUR 907 500 = approximately NOK 7.5 million

Source: MEDIA Desk Norway

support scheme for development of interactive projects. The scheme addresses the needs of independent companies that mainly work on audiovisual production and/or production of interactive works. Requirements are imposed regarding the professional and financial capacity of the applicants.

It is possible to apply to MEDIA 2007 for support for interactive projects for the PC, the Internet, mobile telephones and game consoles, including hand-held consoles. It is also possible to apply for support for new formats/concepts for digital TV, the Internet and mobile telephone, where interactive and narrative elements are of major importance.

Support of between EUR 10 000 and EUR 60 000 may be granted. For development of prototypes for console and PC games, support of up to EUR 100 000 may be granted. Each company may apply for a maximum of two projects in any budget year. Support is provided in the form of subsidies, and may cover up to 50 per cent of the development budget, 60 per cent in special cases. The first distribution round was in autumn 2007.

Table 7.5 shows Norwegian results of previous schemes for support of interactive productions in the MEDIA programme.

7.7 The Ministry's assessments and recommendations

The market is currently dominated by foreign games. Studies conducted at the request of the Nordic Council of Ministers show that less than 1 per cent of the games on the market are of Nordic origin. At the same time, the use of video games is increasing rapidly, particularly among children and young people (cf. chapter 5). In the Ministry's view, it is important to strengthen the support to Norwegian video games in order to ensure provision to children and young people based on Norwegian language and culture. Such support will strengthen and consolidate the Norwegian video game industry and help create jobs in the game industry. As a consequence of strengthening activity in the game industry, the support will also stimulate increased innovation and competence raising in the industry.

7.7.1 Support to game development

Game manufacturers who wish to create games based on Norwegian language and culture have little potential for fully financing the development of a game. Game development involves considerable investments in technology and high personnel costs. The Norwegian market is small, and the potential for profit is therefore limited. As in the case of the film industry, there is therefore a need for state support in order to encourage production of a range of Norwegian language products. The support scheme for development of interactive productions has existed since 2004. The Ministry assesses the scheme as a major contribution to the strengthening of the Norwegian video game industry, so that Norwegian games can be produced for children and young people.

– The Ministry will maintain and strengthen the support scheme for development of video games.

7.7.2 Support of launching

In order to reach out to the public in competition with foreign game products and other entertainment provisions, it is important to use resources on launching products. Surveys show that public awareness of Norwegian game titles is poor (cf. chapter 5), particularly of games not based on well-known brand names from film and TV. At the same time, the attitude to Norwegian games is positive. This indicates a large potential for increased market penetration of Norwegian games. Game developers and distributors today have limited resources for launching of games. As in the case of the film industry, there is a need to provide support for launching of Norwegian video games.

– The Ministry will introduce a new scheme for support of the launching of video games.

7.7.3 Purchasing programme

Video games are relatively expensive to buy, involving financial outlays that are not possible for everybody. The Norwegian Game Producers' Association has proposed a purchasing programme for video games under the auspices of the public libraries on the model of similar schemes for literature and films. The Ministry regards it as important that Norwegian video games are made more available to children and young people, and takes a positive view of the proposal from the game manufacturers. However, such a purchasing and loan scheme will require an investigation of the copyright issues.

– The Ministry will consider a purchasing and loan scheme for Norwegian video games under the auspices of the public libraries.

7.7.4 The Nordic Games Programme

It is possible to obtain support for game development and other market-oriented activities from the Nordic Games Programme under the Nordic Council of Ministers. Norwegian companies have been successful in obtaining support from this programme. The Ministry regards the programme as a valuable contribution to strengthening the production and market penetration of Nordic games.

– The Ministry will make active efforts to ensure that the Nordic Games Programme is maintained according to intentions.

7.7.5 Extension of the sectoral levy

There is currently a sectoral levy on sales of films and DVDs, cf. section 3 of the Act of 15 May 1987 No. 21 relating to films and videogrammes. This levy is applied to various cultural purposes associated with film and cinema. The Norwegian Game Producers' Association has proposed that this levy should be extended to include video games in order to finance increased support to Norwegian developed games. The association has calculated that such a levy would provide an annual income of NOK 30 million.

– The Ministry will consider the possibility of strengthening support schemes for video games by extending the sectoral levy on sales of DVDs to include video games, and will conduct a review on this subject. This must in such case be considered in connection with future fiscal budgets.

8 Consciousness-raising

8.1 Introduction

In this chapter, the Ministry will provide an account of some issues associated with video games: violence, dependency and illegal copying. First, we will give a general description of the public debate concerning video games and violence, which has involved a number of measures, including the voluntary labelling scheme Pan European Game Information (PEGI), of which the Norwegian Media Authority is the Norwegian collaborator. The Ministry describes how the scheme is structured and the results that the scheme has had. There has been increasing concern surrounding the problematical use of video games. This particularly applies to online games. The Ministry provides a description of this problem area and the measures implemented in the area. Finally, the Ministry provides a description of the issues associated with illegal copying and copyright.

8.2 Games and effects

In Norway, there has from time to time been a public debate concerning violent video games and the possible negative effects of the games on children and young people. In recent years, a number of controversial games have been released that have resulted in political reactions and reports in the media, both in Norway and elsewhere in Europe.

For example, in spring 2007, the controversial game *Manhunt* was released – a game that in an earlier version had been banned in a number of countries. This resulted in reactions against violent games. *Manhunt* was temporarily banned in the USA, the UK and Ireland. The game was withdrawn from the market, and a more moderate version was later produced.

In autumn 2006, the video game *Rule of Rose* caused a furore in Europe, and doubts were raised about the regulation of video games in the European market. The attention was largely owing to the strong reactions to the video game by the EU Commissioner Franco Frattini following a report in one of Italy's popular magazines. Frattini submitted a demand to all of the foreign ministers of the EU member states that the game should be stopped. The game was later withdrawn from the market owing to all of the negative publicity.

In Norway, violence in video games may be subject to section 382 of the Penal Code, which prohibits "improper use of scenes of gross violence for entertainment purposes". In 2003, the video game *Grand Theft Auto* was reported to the police by the Commissioner for Children and the Norwegian Consumer Council for infringement of this section of the Penal Code. The case was finally dropped by the police.

8.2.1 Pan European Game Information – PEGI

At about the same time as the debate concerning *Grand Theft Auto*, the labelling scheme for video games, Pan European Game Information (PEGI), was established. The establishment of PEGI was a signal from the industry of the desire for better information on the content of games. The labelling scheme was also a necessary measure on the part of the industry in view of the various controversies surrounding violent content of video games and the effects of this on children and young people. The industry preferred self-regulation at the European level to national regulation by law. The labelling scheme was introduced in spring 2003, and was well received by the political authorities of European countries as well as in Norway. The European Commission has also on several occasions expressed approval of this scheme.

PEGI is owned by the trade organization Interactive Software Federation of Europe (ISFE) which is responsible for the system. The members of this scheme undertake to label the game cases with the PEGI labels and symbols. The PEGI system is a voluntary, self-regulatory system, where classification is carried out by the members themselves. The system has gradually gained acceptance from the whole of the Euro-

Figure 8.1 The PEGI symbols.

Source: Norwegian Media Authority/Interactive Software Federation of Europe

pean video game industry, and is used in all European countries except Germany, which has statutory age classification.

The main purpose of PEGI is to provide information on whether the content of a game is suitable for a specific age group, in addition to indicating what content forms the basis for the classification. The age labelling is intended to be a recommendation on whether the game's content is suitable for children, and not on the level of difficulty. The PEGI system has developed different symbols for the various age ratings and the content that forms the basis for the age rating, cf. figure 8.1.

The age ratings are printed on the front of the game's case. On the back of the case are displayed the symbol(s) for the content of the video game.

There are special challenges associated with online games. PEGI has therefore developed a separate online system with support from the European Commission's programme Safer Internet Plus. In order to use this symbol, the publisher undertakes to keep the website free of illegal and offensive content created by users and undesirable links. The publisher also undertakes to implement measures to protect under-aged net players and to protect privacy.

The PEGI Online label is printed on the game's case or displayed on the game's website. The label points out to parents that the game can be played on the Net, and that the owner of the game or website wishes to protect under-aged players.

Since spring 2003, almost all video games in Europe have been rated in the PEGI system. This

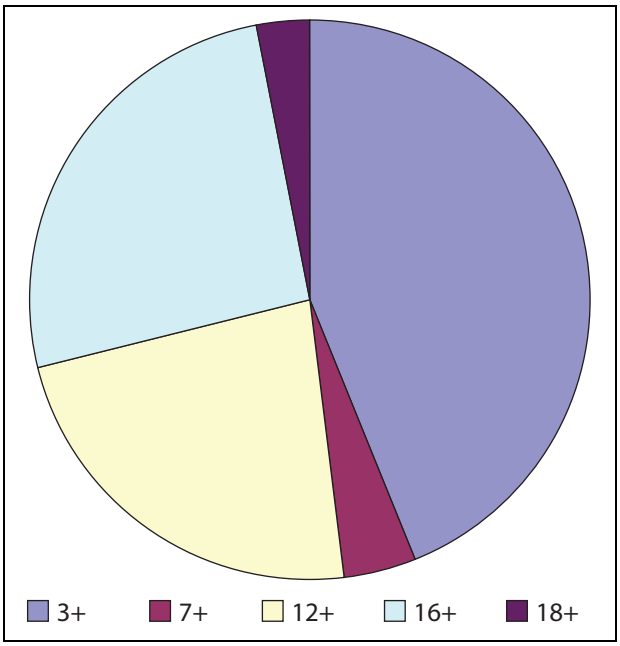

Figure 8.2 Distribution of age classifications during the period 2003–2007.

Source: Norwegian Media Authority/Interactive Software Federation of Europe

Figure 8.3 Brochure on PEGI published Christmas 2007.

Source: Norwegian Media Authority

means that more than 200 companies have signed an agreement with the ISFE in order to be authorized to use the PEGI labels. Since 2003, more than 7 000 ratings have been licensed under PEGI. As shown in figure 8.2, most games receive the age rating 3+. Games with the 18+ rating (3 per cent) usually have considerable violent content.

Surveys conducted by the Norwegian Media Authority and the trade organization ISFE indicate a major need for knowledge about the labelling scheme. The Norwegian Media Authority, which is a member of the PEGI scheme's advisory body, has therefore placed an emphasis on strengthening the information about the scheme in cooperation with the Norwegian game distributors. In Norway, a campaign on age labelling of video games was carried out in 2005. The Norwegian Media Authority also carried out an information campaign in connection with Christmas 2007 in cooperation with the Norwegian Association of Game and Multimedia Suppliers (NSM) and the Danish Media Council for Children and Young People.

8.3 Problematical use

Dependency on gambling games has received considerable attention in Norway in recent years. In this connection, concern has also been shown for problematical use of online games, such as *World Of Warcraft*. This is a link that may give rise to certain misunderstandings.

The word dependency has a clinical meaning in relation to drug dependency, etc. which has been transferred to dependency on gambling games. In the Norwegian diagnostic system for mental health care (F63-0), gambling game dependency has the following definition:

> "The disorder consists of frequent, repeated episodes of gambling games that dominate the patient's life, thereby destroying social, occupational, material and family values and obligations."

It is important to distinguish between "problem gaming" and "problem gambling". The biggest difference can be said to be the type of stimulus provided by playing the game. In gambling games, it is the excitement associated with winning money or material goods that provides the stimulus. By betting a lot, in the hope of winning more, a vicious circle of dependency on various forms of gambling games may arise. In the case of video games, it is not a matter of winning or losing money. Here, the stake is one's time and social ties.

In the case of video games, it is usually in connection with role-playing games on the Internet, cf. 2.3.1, where one belongs to a social network in the game and can attain status and feel that one has a bond and social ties with the people one plays with, that a type of "dependency" may arise. The consequences may be a feeling of loyalty to the group one plays together with, even if this damages family relationships, work, studies or personal relations and obligations.

We still have little knowledge of what video game dependency involves. No verified theory or practice for this has yet been developed and, in June 2007, the response from the American Medical Association was that video game dependency would not be defined in "The Diagnostic and Statistic Manual of Mental Disorders". Dependency on video games is thus not a clinical term, and is not considered a mental disorder.

However, in the research literature, it is pointed out that some children can develop problematical use of games. In the present report the term "problematical use" is therefore adopted rather than the clinical term "dependency".

8.3.1 The role of the Norwegian Gaming Authority

The Norwegian Gaming Authority is a state body consisting of two inspectorates with a single director and administration. The purpose of the Authority is to supervise and control private lotteries and state gambling games. The Gaming Authority is responsible for follow-up of negative aspects of gambling games and lotteries, among other ways, by encouraging research, but also by preparing proposals for and providing information on necessary measures. Lottery is defined in the Act of 24 February 1995 No. 11 relating to lotteries, etc. (the Lottery Act). In the first paragraph of the Lottery Act, lottery is defined as "an activity in which participants may for a stake acquire a prize as a result of a draw, guesswork, or other procedure which wholly or in part produces a random outcome". Video games do not normally fall under the Lottery Act.

8.3.2 Help Line for Game Dependency

The Help Line for Game Dependency, established and financed by the Norwegian Gaming Authority and Sykehuset Innlandet, reports an increase in the number of enquiries from people who have become dependent on video games. Similar reports have also been made by other health service institutions. For example, the private child welfare centre Seksten-treogtyve AS [Sixteen–twenty-three AS] that was established in Oslo og Akershus in 1998, reports an increased number of enquiries concerning young people struggling with excessive use of video games.

In its half-year statistics for the first half of 2007, the Help Line for Game Dependency reports an increase in the number of calls concerning games where no money is involved. By games where no money is involved, we refer primarily to online games such as *World of Warcraft* and *Counter-strike*. In the first half of 2007, there were 96 callers who referred to video games as the main problem, whereas, during the whole of 2006 there were only 49 such calls, cf. table 8.1.

The statistics for the first half of 2007 also show that 41 per cent of the players played on one or more electronic platforms. By way of comparison, the proportion was only 18 per cent in 2006. This increase may be due to the increase in calls concerning video games.

"Games not involving money" occur in the report from the help line on an equal footing with gambling games. This category has been responsible for an increasing number of calls to the help line. There is some uncertainty regarding what this category includes. Until July 2007, no specific information was registered regarding which games these calls concerned. The introduction of better registration of content and time consumption will provide better insight into whether the calls concern poker on the Internet or time spent playing online role-playing games.

The results also show that a greater percentage of players who play without money are in the age group under 25, cf. table 8.2. We would mention in this context that calls to the help line are usually made by close relatives of the persons concerned. Out of 111 calls in 2007, 21 per cent

Table 8.1 Figures for players whose main problem is games via the Internet, PC and/or mobile telephone

	2006 (twelve months)	2007 (first six months)
Poker	122	82
Prize machines	27	11
Other gambling games	14	6
Odds	14	9
Bingo	1	2
Lotto/Extra	0	1
Horse racing	6	5
Casino	6	3
Football pools	4	0
Games not involving money	49	96
Sum	243	217

Source: Help Line for Game Dependency

Table 8.2 Proportion who play without money

Under 18:	65 per cent
18 – 24:	41 per cent
25 – 39:	10 per cent
40 – 59:	3 per cent
60 and older:	0 per cent

Source: Help Line for Game Dependency

were made by players themselves. Altogether 76 per cent of the calls were made by close relatives.

8.4 The Safe Use Project

The Safe Use Project is a national coordinative body for safe use of interactive digital media for children and young people. The project is part of an EU-funded programme, Safer Internet Plus, the aim of which is to promote safe use of the Internet among children and young people in the EU and EEA area. In Norway, the project is administered by the Norwegian Media Authority.

The goal of the Safe Use Project is to teach children and young people how to reduce "hazardous behaviour" and become responsible Internet users. In addition, the project provides information to teachers, parents and the Internet industry concerning challenges and issues associated with interactive digital media.

The project has collaborators in several countries, Norwegian participants include ICT Norway, the Office of the Consumer Ombudsman, the Norwegian Data Inspectorate and six different ministries. Nordic collaborators include the Danish Media Council for Children and Young People, the Swedish Media Council and Heimili og Skoli in Iceland [national Icelandic association for parents of children in primary and comprehensive school (aged 6–16)].

Surveys of children and young people's media usage plays a major role in the project. The results of the surveys culminate in concrete information measures aimed at increasing awareness of safe use of the Internet, mobile telephones and video games among children, young people, parents and teachers. Video games are one of the areas where a need is seen for effective information measures. There is a net portal that functions as a joint information resource for all users, parents, children, teachers, the press, organizations and politicians: www.tryggbruk.no.

8.5 Illegal copying

8.5.1 Introduction

Illegal copying and illegal distribution of video games are extremely common. A very short time often elapses from the date a new game is put on the market until illegal copies of it appear on the Internet and elsewhere. Increasing use of digital media, higher broadband speeds and increasingly better general technical expertise and equipment among users all provide major challenges for the video game industry. Illegal copying of music, films and video games has been a problem since it became possible by means of recorders, and later digitizing of the media. While in some parts of the world there is extensive sale of physical pirate copies, in the western world, illegal copying increasingly takes place digitally by means of illegal file sharing.

A number of game manufacturers confront the problem by focusing more on online games and console games than on PC games in order to be able to demand payment for using them.

The mobile telephone video game industry is also experiencing a certain degree of illegal copying. However, this is not viewed as such a major problem by the industry since mobile telephone games must be developed to support a specific type of mobile telephone. This means that a mobile telephone game that the user for example finds on the Internet, cannot necessarily be played on the user's mobile telephone.

The video game industry has many challenges to deal with in the future if it is to succeed in curbing illegal copying. Firstly, there must be a change of attitude among users. There is also a need for consciousness-raising as regards use of digital materials concerning what is permitted and what is illegal. These matters are regulated by the Copyright Act (the Act of 12 may 1961 No. 2 relating to copyright in literary, scientific and artistic works, etc.).

8.5.2 Illegal copying in Norway

In Norway, it is primarily the distributors who safeguard the commercial interests of the game manufacturers. It has therefore been the Norwegian Association of Game and Multimedia Suppliers (NSM) that, since its establishment in 1998, has taken responsibility for the rightholders' battle against illegal copying of games in Norway.

According to the NSM, approximately 35 per cent of all video games used and sold in Norway are illegal copies, which according to the association involves a loss for Norwegian game distributors amounting to several hundred million kroner per year. On the basis of the sales figures that the association itself operates with for 2006, the loss can be estimated at NOK 176 million for the association's members. The retail loss, ex VAT, can be estimated at NOK 252 million. For the state, ille-

gal copying of video games thus represents lost VAT income amounting to NOK 63 million.

At the end of the 1990s, the NSM brought a number of court actions to stop illegal copying of video games where the games were produced and sold via Net auctions and teletext. Owing to convictions, this activity declined, while websites and other intermediaries established procedures for refusal of such games. During the same period, there were also two convictions relating to import of illegally copied games from Russia.

In recent years, there has been little prosecution of illegal copying of video games. According to the NSM, this is because it is far more difficult to prosecute illegal file sharing. However, actions have been carried out against illegal file sharing intermediaries nationally and internationally. These intermediaries provide access to video games as well as films and music. File sharing intermediaries claim to have discovered a loophole in the law in that they do not distribute the games themselves, but information on where the games can be downloaded, so-called torrents. The Swedish Pirate Bay, which is one of the world's largest BitTorrent websites, is an example of how difficult it is for the authorities to deal with illegal copying. The website was closed down when the Swedish police confiscated the server park in May 2006, but less than a month later, the website was operating again.

Figure 8.4 Zoe Castillo – the heroine of *Dreamfall*.
Source: Funcom

An increasing number of game developers produce games for the online segment. This may be a result of poor experience of other formats, for example the PC segment, and that they assess the potential for losing income from illegal copying to be less than in smaller segments vulnerable to illegal copying.

Funcom's game *Dreamfall* sold 300 000 copies throughout the world. The company estimates that over 1 million copies have been illegally downloaded from the Internet. An illegal copy of the game was available before it was launched, and was downloaded 200 000 times before the first legal copy was sold. As a result of this, Funcom no longer wishes to focus on offline PC games.

8.5.3 International illegal copying

Few estimates are able to provide a realistic picture of the amount of illegal copying that takes place and of the real losses that this represents for the industry. Many reports published by trade and rights organizations are based on surveys that show the scope of illegal copying, and estimate the loss on this basis. There is a tendency to ignore the fact that many of the games would not have been purchased if they had not been downloaded or copied illegally.

On behalf of the Interactive Software Federation of Europe (ISFE), Nielsen Interactive Entertainment has produced the report *Video Games in Europe – 2007*, which examines the attitudes of video game players to illegal copying and pirated products. The report was published in February 2007, and is based on 4 000 users in the age group 16 to 39 years in ten European countries, including Norway and Sweden. Figure 8.5 shows that Norway is below the average as regards the proportion of respondents who have owned illegally copied video games.

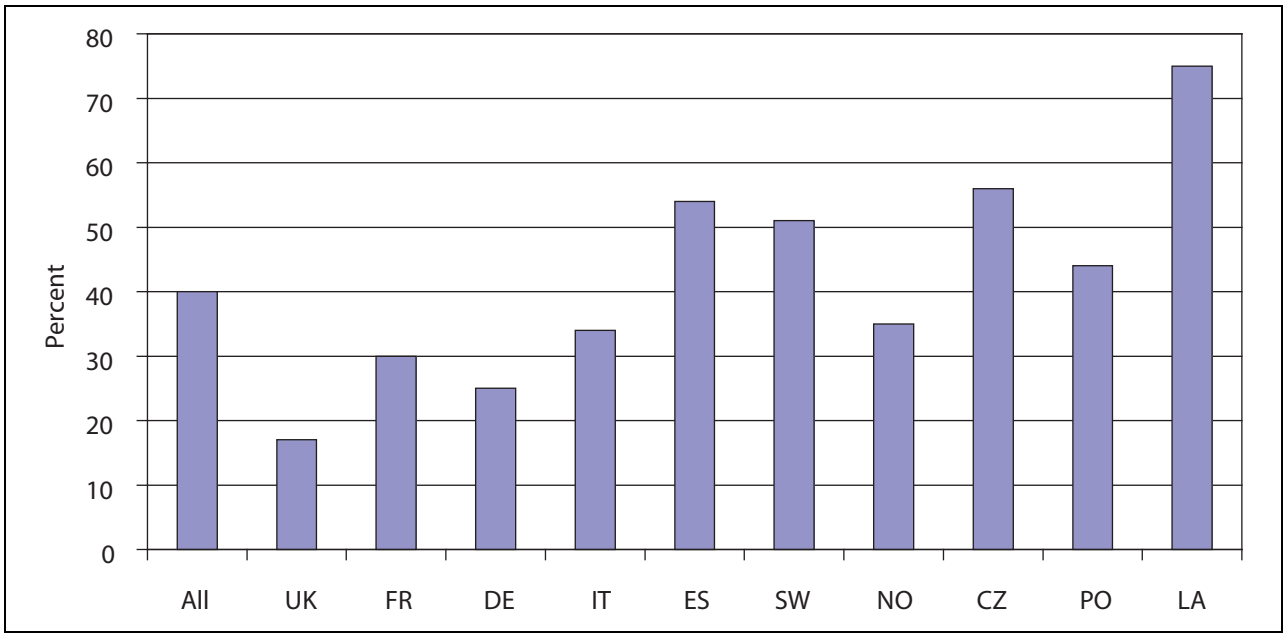

Figure 8.5 Proportion of active players who have owned illegal copies.

Source: Nielsen Interactive Entertainment

The survey further shows that men are more prone to own illegal copies than women. While 43 per cent of the men in the survey responded positively to the question of whether they had owned illegal copies, only 28 per cent of the women did so. As regards the various age groups, the largest proportion who have owned illegal copies is among the youngest users: among 16–19 year-olds 47 per cent had owned illegal copies, among 20–24 year-olds, 46 per cent, among 25–30 year-olds, 36 per cent and among 30–39 year-olds, 30 per cent.

Among PC owners, 45 per cent had owned illegally copied games – the corresponding figures for owners of consoles and hand-held hardware were both 37 per cent. Altogether 76 per cent of the illegally copied games the respondents had were for the PC. This is mainly because consoles

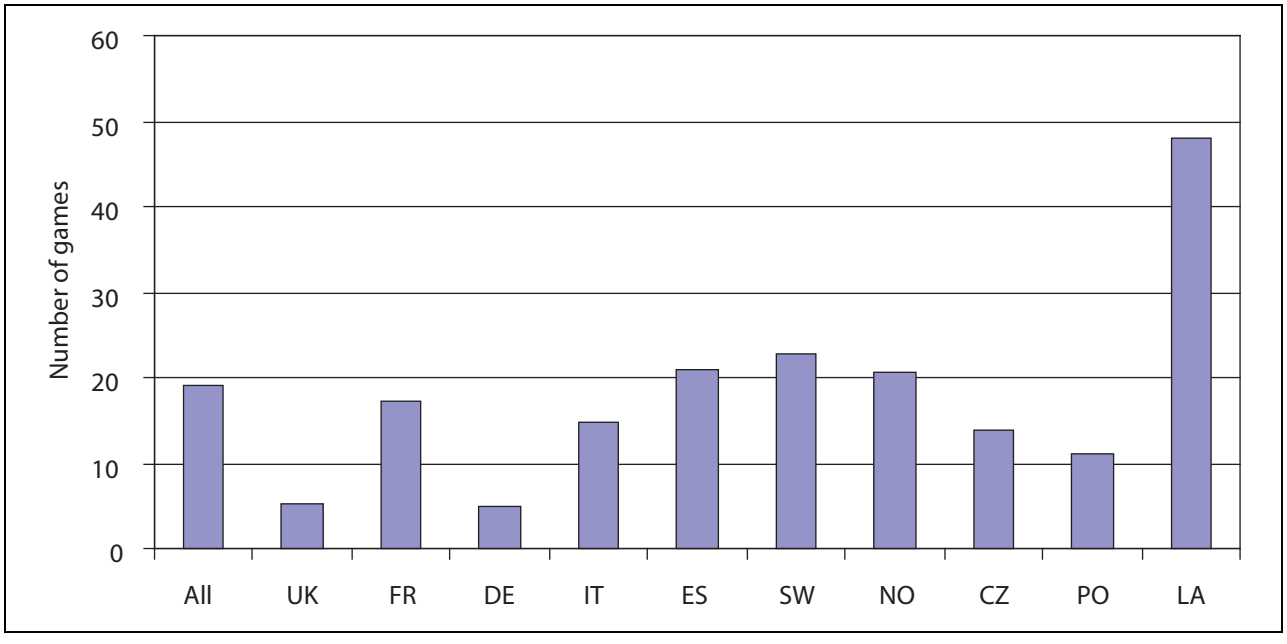

Figure 8.6 The number of illegally copied games – among those who have such games.

Source: Nielsen Interactive Entertainment

and hand-held units are hardware-protected against illegal copies. In practice, this means that an illegal copy cannot be played on a console. It is possible to circumvent this by installing a chip, but this process is demanding, and considerably increases the obstacles to illegal copying.

Among the respondents who took part in the survey, 63 per cent responded that they regarded illegal copying as a criminal activity. Not unexpectedly, frequent users are more liberal in their attitudes to illegally copied video games than less frequent users.

The survey shows that illegal copies are primarily received from friends and family (52 per cent), while 26 per cent report that they download games illegally from the Internet. One out of five has purchased illegally copied games from street salesmen. As regards the number of illegally copied video games owned by those who have them, the figures are distributed as shown in figure 8.6.

The figure shows that Norwegian users who own illegally copied video games have rather more games than the average. The survey further shows that the youngest users have on average more illegally copied games than the older users who have such programmes. Not unexpectedly, frequent users have far more illegal copies than less frequent users.

As regards the question of whether one has illegally copied video games oneself, Norway scores relatively high, compared with the other countries, cf. figure 8.7.

The survey further shows that far more men than women are involved in illegal copying (18 per cent as against 8 per cent). The proportion of persons who make illegal copies declines with age. To the question of what must be done to stop people from making or purchasing illegal copies, 82 per cent reply that a reduction in the price of video games would change their behaviour, while 40 per cent would change their behaviour if it could be documented that illegal copying was associated with organized crime. Only 27 per cent would stop illegal copying if they knew that they would be prosecuted for such actions.

According to the list made by the International Intellectual Property Alliance, lost profits from the sale of video games owing to illegal copying are estimated at USD 2.4 billion for 2005. This includes data from the countries on the organization's priority watch list. The reality of this figure is debatable since the consumers from these countries have relatively low purchasing power.

The large losses associated with illegal copying have entailed that the US authorities have become involved up to the highest administrative and political level in relation to countries such as China. In addition, a number of countries impose strict punishment for illegal copying, in the form of both prison sentences and fines, in order to frighten potential offenders. In many countries, public awareness campaigns have been initiated in order to limit illegal copying.

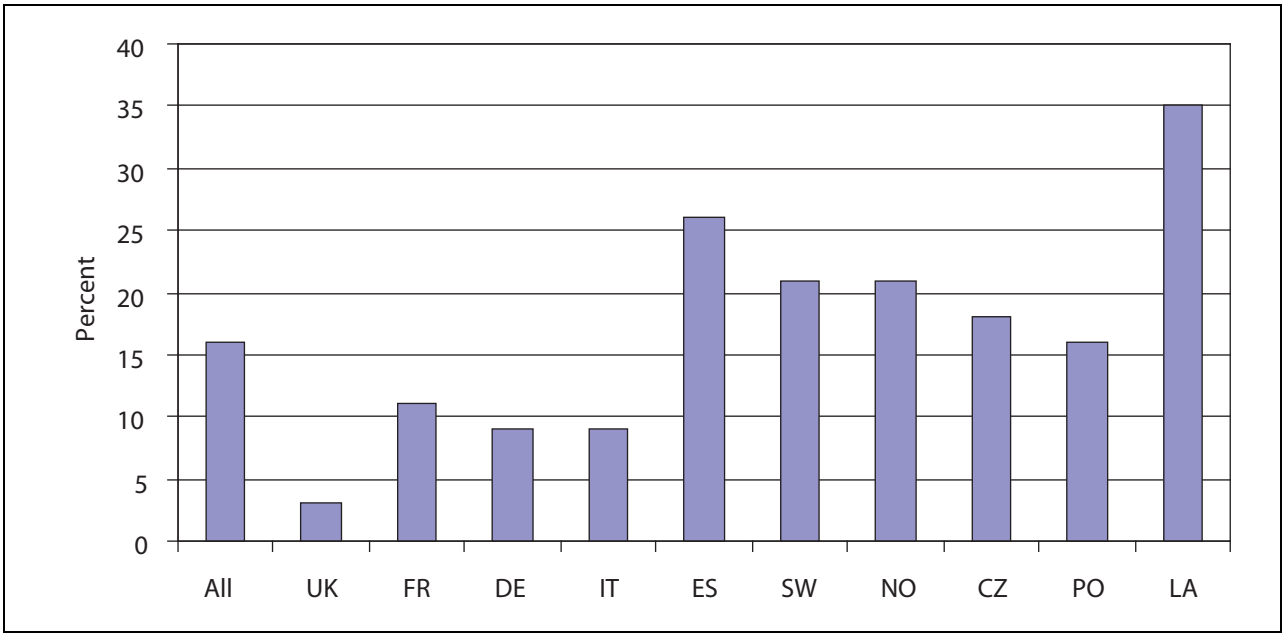

Figure 8.7 Proportion who have illegally copied games themselves.

Source: Nielsen Interactive Entertainment

8.6 The Ministry's assessments and recommendations

In most cases, children and young people's use of video games is a positive activity and a source of both entertainment and learning. However, some games contain elements that are not suitable for all age groups. Furthermore, some games are of such a nature that some players spend an excessive amount of time on them. Illegal copying of video games is an increasing problem. The Ministry emphasizes knowledge and consciousness-raising as measures for dealing with these issues.

8.6.1 Measures for safe use of video games

The Norwegian Media Authority has the main responsibility for consciousness-raising measures in relation to video games. The Ministry takes a positive view of the industry's voluntary labelling scheme with age limits and content symbols (PEGI). The Ministry is also positive to the Norwegian Media Authority's cooperation with the video game industry on development of and information on the scheme. Furthermore, the Norwegian Media Authority via the Safe Use Project has means of providing broader information measures on video games.

– The Ministry will strengthen the Norwegian Media Authority's information activities concerning safe use of video games.

8.6.2 Measures against problematical use

Enquiries to the Help Line for Game Dependency indicate increased problems associated with games not involving money, including video games. It is important that a survey be carried out on the scope of problematical use of video games.

– The Ministry will strengthen knowledge concerning the prevalence of problematical use of video games.

An annual allocation of up to 0.5 per cent may be made from the proceeds of the Norwegian National Lottery for measures against game dependency, cf. section 10, second paragraph, of the Act relating to Gaming Schemes, etc. The funds are currently distributed to measures under the Government's action plan to combat gambling problems.

The Ministry will allow funds from the allocation to measures against gambling games also to be applied to prevention of and information on problematical use of video games including those where no money is involved.

– The Ministry will allow the allocation to measures against gambling games also to be applied to measures to combat problematical use of video games.

8.6.3 Measures against illegal copying

Illegal copying is a growing problem, particularly for manufacturers of PC games. This area is regulated by the Copyright Act and by international agreements. It is important to find a satisfactory balance between the copyright holder's right to protection and the public's right of access to intellectual property on reasonable terms.

– The Ministry will strengthen work on protecting the copyrights associated with video games.

9 Financial and administrative consequences

In the report the Ministry proposes a strengthening of the Norwegian Media Authority's provision of information concerning video games. The Ministry also proposes a strengthening of the existing support scheme. It is further proposed that a new scheme for launch support be established, and that the Ministry should consider a loan scheme under the auspices of the public libraries. The Ministry will return to this in connection with the fiscal budget.

The report otherwise contains no proposals that will have financial or administrative consequences.

The Ministry of Culture and Church Affairs

r e c o m m e n d s :

that the recommendation from the Ministry of Culture and Church Affairs of 7 March 2008 on video games be submitted to the Storting

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