Controlling access to content: regulating conditional access in digital broadcasting
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Chapter 1

Controlling Access to Content

1.1. Introduction

In the electronic world, control over content is control over access to content. Conditional access is a technical solution for controlling access to electronic content. The operator of a conditional access system can determine who has access to which content under which conditions and terms. It enables the recipients' access to be managed.

Conditional access has been widely welcomed as a vital aspect of the business model of many modern broadcasting and online services, and as a driving factor behind the prospering of the ‘information economy’. The saturation of advertising markets has resulted in an intensified search for alternative forms of commercializing electronic content. New business models that make the provision of electronic services a profitable undertaking, and solutions to ‘packaging’ and marketing content were needed. To stimulate these developments, legislation promoting the implementation of electronic content control technologies was passed at national and international levels. The provisions of the Conditional Access Directive,5 together with rules on the protection of technical measures in the World Intellectual Property Organization (WIPO) treaties6 and the European Copyright Directive,7 form a framework that firmly protects the electronic control of content.

Electronic access control, however, also has the potential to fundamentally change the conditions under which electronic content is delivered to the consumer.

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Using electronic access control, service providers can send targeted services to consumers based on geographical location, market segment or personal preferences. Conditional access systems implement structures of individualized control over the subscriber base. This also means, however, that operators of electronic access control can exercise considerable influence over market conditions, competition and individual access to content.

This study examines how conditional access is regulated in European media, telecommunications and competition law. More specifically, it studies regulatory implications of conditional access in pay-TV. The pay-TV example was chosen for several reasons: traditionally, broadcasting was perceived as a medium of great economic consequence and as an effective and intrusive means of mass communication. This is due to the broad reach and universal accessibility of conventional broadcasting. Everybody who owns a TV set and is within reach of a transmission network can receive broadcasting. The individualized and private control of access to broadcasting triggers particularly strong conflicts between economic and public policy rationales. On the one hand, there is a political wish to promote pay-TV as a new business model and as a powerful motor for the digital switchover, meaning the transition from analogue to digital broadcasting. On the other hand, private monopoly control over access to broadcasting does not fit in well with the traditional goals of broadcasting policy, which consist of restricting the influence single players have on the broadcasting sector and on what is often referred to as ‘the right to information’.

With the digitization of broadcasting, convergence plays a particularly prominent role in pay-TV, which is another reason why the pay-TV example was chosen. Convergence enables pay-TV operators to offer a wide range of broadcasting and non-broadcasting services. Convergence is also a motive and driving factor behind European Commission policy for the digital broadcasting sector. This is to promote the so-called multi-platform approach, meaning that consumers can access broadcasting, information society services and telecommunications services from multiple platforms. Digital pay-TV platforms are considered to be important

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9 Convergence, meaning the amalgamation of previously distinct media, results from the ability of different network platforms to carry essentially similar kinds of services, but also the combination of consumer devices such as telephone, TV set and computer. See European Commission, Green Paper on the Convergence of the Telecommunications, Media and Information Technology Sectors and the Implications for Regulation. Towards an Information Society Approach, Brussels, 3 December 1997, COM(1997)623 final [hereinafter ‘Green Paper on Convergence’], p. 7.

10 European Commission, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on barriers to widespread access to new services and applications of the information society through open platforms in digital television and third generation mobile communications, Brussels, 9 July 2003, COM(2003) 410 final [hereinafter ‘Communication on Barriers to Widespread Access’], p. 7.

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gateways for consumers to access all sorts of services. The analysis of the current legal framework for pay-TV will show why Europe has failed to translate the multi-platform approach in European regulation for this sector.

This study will also illustrate that pay-TV challenges the traditional distinction between broadcasting and telecommunications law. While broadcasting law focuses on content-related aspects, telecommunications law focuses on transport and the technical infrastructure. Electronic access control in pay-TV does not respect this distinction because pay-TV operates at the interface between technology and content.

Finally, the fact that the pay-TV sector is better documented than the internet sector is helpful for illustration purposes. It should be noted, however, that electronic access control is not reserved to the broadcasting sector. Many of the questions that will be addressed also play a role in other media sectors such as the distribution of paid-for content via the internet or mobile platforms and internet download services using Digital Rights Management (DRM) technologies. Although this study focuses on the broadcasting sector, some results of the investigation are worth discussing within the context of other access-controlled services.

In this context, it is not the intention of this study to discuss the general regulatory environment (licensing, access to infrastructure, access to programme material, applicable laws) for digital broadcasting services, neither will the study analyze the legal situation in the European Member States. Instead, this study examines how European broadcasting, competition and telecommunications law have approached the specific subject of access-controlled digital broadcasting platforms and their impact on competition and consumer's access to broadcasting content.

This first chapter is an introductory chapter. It starts with a short general introduction of the notion of conditional access as used in this study (1.2.), and its place in the communications model (1.3.). It also presents an overview of the legal environment to provide a global overview of the setting and current situation and to establish the framework for the analysis in the subsequent chapters. The chapter then explains what electronic access control in pay-TV entails and how it works (1.4.). The next section points out some of the challenges of electronic access control for the process of (mass) media distribution as we know it (1.5.). In so doing, it addresses pivotal regulatory questions of this study and sets the general framework for dealing with them. Chapter 1 concludes with a section outlining some conclusions (1.6.) and each of the chapters in this study (1.7.).
1.2. Conditional Access—Definitions and Scope of the Study

Conditional access is a technical solution for controlling access to electronic services.\(^{11}\) More specifically, conditional access refers to a combination of hardware and software devices that, combined, enable access to a service that is transmitted electronically to be blocked and subject access to an automated authorization process. The transmitted service can be a content service, a transaction service or a telecommunications service that does not provide content but a means to communicate with another person.

Conditional access automatically identifies the requester, compares his or her identity, grants privileges according to predefined access conditions, so-called 'business rules', and initializes or rejects the processing of the requested content in an intelligible form. Typically, conditional access solutions have three basic components: electronic content protection, identification/authorization and enforcement. Electronic content protection uses encryption or similar technologies\(^{12}\) to protect content against unauthorized access. The element of identification and authorization consists of feeding the system with personal data, defining business rules, managing subscribers, identifying and verifying users and processes. Finally, enforcement is the technical realization of compliance with the business rules in the form of an automated decision to grant or deny access.

Conditional access systems are certainly not the only way to exercise control over access to content; plug-ins, browsers, operating systems, navigation devices, proprietary standards, network control and so forth, can all play a similarly important role when it comes to providing and controlling access. What makes conditional access systems particularly interesting for the purpose of this study is that they are technical solutions specifically designed to manage consumer access to content. Therefore, they are particularly well-suited to illustrate the complex relationship between control over the technical transport architecture and the accessibility of content, or more precisely, a service carrying content. Conditional access builds an 'architecture of identification'\(^{13}\) in which compliance with set conditions is an integral part of the authorization process. Because it is technically possible to identify users before they are granted access, conditional access becomes a means of controlling and monitoring consumers. Unlike other monitoring technologies such as cookies and metadata, common user identifiers and technologies that map IP addresses to computers, conditional access technologies enable their operators to relate data directly to a person with whom they may maintain a contractual relationship, for example as a subscriber to a service.

The reasons for using conditional access vary from legal and contractual obligations (for example, the protection of minors and intellectual property rights,

\(^{11}\) Definitions without further references are definitions of the author for the purpose of this study.

\(^{12}\) More about this in section 1.4.1.

\(^{13}\) Lessig 1999, p. 34.
the security of data and communication) to business reasons (differentiation, personalization, marketing and advertising strategies) and confidentiality. Perhaps the main reason to use conditional access, however, is to secure the operators’ remuneration. Some authors speak in this context of a ‘new approach of doing business based on access to services rather than the sale of products’. They argue that in the new ‘experience economy’, markets and market relations will shift towards an access regime based on securing the time-limited use of assets—the ‘age of access’. This development will go hand in hand with a shift from industrial production to cultural production in which the focus lies on the marketing of all kinds of cultural resources in the form of ‘paid-for personal entertainment’. Indeed, we can observe a shift towards the exclusive marketing of intangible information products and services. This is best illustrated by the aforementioned legal initiatives to protect technical solutions used to commercially exploit this exclusive control over content. This study primarily examines the last group of conditional access users, namely those who use conditional access to sell and distribute services on an exclusive basis, and here more specifically, in a digital broadcasting environment (see figures 2 and 3).

Conditional access systems can be used to control access to broadcasting, telecommunications or information society services. ‘Communications services’, as defined under European telecommunications law, refers to services whose aim is the transport of signals, such as telephony services, internet access, the transport of broadcasting signals, etc. ‘Communications services’ can be broadly interpreted and is sometimes misunderstood to include electronic communications in general, including services providing content or exercising editorial control over content. Because this interpretation does not reflect the intention of the European Communications Framework (see section 1.3.2.), this study has chosen to use the more precise notion of ‘telecommunications services’.

European law commonly refers to ‘information society services’ in the sense of ‘any service normally provided for remuneration, at a distance, by electronic means

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14 For more details, see the study by Helberger/Van Eijk 2000.
15 It should be noted that the term ‘remuneration’ can be understood in a narrow sense (meaning the direct financial payment by the recipient in return for the provision of a service by the service provider) or in a broad sense, in which it includes the transfer of other goods of commercial value, and in particular, information or return-services in kind. Note that certain information, for example, about the consumer, consumer behaviour, etc., is increasingly gaining its own market value. The same may apply to certain return-services in kind. More about the distinction in Helberger/Van Eijk 2000, section 1.4.1. For the purpose of this study, ‘remuneration’ is usually used in a narrow sense.
16 Rifkin 2000, p. 90.
17 Conditional Access Directive, Articles 4 and 5; Copyright Directive, Article 6; WIPO Copyright Treaty, Article 11; WIPO Performances and Phonograms Treaty, Article 18.
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and at the individual request of a consumer of services'.\textsuperscript{19} Examples of information society services are most internet services, such as e-commerce services, the provision of search tools, such as search engines, access to and the retrieval of data, the provision of internet access, on-demand, syndication\textsuperscript{20} and subscription services, hosting services, web casting, games, etc. Information society services are not reserved to the internet; they can be also electronic services that are delivered via a mobile handset (for example, horoscopes, chats, games, information services) or via the TV set top box (interactive applications, e-commerce services).

‘Broadcasting’ is defined in Article 1 (a) of the Television Without Frontiers (TWF) Directive as ‘the initial transmission by wire or over the air, including that by satellite, in unencoded or encoded form, of television programmes intended for reception by the public’.\textsuperscript{21} Broadcasting services can be transmitted via cable, satellite or terrestrial networks. They can be also distributed via IP networks or mobile platforms. Another, still controversial question is if the same service can still be called a broadcasting service.


\textsuperscript{20} Syndication services enable consumers to personalize the content they are consuming and to retrieve it from different sources. Examples are Really Simple Syndication (RSS) feeds, peer-to-peer (P2P) networks or ‘podcasting’.

Figure 2—Sectors of conditional access application. The figure provides an overview of the different kinds of services conditional access can be applied to: telecommunications services, information society services and broadcasting services. This study focuses on the latter, and here more specifically on digital broadcasting services.

Figure 3—Overview of the different broadcasting environments. Figure 3 illustrates the notion of broadcasting services as used in this study. Digital broadcasting content can be transmitted via different platforms, such as traditional broadcasting networks (cable, satellite and terrestrial networks) or other transmission routes (IP protocol, mobile platforms). The analysis focuses on digital broadcasting services that are transmitted via traditional broadcasting networks.
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One major criterion used to distinguish broadcasting services from information society services is whether a service is provided on an individual request (in which case it is an information society service) or not (in which case it is a broadcasting service). Another criterion is whether a service is distributed to a multitude of users at the same time, the so-called point-to-multi-point transmission (in which case it is a broadcasting service), or to an individual user, meaning point-to-point (in which case it is an information society service). However, it must be noted that the distinction between point-to-point and point-to-multi-point, and the distinction between individual request/no individual request blurs with digitization and the resulting convergence of the media. The increased independence from the boundaries of platforms and transmission capacity has favoured the development of new forms of presenting and marketing television and radio broadcasting. Some services still appear to be similar to the classical broadcasting services, such as near-video-on-demand, home shopping channels or subscription television. For other services, and in particular the interactive ones such as video-on-demand, broadcasters’ web pages, syndication services, interactive broadcasting and ‘Portal TV’, it is difficult to assess whether they still fit the definition of broadcasting in its traditional sense. The same is true for cases in which a broadcasting programme that was first transmitted via classical broadcasting channels, such as cable and satellite, is streamed via the internet from the service provider to an individual consumer. Moreover, the internet and mobile platforms are striving to offer (streamed) ‘broadcasting’ content together with other information society services (for example, news sites increasingly offer moving picture sequences). The deployment of broadband internet technology could turn the PC into a television equivalent that offers widespread access to television channels as well as to internet services and telecommunications services. These developments are further stimulated by European and national information policies that have subscribed to the aforementioned multi-platform approach. One example that demonstrates how close the multi-platform is already to its (technical) realization is Vizzavi, a personalized portal that is accessible across a variety of devices including the web, mobile phones and interactive TV. Vizzavi was jointly operated by Vodafone (mobile communications) and Vivendi (content, internet portal, Canal+) until Vodafone bought Vizzavi’s stakes from Vivendi and now uses the portal to offer to its mobile customers exclusive access to news, information and games.

Accordingly, modern pay-TV platforms are not confined to the marketing of digital broadcasting programmes; they also offer additional information society services, telecommunications services and e-commerce services, which are also

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22 According to the European Audiovisual Observatory 2003 "true" interactivity presupposes that an individual message is sent via a return channel, to which the service provider reacts by transmitting the data and services requested by the individual alongside the main television programme', p. 2.

23 European Commission, Communication on Barriers to Widespread Access, p. 2-3.

24 See section 1.1. Note another influential factor for the development of the broadcasting market is national broadcasting regulatory policy.
referred to as 'T-commerce'. This is also why when referring to the services carried via pay-TV platforms the study handles the more neutral notion of ‘(access-controlled) services’. Within the context of access-controlled services offered via pay-TV platforms, a further distinction can be made between services that focus on the provision of informational input, meaning content, and other services, mostly transactional services or telecommunications services (see figure 4). This study is interested in the former, access-controlled content services, for the simple reason that the use of conditional access within the context of content services can raise interesting public information policy questions about the accessibility and availability of such content. These issues are discussed in Chapter 2.

The reason why the validity of the distinction between broadcasting, telecommunications and information society services is important from a legal point of view is that different regulatory frameworks apply to each category of services. This is explained in the next section. It would go far beyond the scope of this study to discuss the difficult delineation of broadcasting and non-broadcasting services in terms of convergence. This study explains why the delineation does not make much sense in a convergent environment and what the consequences of the distinction are for effective regulation, competition and innovation.

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26 For more information see, for example, DLM (Direktorenkonferenz der Landesmedienanstalten), Third Structural Paper on the Distinction of Broadcast Services, available at <www.alm.de/english/englishl.htm> (last visited on 15 March 2005).
Figure 4—Converging pay-TV environment. Figure 4 illustrates the phenomenon of convergence in digital broadcasting, or more specifically in pay-TV. The boundaries between the different media and services are blurring. As a consequence, subscribers to a digital pay-TV platform can access via this platform not only what was commonly known as broadcasting, but also e-commerce services, interactive services, download services, email and Voice over IP, to name but a few.

1.3. The Place of Conditional Access in the Communications model

The provision of electronic services can be described as a conceptual model composed of four layers stacked on top of each other. As figure 5 shows, each level depicts a specific network function. The first three layers—the physical transmission layer, the network and carrier service layer, and the teleservice layer where the more intelligent applications of the infrastructure are placed—are, for the purpose of this study, also referred to as the ‘transport level’. The fourth layer is the ‘service level’, meaning the level where services are offered to end users. Within the service level, an additional distinction can be made between the actual access-controlled service and the marketing platform (hereinafter 'service platform') via which access-controlled services are offered to consumers. Content is passed down the model, beginning at the service provider end, from one level to the next until it is transmitted over a network. At the remote end, the content is passed up the model
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to the subscriber’s application. The transport and service level are subject to different regulatory environments.
1.3.1. **FOUR-LAYER MODEL**

![Diagram of Four-Layer Model]

Figure 5—Communications Model. Figure 5 provides a schematic overview of the different layers in the communications chain of access-controlled services. The
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Figure is an adaptation of a model in Dommering 2000, p. 266. The figure depicts the distinction European telecommunications and broadcasting law makes between the transport level, which is also referred to as the technical level in this study, and the service level, meaning the level at which content services are offered to consumers. While telecommunications law is applicable at the transport level, content services that are transported via the distribution infrastructure fall outside the scope of telecommunications law. The technical conditional access system is situated at the transport level, while the marketing platform and access-controlled content services are part of the service level.

The conditional access is situated at the transport level, and here more specifically, at the upper layer in the distribution chain, meaning the one that is the closest to the service level. This layer is called the 'teleservice layer', or for the purpose of this study, the ‘technical platform’ of a pay-TV service. Teleservices are services that store, manipulate or present and make content accessible to consumers. Teleservices can also add value to the carrier’s services at the lower layers of the Communications model. The ‘teleservice layer’ is the layer that provides the services/facilities that subscriber applications need to communicate over the respective digital TV network (for example, the decryption of the signals and the processing of the content service). The encryption of service signals relates to the form in which signals are presented to the consumer (meaning encrypted or decrypted). Conditional access control provides a kind of intelligent package for signals that are transmitted via the three transport layers, and is referred to as ‘intelligent’ because it establishes the automated dialogue between the service provider and the recipient. Subject to this dialogue is the (commercial) exchange of selected content to subscribers. Conditional access control can include additional features, depending on the intelligence and sophistication of the middleware and the software used. Such additional features can be the way in which content is presented to consumers, for example a personalized service offer, the ability of the service provider to terminate the service after a certain period of time, anti-copy protection, the provision of the service in the consumer’s preferred language, etc. Figure 5 demonstrates that conditional access is only one element of the technical pay-TV platform. Other elements that facilitate the distribution of access-controlled services are the Application Programme Interface (API), the Electronic Programme Guide (EPG), the operating system, encryption modules, the set top box, etc. This study is interested in the technical platform and its different elements, although conditional access plays a particularly prominent but not isolated role.

Figure 5 shows that the functions of the technical platform are independent of the other transport layers. A service provider can apply electronic access control irrespective of the infrastructure used to transmit the service (cable, satellite, IP-

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27 See the explanation in Arnbak/Van Cuilenburg/Dommering 1990, p. 135.
28 See for a more detailed description, section 1.4.1.
based carrier services). Conditional access systems for digital services also function irrespective of the kind of content service offered (broadcasting services via internet, films via telecommunications lines, satellite transmitted internet services, etc.). In other words, service providers can apply conditional access technologies within the context of digital service platforms that offer broadcasting services, information society and telecommunications services at the same time. The technical platform provides an independent interface that interacts with the service and transport layers of the model and is the basis for processing (access-controlled) services from the service provider to the consumer.

The same is true for the service platform, which functions independently of the services that are transmitted through it (meaning that a service platform can carry broadcasting, information society and telecommunications services, and offer them to consumers at the same time). This marketing platform belongs to the service level.

The services at the service level are services to which access is controlled, meaning services that are delivered to consumers. As already mentioned, within the service level, the study distinguishes between the service platform and the actual access-controlled services that are offered via this platform. The focus of this study is on the service platform, which is the equivalent of the technical platform at the teleservice layer. The service platform is the marketing and distribution platform for access-controlled services. It describes the entity of content and subscriber-related activities that are needed to distribute access-controlled services (see figure 6). From the consumer perspective, service platforms are the ‘portals’ to a (digital) world to which they must subscribe before they can enter. From the service provider perspective, providing access-controlled services means providing access to both the service and the technical platform. Frequently, the technical and service platform are integrated with the pay-TV platform and controlled by one and the same operator. Both the service and the technical platform, or elements thereof, can also be offered separately. Moreover, as is shown in section 4.3.2., it is not always easy to ascribe facilities to either the service or the technical part of the pay-TV platform. Often, facilities carry both technical and content or subscriber-related aspects.
Figure 6—Marketing and distribution scheme for access-controlled services. Figure 6 provides a schematic overview of a pay-TV platform. It demonstrates the distinction that the study makes between the service platform and the technical platform, and follows the distinction that was repeatedly made by the European Commission and European law. The figure shows that the technical platform and the marketing platform are closely connected although they are separate entities. The hardware and the software of the conditional access solution are situated at the technical platform level. The service platform comprises facilitative services, such as aggregation, programme acquisition and subscriber management. Subscribers subscribe to the marketing platform. Some elements of the technical platform are also implemented in the consumer hardware.

1.3.2. THE FIRST THREE LAYERS: TELECOMMUNICATIONS LAW

The first three levels of the transport level fall under telecommunications law. The subject matter of telecommunications law is the transmission of signals via wire or wireless telecommunications networks. Telecommunications law deals with the technical, economic and public information policy aspects of the transport level.\(^\text{29}\) This is a field of law that has been widely harmonized by European law.

The European Communications Framework was launched in 2003 and comprises a series of directives and associated measures with the goal to encourage competition in the electronic telecommunications markets, improve the functioning of the Internal market and guarantee basic user interests that would not be guaranteed by market forces. The main instruments of the Communications Framework are five directives (the Framework Directive,\(^\text{30}\) the Access and

\(^{29}\) Dommering 2000, p. 262.


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Interconnection Directive, the Authorisation Directive, the Universal Service Directive and the Privacy and Electronic Communications Directive. The Commission Guidelines on Market Analysis and the Assessment of Significant Market Power, the Commission Recommendation on Relevant Markets and the List of Standards and Specifications will be discussed in more depth in Chapter 4. For the purpose of this study, three directives are particularly relevant. The Framework Directive sets out the main principles, definitions, objectives and procedures for the regulation of electronic telecommunications services and networks. The Access Directive lays down procedures and principles for imposing pro-competitive obligations regarding access to and the interconnection of networks on operators with significant market power. Finally, the Universal Service Directive first requires a minimum level of availability and affordability of basic electronic telecommunications services (the so-called universal service obligations). Second, and most relevant for this study, it guarantees a set of consumer rights and consumer protection rules for the sector for users and consumers of electronic telecommunications services.

One important aspect of telecommunications law is the problem of monopoly control over services or facilities if they are crucial gateways for market access. Depending on the circumstances of the individual case, this can be access to transmission networks as well as conditional access or other elements of the

37 European Commission, List of standards and/or specifications for electronic communications networks, services and associated facilities and services (interim issue), Brussels, 31 December 2002, OJ C 331, p. 32 [hereinafter 'List of Standards and Specifications'].

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technical pay-TV platform. In this context, Article 6 of the Access Directive specifically addresses conditional access questions.

European telecommunications law is based on the idea that the sector-specific regulation of media services is divided into transport, or technical aspects, and content-related aspects. Both aspects fall under very distinct regulatory frameworks. Recital 5 of the Framework Directive leaves little doubt that telecommunications law

'does not therefore cover the content of services delivered over electronic telecommunications networks using electronic telecommunications services such as broadcasting content, financial services and certain information society services, and is therefore without prejudice to measures taken at Community or national level in respect of such services, in compliance with Community law, in order to promote cultural and linguistic diversity and to ensure the defence of media pluralism'.

1.3.3. THE SERVICE LAYER: MEDIA LAW

The content-related aspects of the services that are delivered via pay-TV platforms fall, among others, under media law. Such aspects can be the general accessibility and availability of content as well as the quality of content, in particular if it reflects a wide range of different subjects and ideas (pluralism) and if it comes from different sources (diversity). Content-related aspects can also be the way in which content is presented, meaning objectively and in accordance with journalistic principles, and which content is presented, for example, content containing hate speech, content which is dangerous for the development of minors, etc.

Media law is traditionally a product of both public information policy and economically motivated norms that have a variety of goals. In media law, economic goals are to promote functioning competition between a variety of services with the purpose of creating, as the European Commission calls it, 'the world's most competitive, knowledge-based economy'. Economic goals also contribute towards the realization of European Internal Market (Internal Market) principles such as the free flow of services across national borders. The control of economic monopoly power can also be an important public information policy issue. Media ownership law is a form of specialized ex ante structural control designed to limit excessive

40 See also Framework Directive, Article 1 (3).
42 Gibbons 2000, p. 313.
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economic and journalistic influences and to prevent the overall media output from being controlled by one or few dominant voices.\footnote{Gibbons 1999, p. 159. Gibbons 2000, p. 313. For an international overview, see the paper by Van Loon 1993.} Central to public information policy is also the availability and accessibility of content for consumers, whereby, in this context, consumers are seen in their role as citizens.

In media law, two major regulatory models are distinguished: the first consists of a concept of elaborate sector-specific content and market control, the other pursues the principle of little interference by regulation and a tendency to leave matters to the market, general competition and consumer protection law or to self-regulation. An example of the former is broadcasting regulation, and of the latter press law. In addition to these two models, there are mixed models such as the regulation of information society services for the internet that can have the character of sector-specific competition law and consumer protection law, notably e-commerce law, leaving it to European Union Member States (Member States) to adopt additional content-related rules in areas in which information society services show a certain degree of journalistic involvement. The broadcasting sector is subject to a significantly greater degree of public intervention than the sectors of the press or of information society services. The regulation of broadcasting is characterized by an alleged ongoing collision of commercial interests, market mechanisms and public information policy. However, broadcasting law, which is at the focus of this study, is undergoing a process of rethinking, as convergence and the invasion of market mechanisms into the media raises a number of existential questions as to the preferable scope and justification of public intervention.

Unlike telecommunications law, European broadcasting law is only partly harmonized in the TWF Directive, while other aspects of broadcasting policy and regulation remain under the authority of Member States. In addition, the Council of Europe has adopted the European Convention on Transfrontier Television\footnote{Council of Europe, European Convention on Transfrontier Television, Strasbourg, 5 May 1989, Text amended according to the provisions of the Protocol (ETS No. 171) which entered into force, on 1 March 2002 [hereinafter 'European Convention on Transfrontier Television—ECTT'].} that is relevant to all Member States of the Council of Europe. In particular the regulations for pay-TV, however, are fairly harmonized. European regulation exists in the form of Article 3a of the TWF Directive and the Conditional Access Directive, although the latter is not strictly spoken broadcasting law. The Conditional Access Directive provides rules against the unauthorized circumvention of conditional access systems for broadcasting and information society services.

Broadcasting law seeks to ‘provide conditions that are most favourable towards pluralism’ through rules on licensing, media ownership and programme obligations.\footnote{Gibbons 1999, p. 159.} In so doing, broadcasting law seeks to protect, among other things, the position of the consumer, or in this context rather the citizen, by creating the conditions for the broad availability and accessibility of multiple content from...
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different sources. The protection provided is indirect: it does not address consumers or give them specific rights to claim certain behaviour from broadcasters. Instead, broadcasting law addresses broadcasters and imposes programme and other obligations that are (also) in the interest of consumers. Another question that the study will bring to the fore is whether implementing electronic access control in the distribution process will change the assumption of a the audience as passive receivers and hence the paternalistic approach of broadcasting regulation.

Pay-TV arguably still falls under European broadcasting law, as do the broadcasting services that are transported via such platforms.46 But consumers also enter into a direct contractual relationship with pay-TV providers who set prices and contractual conditions. The relationship between service providers and consumers in the broadcasting sector is thus no longer just a matter of (public) broadcasting law, but is also shaped by contracts. In general, these are standard term contracts and consumers have very limited negotiating power.

Commonly, the legal position and the balance in a commercial relationship between consumers and service providers fall under consumer protection law. The underlying idea of consumer protection law is to balance the negotiating power of contracting parties and provide guidelines that safeguard the interests of the parties. The European provisions on consumer protection are spread over a number of different regulations.47 Some sectors have specific consumer protection provisions, such as telecommunications law in the Universal Service Directive, the goal of which is to ensure fair and adequate access to, and use of telecommunications services. The Universal Service Directive imposes a number of specific behavioural rules on service providers that have the realization of consumer interests in mind such as pricing principles, data protection, security and secrecy of communication, universal services, etc. For the time being, broadcasting law does not have direct rules on consumer protection.

46 See Articles 1(a) and 3(a) of the Television Without Frontiers Directive.

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1.4. Electronic Access Control in Pay-TV

Conditional access is used in this study in a broad sense. The conditional access system was defined as a combination of hardware devices (set top box, smart card) and software. Software and devices directly support electronic access control and other facilitative elements of the technical platform that are needed to provide access-controlled services, such as the Application Programme Interface, the memory of the set top box and the return channel or Electronic Programme Guide. Together, they make up the technical platform for pay-TV. Using the example of a fictive conditional access solution for a pay-TV platform, the next section explains how a technical platform for access-controlled services is composed and functions. The description is purely schematic and does not claim to be technically complete or state-of-the-art. However, it does introduce and explain the main notions that are used throughout this study.

1.4.1. Functional Conditional Access Model

![Diagram](image)

*Figure 7—Simplified model of a conditional access system for pay-TV. Figure 7 is a simplified representation of a conditional access environment for pay-TV. The different elements and how they are related to each other is described in the text.*

Figure 7 provides an overview of the main components of conditional access: an encryption algorithm, control word, Entitlement Management Message (EMM), Entitlement Control Message (ECM), smart card, Subscriber Management System (SMS), Subscriber Authorisation System (SAS), an operating system and Application Programme Interfaces (API) that coordinate the performance of the different tasks, and finally, an Electronic Programme Guide (EPG). Modern
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conditional access solutions also implement a return channel (for example, telephone or cable network, internet) that allows service providers to interact with each individual subscriber and vice-versa.

Encryption/Password
Restricting access to a particular service can be accomplished by using, for example, encryption technologies. Once the signal is encrypted, it can only be decrypted by authorized users. Other technologies, notably password systems, biometrical systems and evaluating and filtering devices, can be implemented in addition to encryption technologies. Which particular technology is used depends largely on the kind of information service offered. Broadcasting and other streaming media services usually rely on encryption technologies because they are one way of protecting electronically transmitted signals during distribution. For areas in which the main interest is to prevent unauthorized access to information within the sphere of the service provider, for example, database services or portals, password protection or similar technologies that require prior registration and the entry of a password and user identification (or credit card number, date of birth, etc.) may be the most appropriate.

Control Word
In environments in which conditional access is based on encryption technologies, the signal can be encrypted and decrypted by means of a control word. The control word consists of electronic keys; random strings of bits that are used to initialize the decryption process in the decoder or computer. The final control word is composed of a number of such keys, which also include specific information about the services the consumer is entitled to obtain, access conditions, detailed control information to operate the descrambler, ECM and EMM. All of the information is encrypted together and sent with the content service (for example, broadcasting) signal to the decoder. Alternatively, the necessary decryption and authorization information can be stored on an electronic smart card that is plugged into the set top box. The conditional access operator may also choose to embed only the keys that are necessary to decrypt the ECM and the EMM, etc., while the control word itself is sent together with the broadcasting signal to the set top box.  

Entitlement Management Message and Entitlement Control Message
An Entitlement Management Message (EMM) carries the authorization details and is subscriber-specific. The Entitlement Control Message (ECM) carries programme and service-specific information including access conditions and control words that

48 The security of a crypto-system does not necessarily depend on keeping the crypto-algorithm secret. The security can also depend on keeping the key secret, according to the so-called 'Kerckhoffs' principle'.
are used by the set top box to decrypt the service signal. The decryption process is only performed if the specific subscriber is entitled to receive the specific content.

**Smart Card**

Smart cards are plastic cards that contain a microprocessor. They are used to store and process information about the cardholder. The information stored on the smart card is needed to initialize the decryption process within the decoder. In addition, modern smart cards incorporate a range of features that make them suitable for a number of transactions such as e-commerce, secure email, personal identification, the storage of customer preferences and personal information and, finally, as an electronic wallet for e-payment solutions. Smart-card technology means a high level of security; only the authorized owner of a smart card can access the services he or she is entitled to receive. Meanwhile, there are smart card readers for PCs that are used, for example, in conjunction with online banking services.

**Subscriber Management System**

The Subscriber Management System (SMS) is the management centre for the type of conditional access that handles the exchange of services and the return of services between the service provider and the consumer. It initializes personalized smart cards/passwords and their distribution to the respective subscriber. Moreover, the SMS sends out bills and receives payments from subscribers. An important element of the SMS is the customer database, where information about subscribers, including the serial number or IP number of the decoders and information about the services to which they have subscribed, is stored. Functions typically provided by the SMS software applications include:

- Registering, modifying and cancelling subscriber records.
- Carrying out targeted marketing campaigns.
- Managing the set top box and smart card inventory.
- Tracking customer experiences.
- Interfacing with banks and credit card companies.
- Preparing and formatting electronic bills.
- Presenting electronic bills to customers.
- Accounting and auditing facilities, etc.

The SMS is an essential marketing tool because it not only contains billing information, but also specific data about individual consumer behaviour, viewing preferences, etc. Furthermore, it provides contact addresses and other data that have been collected in the course of the subscription process. Obviously, consumer data cannot be accessed without access to the SMS data. Data and addresses are necessary for direct marketing and consumer-tailored initiatives (the SMS controller

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49 O'Driscoll 2000, p. 17.
can analyze subscriber data and adapt its services to respond optimally to consumer demand).

**Subscriber Authorisation System**

The Subscriber Authorisation System (SAS) is responsible for the technical side of conditional access, the decryption, or making the information accessible. In a password-based system, the SAS initializes the access routine once the correct password has been entered in the system. For SMS-driven encryption-based systems, the SAS sends EMMs and ECMs to the decoding device on the consumer side. For subscription services, the SAS sends EMMs and ECMs to the computer on a regular basis (for example, each month) to renew the subscription rights. For pay-per-view or pay-per-access modes, the SAS sends the information required to access one particular event. The SAS contains databases that can store different kinds of information such as:

- Service information.
- Smart card identification numbers.
- Customer profiles.
- Scheduling data.

**Return Channel**

The return channel is a direct link between the set top box and the SMS using a modem and a telephone, a cable network or the internet. The return channel establishes a two-way communications mode and allows the broadcaster to directly contact the consumer and vice-versa. The return channel can be used for a number of reasons, including interactivity and audience participation, direct marketing activities, billing (pay-per-view), and the provision of consumer requests (on-demand films). It can be also used to monitor individual consumer’s viewing behaviour.

**Set Top Box**

Originally, the primary task of the set top box, which is also the hardware that enables conditional access, was to host the security functions and provide a platform for the decryption procedure at the consumer end. However, the hardware itself is now increasingly developing its own functionality. The set top box not only plays an important role for access-controlled services, but for digital television in general, because it converts digital signals to analogue signals that can be viewed through an ordinary TV set, and because it provides the necessary technical environment to proceed with enhanced broadcasting or information society services.50

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50 Today already, consumers can choose between set top boxes with and without conditional access. The latter are exclusively designed for the reception of free-to-air digital services.
CHAPTER 1

In environments in which access-controlled signals are distributed to a computer, authentication, identification and decryption take place using the computer's own operating system and memory as well as a some player software and plug-ins such as RealPlayer, Microsoft's Music Player, Winamp or QuickTime, etc. Unlike set top box technology, most players can be downloaded from the internet for free. The player software must be interoperable with the file's compression technology, and, if used, the DRM and encryption technology. The more technologies the player software supports, the more different content it will be able to play.

For signals that are transmitted to a TV set, the set top box will usually be the platform used to process all of the functions required to receive and decrypt the signal at the remote end.\(^5\) The set top box incorporates the hardware and software required to receive and decrypt access-controlled broadcasting signals. The main components of a set top box are a decryption chip (holds the algorithm section for conditional access), a secure processor (stores all of the information required for the authorization process (can also be implemented in the smart card), a demodulation unit (in case the received signals are digital signals that have to be translated for an analogue TV set), a central processor (manages the functions and operations in the set top box), memory, modems, an operating system, a set top box browser\(^5\) and a search engine.

**Application Programme Interface**

As well as having their own operating system, modern set top boxes or other reception devices, such as the X-Box, also have Application Programme Interfaces (APIs) (middleware similar to that of a computer) that handle the encryption and decryption process as well as the increasingly complex processing of services and interactive applications. The middleware is largely independent of the underlying hardware and network components. The advantage is that advanced applications can be written for a common API that can process the application irrespective of a manufacturer's individual specifications for a particular set top box. An independently operating middle level serves application portability and uniformity in the look and feel of interactive applications. Thus, the API functions as a communication bridge (interface) between the operating system of the set top box and the application. The API is used to run advanced service applications such as EPGs, video-on-demand, e-commerce applications and online games that exceed the processing power of the general set top box operating system. In other words, an API is a kind of specialized operating system that can process advanced applications while communicating with the operating system of the set top box and activating the functions and resources required. Depending on the manufacturer and the specifications, an API supports a limited number of application programming languages. Due to the relatively large number of (proprietary) APIs for set top

\(^5\) An alternative are TV sets with integrated set top boxes.

\(^5\) The set top box browser can organize web content in a format that is also viewable on a TV screen.
boxes and the lack of a common standard, applications may not be transferable from one set top box to the other. At the time of writing, discussions are still underway to reach an agreement on the so-called MHP standard for set top box APIs. MHP was developed by the DVB and has been ratified by the European Telecommunications Standards Institute (ETSI). MHP is based on open standards and is a standardized API that allows third parties to develop their own interactive applications.\(^5\)

**Electronic Program Guide**

The Electronic Programme Guide (EPG) is one example of an interactive programme application that is processed via APIs. The task of the EPG is to lead the consumer through the available choices. In an online environment, their equivalent may be a combination of a portal and search engine. EPGs can be designed with varying degrees of journalistic input and interactivity. Strictly speaking, the EPG is not embedded in a conditional access system, and it can belong to an unencrypted service platform (for example, the EPG of the digital service platform of public broadcasters). Having said that, EPGs will be key elements of most of the modern access-controlled digital service platforms.

When an EPG application is started, the first thing the user might see is the EPG’s ‘Welcome Page’. The welcome page and the following page(s) could include a collection of icons for all of the available programmes and other services such as internet access, email, games and other interactive applications. The EPG is based on additional information about the programme and other applications (EPG data) that the service operator usually sends together with the broadcasting signal. Based on these data, the EPG can be directly generated by the decoder (the so-called Basic Navigator EPG). The Basic Navigator EPG could become a standard function of future set top boxes.\(^4\) Alternatively, broadcasters or service platform operators could choose to develop their own EPG (‘Broadcaster’s EPG’) and offer it to consumers as part of their services. In this case, the broadcasters (or third parties) would send a specific application with the EPG data which would generate the Broadcaster’s EPG.\(^5\)

**General Remarks**

The previous section shows that the technical platform for access-controlled services is not one device, but a combination of various services and facilities. The combination of elements can differ and single elements can develop their own functionality (as in the case of the set top box or the API). The different components of a conditional access system do not necessarily have to be provided by the pay-TV operator: it is also possible to commission an independent operator.

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\(^4\) In this case, the EPG is pre-determined by the set top box manufacturer.

\(^5\) For more details, see the article by Weiss/Wood 1998.
Eventually, functions can be spread across different specialized operators or service providers. For example, broadcasters can choose to implement their own EPG or SMS service while sharing the conditional access system with another service provider. Moreover, a number of independent set top box manufacturers such as Philips, Motorola, Nokia and Pace are developing set top boxes and software solutions for providers of (access-controlled) digital service platforms.

With digitization, it should no longer matter in the mid-term future which transmission medium (cable, satellite, broadband) is used to deliver the signal carrying the content or control word; the conditional access process is transmission-medium independent. Digitized TV signals can be combined with enhanced signals such as video, graphics, texts and web links—so-called enhanced television\(^56\)—and received via satellite, cable, internet\(^7\) or mobile platforms. For digitized signals, it does not matter what the content of the signal is (written word, sound, video signal).

Having said that, conditional access solutions for pay-TV platforms were originally developed separately from conditional access devices for other services and in particular for information society services delivered via the internet. This is often explained by the different structure of communications in these sectors. In the sector of information society services, server-based applications (pull services) such as databases and websites were predominant. Here, the consumer (meaning any web surfer) is largely unknown to the provider. Asymmetric solutions are therefore required, for example, to identify the web surfer. In the area of broadcasting, a consumer first has to subscribe and is hence not anonymous. Consequently, simpler solutions such as encryption technologies may be sufficient.

With the convergence of transmission means and methods, the borderlines are blurring and technical development is overcoming other traditional differences between set top box-based services and PC-based services. Examples are factors such as the resolution of PC and TV screens, the navigation device (keyboard/remote control), font size, memory and transmission capacities. Over the last years, the set top box has evolved into a PC-like device, or vice-versa. It can be a 'computer for the average consumer' who wants to send email, surf the web, download content and use e-commerce applications, but who does not want to be bothered with the complexities of the computer itself. Both the set top boxes and PCs have high-speed data interfaces, a lot of memory, powerful processors, a high-speed return channel and APIs that can process all kinds of TV or internet-centric applications. More and more, the reception device used to receive a specific service

\(^{56}\) 'Enhanced TV' refers to technology that enables consumers to receive both television broadcasting and access the internet from the same screen at the same time. Enhanced TV services can vary from simple services that include links to related sites on the internet to highly involved interactivity that merges a TV image with menus, rich multimedia content and supporting text, O'Driscol 2000, p. 248.

\(^{57}\) For an overview of webcasters, see <http://www.portal.tvoon.de/9715.0.html> (last visited on 14 March 2005).
will be a question of taste. The same conditional access could be used to secure access to broadcasting and/or interactive and personalized information society services.

Digital-broadcasting-service-platform operators continue to drive the development of enhanced digital broadcasting technology. Not surprisingly, however, PC operating system manufacturers are hurrying to secure their position on the market for set top box operating systems (among them Microsoft, Sun and Linux). The other way round, hardware manufacturers such as Philips and Sony are driving the transition towards the PC as a single device for TV reception and alternative for the set top box.59

1.4.2. HOW PAY-TV WORKS

For consumers, the reception of access-controlled services usually involves entering into a subscription contract that lays down the conditions for the service with the service provider. This ‘obligation’ generally involves accepting the service provider’s conditions and paying a monthly fee for a minimum period of time. Subscribers are often required to sign up for a minimum period of three months, and some providers even issue contracts for up to twenty-four months. The subscription process is also frequently used to collect additional information about the subscriber such as age, sex, profession and interests, how he or she heard of the service offer, etc. The prices for the packages vary, and it can generally be said that the greater the variety of the services, the higher the price. In most cases, the fee will exceed the general broadcasting fee, which the consumer will have to continue paying together with cable subscription fees, etc. Subscription fees and conditions differ widely across Europe.60 In addition, most providers charge a one-time subscription-opening fee. If the service is provided via a set top box, the consumer will have to purchase or rent the box. A number of providers link the subscription to the purchase/rental of a decoder for which they charge additional fees. Some service providers, however, also subsidize set top boxes or even give them away for free.

The following example of a digital pay-TV service is used to explain (in simplified form) how electronic access control in digital broadcasting works in practice. The service operator must first ensure that the programmes are exclusively transmitted in encrypted or otherwise protected form. At this stage, the consumer receives at best the encrypted, non-readable signal via the TV set. To decrypt the

59 In order to receive internet-based services via a set top box, the set top box must be issued with an individual IP address and must be able to download the necessary plug-ins and players to receive web content. In addition, the operating system of the set top box must be able to support a large number of different interactive applications (application portability).

60 For example, the Xbox by Microsoft is connected to the internet and the television, <www.xbox.com> (last visited on 14 March 2005).

For an overview see <http://www2.digitalfernsehen.de/Sender/1039791283> (last visited on 14 March 2005); Idate 2000, p. 85.
signal, the consumer must register with the pay-TV provider. This registration is transmitted to the service provider (via mail, email, fax, or the internet). The subscriber’s data such as name, age, sex, credit card number or whatever data are required for the subscription process (preferences, special interests, etc.), are stored in the SMS. Based on the information provided, the authorization system updates the SMS database. The SMS creates a personalized smart card that contains the subscriber’s personal information, the services he or she is entitled to receive, his or her personal preferences and the keys necessary to decrypt the programme, etc. The smart card is then sent to the consumer. For pay-TV, the SAS subsequently sends to the consumer’s set top box, under the management of the SMS, the ECMs and EMMs required to initialize the decryption process. If this information is included on the smart card, the set top box will identify the smart card and thus the consumer, and initialize the decryption process.

The process by which the user requests a specific item, for example, a film from an on-demand service is more complex. The moment the subscriber requests a film, the request is forwarded via a return channel. The SMS checks the data received and decides on the basis of the data stored (including payment of fees, age, etc.) whether the requester is entitled to this access. The service provider is usually free to determine in each individual case the conditions of access, be it the age of the requester, his or her willingness (and ability) to pay the required price, his or her geographic location, etc. If the conditions are fulfilled, the SAS is notified and the ECM and EMM keys used to initialize the decryption process are initiated. The encrypted control word is then sent together with the content to the consumer’s set top box. Together with the information stored on the subscriber’s smart card and the access code, the encoded signal is correctly decoded and made intelligible via the set top box. Because the capacity of the set top box’s operating system is often too limited to process more sophisticated services, the on-demand application will probably be processed via a special API that initializes the process of loading the content from the movie database at the head-end, processes the programme and/or additional information, adapts the presentation’s graphic format to suit the platform, checks authorization, etc. Billing is performed either directly via the smart card (electronic purse) or via the return channel.

1.4.3. MAIN STRUCTURE AND LINES OF MARKET DEVELOPMENT

The initial development of the pay-TV sector was driven by a few relatively strong players. From the beginning, the development of the technical solutions for pay-TV was tightly interwoven due of the economic and technical integration of the technical and service platforms.61 Very generally, four main lines of development can be identified:
- Market consolidation.

61 See also section 3.3.1.
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- Convergence.
- Vertical integration.
- Intermediary platforms.

Market Consolidation

At the time of writing, the pay-TV sector in the different Member States is generally in the hands of a small number of highly diversified, strong, and international or regional operating enterprises that are also, to a large extent, affiliated. In most cases, one, or at the most three to four major players offer pay-TV services in each country. Pay-TV mainly involves already established national players from the analogue broadcasting world who fight hard to obtain similar positions in the digital world, and in particular in pay-TV.

In addition, the development and operation of technical solutions for pay-TV is in the hands of a small number of enterprises. Moreover, it is usually the larger countries that have two or more competing pay-TV platforms with different conditional access solutions. The solutions are generally proprietary, and the proliferation of interoperability solutions is still rather modest. The result is that consumers with a set top box running one standard are often not able to receive services from a competing platform. A good example of competing pay-TV platforms with different conditional access systems is France with Canal+, TPS and ABSat. Canal+ has a Mediaguard conditional access (Kudelski); TPS and ABSat operate the Viaccess conditional access (France Telecom). Only ABSat, which is the smallest platform, succeeded in concluding an interoperability agreement with both major service platforms so that subscribers to ABSat can also receive ABSat services via the Canal+ set top box.

When a country has several pay-TV platforms, the operators often compete through different transmission platforms, for example, satellite and cable in the UK and The Netherlands or satellite and terrestrial in France. Here, issues of transcontrol can come to the fore and may cause conflicts between cable and pay-TV platform operators (for example, in The Netherlands, where lengthy negotiations were required for Canal+ and UPC to agree on a solution to the decoder problem). However, competition can also take place within one and the same delivery platform such as in the UK where the British pay-TV operator BSkyB distributes a range of third-party services via the Sky platform. Generally, cable operators are considered serious challengers to satellite-centred services. Unlike satellite broadcasters, cable operators already have their own subscriber base and often own the necessary technical equipment and infrastructure to bill individual consumers.

62 For a more detailed insight, see European Audiovisual Observatory 2004, pp. 10-12; also: study by Andersen Consulting 2002.
63 Idate estimates that, taking all broadcasting media into account, there are at the most (in the cases of France and the UK) six digital pay-TV operators in one country, Idate 2001, pp. 104, 107. See also Neumann 1998, 225 pp.
Convergence
Established digital broadcasting operators are experiencing competition from new entrants, mostly operators at the network level, and telecommunications and cable operators that are entering the content business. However, banks, sport clubs and video game producers, to give some examples, who are interested in extending their activities to the digital service platforms are also entering the scene. In this context, convergence implies that traditional pay-TV operators are confronted with increasing competition not only from rival pay-TV operators, but also from competitors that are active in internet or mobile markets.

Convergence also implies that pay-TV platforms are not confined to the marketing of digital broadcasting programmes; they also offer additional information society services, enhanced telecommunications services and e-commerce services that could also be offered via the internet. Likewise, traditional internet services are joining pay-TV platforms. And, last but not least, the internet and mobile platforms are striving to offer ‘broadcasting’ content together with other information society services. For example, news sites increasingly offer moving picture sequences, mobile telephony operators purchase rights for the transmission of soccer events, etc. These developments are further stimulated by European and national public information policies that have subscribed to the aforementioned ‘multi-platform approach’.

Vertical Integration
In response to the process of convergence, media markets are seeing many strategic alliances between different ‘major’ players at the different levels of the pay-TV distribution chain:
- Content production.
- Content acquisition.
- Aggregation and selling to subscribers (service level).
- Transmission via the technical platform (technical level).
- Transmission via physical networks.

In other words, pay-TV operators are often vertically integrated in one form or another (either by ownership or alliances) and thus exercise control over several steps in the distribution chain. Pay-TV operators are often active in the acquisition of content or third-party services (in the form of programmes or whole channels) that are packaged into programme bouquets and sold to consumers, as well as in the operation of the technical distribution platform. Chapter 3 describes a number of

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64 See section 1.1.
65 IDATE 2001; Amstrong 1999, 258pp.; Neumann 1998, 37pp. and 232 pp.; the papers by Cave/Crandall 2001 (about vertical integration between broadcaster and sports leagues) and Galbiati/Nicita/Nizi 2004, 2pp. (pointing to differences with the US pay-TV market that seems to be much more characterized by vertical separation).
major alliances that involved or would have involved different players in different steps of the distribution chain with the goal to further vertical integration.\footnote{See section 3.3.1.}

Of particular interest to this study is the combination of service and technical platform. The selling of digital content is presently the core business of most conditional access operators. This explains the close links between the service and the technical level, because the technical level is an integrated part of the business model and strategy. This also explains why many service providers are directly involved in the market for conditional access systems or associated facilities. Examples are France Telecom (Viaccess), Nethold (Irdeto) and Murdoch (BSkyB) (Videoguard).

\textit{Intermediary Platform —A Change in the way Broadcasting Services are Distributed}

The trends described above are also a result of the change in the overall distribution strategy for content services. Controlling access to content allows for new, more sophisticated pricing and marketing strategies than the concepts of financing through fees or advertising allow for. Services are no longer ‘set off in the air’, but marketed individually to subscribers. The possibilities of targeted and personalized marketing allow for differentiation between consumer groups and preferences in the form of price discrimination. Price discrimination and diversification can be a means of attracting the attention of those parts of the audience that have been neglected by advertisers so far. Moreover, a new source of revenue enables the financing of new programmes and services that would otherwise not be possible under conventional advertising models.\footnote{See also Neumann 1998, pp. 148-150.} Market players are now looking for new business models to exploit these potentials. The marketing of digital services via intermediary platforms is one of these models.

Many modern pay-TV platforms function as intermediary platforms, meaning as a kind of portal through which access to a range of services is marketed to consumers.\footnote{The following section is based on, among others, the papers/studies by Nocke/Peitz/Stahl 2004; Armstrong 1999; Galbiati/Nicita/Nizi 2004; Neumann 1998 145pp., 225pp.; Evans 2003; Wright 2003; Dietl/Frank 2000, 596pp.; Rochet/Tirole 2003 and Bakos/Brynjolfsson 1999. The latter provide an extensive discussion of business models involving aggregation and intermediary platforms using, among other things, the example of site licensing and subscription services, 14pp.} The operators of such pay-TV platforms—modern information brokers—do not necessarily distribute their own content; instead, they are experts at marketing and selling the content of others. The service platform’s main task is to aggregate services and deliver packaged and tailored content to subscribers under a common brand name\footnote{For more information on branding, see Breunin 2000, p. 380.} and through a common business platform.

One part of the business strategy consists of selling access to the pay-TV platform to other content service providers, and preferably to those that can add to
the overall attractiveness of the platform for subscribers. The other part of the business strategy consists of attracting subscribers and selling them access to the platform. Intermediary platforms have a central position in the distribution chain between content service providers and consumers. In other words, pay-TV platforms not only offer third-party content-service providers the technical and marketing services required to sell content to subscribers, they also provide them with another valuable commodity in return: consumer attention. This is an important function of intermediary platforms in more than just the broadcasting sector. It will become even more important as the expected increase in the number of digital channels will make it more and more difficult for broadcasters to attract sufficient consumer attention to sustain the economic viability of a service. And consumer attention is worth money. The amount of attention a particular programme receives determines its economic value for advertisers, providing advertising is permitted on the pay-TV platform, and sponsors, as well as for the retail market in broadcasting content. A pay-TV platform with a large subscriber base can therefore generate positive externalities for the service providers that are carried via the platform. Similarly, the presence of a large number of service providers on a pay-TV platform can generate positive externalities for subscribers because the platform offers them a broad range of services and more choice. The fact that pay-TV platforms serve several sides of the market can influence the decisions the operators make in many ways in terms of pricing, interoperability and the services admitted to the platform. This is because the operator has to get and keep the different sides of a market on board.

Aggregating and selling content via an intermediary platform instead of selling content separately and directly to the consumer can have a number of advantages that make this business model attractive for all parties involved. An important reason is the reduction of administration, transaction, marketing and maintenance costs. The individualized marketing of access-controlled services to consumers is a complex process that requires a lot of organization, from the acquisition and aggregation of content, the journalistic arrangement of marketable units under a common brand name, advertising, subscriber management and service, content protection and monitoring, to the provision of service information and orientation for subscribers (EPG, search index, navigators). The service-platform operator usually performs these tasks centrally. The concentration of all management tasks in one hand allows for more efficient processing. It should be noted, however, that in most cases they can also be offered separately. Control over the intermediary platform does not only allow for the optimized marketing and advertising of one’s

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70 A positive externality can be described as ‘something that party A generates for party B but for which party A has no practical way to demand compensation’, Evans 2003, p. 2 in footnote 6.
71 Evans 2003, pp. 32-33.
72 See the papers by Armstrong 1999; Nocke/Peitz/Stahl 2004; Evans 2003; Wright 2003; and Rochet/Tirole 2003.
own services, it also favours the efficient distribution of third-party resources,\(^{73}\) optimizes product variety, increases economic efficiency and reduces redundancy. Platform operators can also benefit from joint control over vertical components of the distribution platform such as the service and technical platform, or from ownership in programme rights, an own distribution platform, etc. This again allows for a more efficient use of the overall distribution platform, including the benefits from the compatibility of the components within the platform. For example, the operator of a pay-TV platform can ensure that all the services that are provided via this particular platform are compatible with each other and with the consumers’ set top box. This is also why it can be so important for smaller third-party content providers to have access to a popular platform.

A central element of the pay-TV business strategy is bundling strategies.\(^{74}\) This is not really new to broadcasting or mass media in general. A traditional broadcasting channel can be understood as a bundle of different content. The difference between traditional channels and the bundling strategies of pay-TV platforms is that the latter bundle a number of services that could also be offered individually. Pay-TV operators can bundle broadcasting with non-broadcasting services, for example broadcasting, telephone and internet services, something that is referred to as ‘triple play’. Pay-TV operators can also create pure broadcasting bundles, for example, a lifestyle package that offers cooking channels, health and beauty channels, and travel channels. A package can be offered at a lower price than the individual subscriptions, providing individual subscription is possible. Another example is the bundling of a basic package and a premium package. The former can be made up of a combination of different channels that each subscriber receives, while subscribers must take an additional subscription in order to receive the combination package, which offers particularly popular (premium) content such as sports and movies. As will be explained in the following section 1.5.3., bundling strategies can be profitable and pro-competitive for different reasons. Under certain circumstances, however, they can also be anti-competitive. An assessment of bundling strategies under general competition law is performed in Chapter 3.\(^{75}\)

There are various examples of bundling strategies used in pay-TV and in the media in general. For example, bundling can take place between pay-TV platform operators and competitors. Platform operators can require competitors who wish to use their conditional access system to use their EPG, or to agree to being marketed via the same service platform and under the same brand name. The example of channel bundling will be discussed in more depth in sections 1.5.3. and 3.4.3. A second example that will be dealt with in more depth requires subscribers to

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\(^{73}\) Most of the existing service platforms carry third-party channels and services. These channels are either licensed to the platform operator, or they pay to be carried via the platform.

\(^{74}\) The notions ‘packaging’ or ‘aggregating’ are often used synonymously. It should be noted that the notion of ‘bundling’ used in this context is not necessarily identical with the notion of ‘bundling’ used in competition law analysis (see section 3.4.3.).

\(^{75}\) See section 3.4.3.
purchase a particular set top box, namely the one that supports the technical standard of the particular pay-TV provider’s services.

1.5. The Impact of Conditional Access on the Distribution Chain

Individual control over access to content services introduces new features to the broadcasting world as we know it. To understand them is important for the legal discussion in the chapters to follow. The classic broadcasting model involves the undirected one-way transmission of electronic content towards a multitude of (anonymous) recipients. Once sent, electronic content can be received by anyone who has the necessary technical equipment and is within reach of the respective transmission medium, be it the footprint of a satellite or the local cable or telephone network. Conditional access is changing the general distribution structure for what was commonly known as ‘broadcasting’. Pay-TV services address individual consumers separately to authorize access, send them a bill, a specialized advertisement or a specific service they requested.

1.5.1. NEW FEATURES

*Individualization and Interactivity*

Conditional access introduces an element of interaction, or interactivity, between the sender and the recipient of the content that was formerly unknown to traditional broadcasting (as opposed to, for example, data retrieval services on the internet where this is common). Because most modern conditional access systems are based on a two-way communications model and include a return channel, they support interactivity between the sender and the recipient.

*Contract versus Public Law*

Probably one of the most significant changes is that viewers pay directly for broadcasting content. Depending on how much choice the pay-TV platform business model enables, viewers can even specify which content they want to watch and pay for. The distribution of broadcasting content is shifting from a previously public sphere to a more personal sphere where the conditions for access to a service are directly negotiated between the service provider and the requester. This is perhaps not so new to other media such as the press or the internet, but it is new to broadcasting. Access-controlled broadcasting can be responsive to demand, and viewers are consumers.

As long as broadcasting signals were uncontrollable, there was no tangible matter that could be sold to consumers. In free-TV, the contractual relationship exists between the broadcaster and the advertiser; consumers ‘pay’ for broadcasting content in the form of a public broadcasting fee and their attention. This changed when electronic access control was introduced to the distribution process.

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The change towards an individualized, commercialized distribution pattern may explain why traditional broadcasting law has so far been of little use when dealing with electronic access control. Traditional broadcasting law is based on the assumption a) of limited resources and b) that once a programme is transmitted it is generally available. Broadcasting law addresses in the first instance the programme producers, the broadcasters, and imposes on them a number of obligations concerning media concentration, programme quality, pluralism and so forth. Electronic access control introduces access control to the telecommunications process after a programme is composed. Consequently, traditional broadcasting law does not effectively address such control. From the consumers’ perspective, consumers depend on access to an access-controlled platform before they can access particular content. For consumers, economic or journalistic influence is thus exercised at an earlier stage, namely when controlling access to the platform. It is the contractual relationship between the consumer, the subscriber and the platform operator that determines which content can be watched at which conditions. When a service provider and a consumer conclude a subscription contract, the relationship between them is no longer governed by broadcasting law alone, but also by the terms and conditions imposed by the platform operator.

Access is no Longer ‘Free’
Access to the services that are offered via access-controlled platforms is no longer ‘free’. ‘Free’, in this context, can be interpreted in different ways. ‘Free’ can mean that consumers must pay an additional fee to access access-controlled content. In this respect, pay-TV resembles other media such as newspapers, cinema or books that are not accessible for free. In a more general sense, ‘free’ can also mean that consumers must first obtain the platform controller’s authorization in order to access the services. Finally, ‘free’ can also refer to the fact that access to services is not technically free. For example, the transmitted signal is encrypted and requires consumers to have specific decryption equipment such as a set top box to view the content. Hence, in areas in which the majority of consumers do not yet have the necessary decryption equipment, access to access-controlled broadcasting services will not, for technical reasons, be free. As Owen words it:

‘On a more fundamental level, program choice might be usefully made more responsive to viewer welfare, and less responsive to the notions put forward by philanthropic institutions of what people “ought” to see’. 76

On the other hand, with the proliferation of digital TV and the encoding of public broadcasting services for copyright reasons, 77 households will, sooner or later, have to install a set top box that converts and decrypts digital signals.

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76 Owen 1975, p. 134.
77 This is already a reality in countries such as Denmark, Switzerland and the UK.
**Added Value and Responsiveness**

Pay-TV services are still intended for reception by the public providing the consumer agrees to comply with the terms and conditions for access.\(^78\) Moreover, access-controlled services that are marketed via pay-TV platforms can result in more differentiated and specialized service offerings for consumers. Electronic access control can render new services that were hitherto impossible, because of the dependency on advertisers and large audience shares, economically viable. Examples are minority programmes and programming with a high cultural and educational quality, providing there are sufficient interested or wealthy subscribers.

The commercialization and individualization of content services could also provide consumers with a way to express their preferences using a means the market understands: money.\(^79\) In so doing, electronic access control could contribute to making broadcasting more responsive to consumer preferences and interests.\(^80\) Another question is if pay-TV providers will serve the preferences of the largest share of subscribers or offer a real choice. This is a question that will be addressed later in more depth.

**1.5.2. Consumer Access to Access-Controlled Services**

The ability to manage individual consumer relationships also gives pay-TV operators more power, if not a monopoly position over individual subscribers. Broadcasting viewers are confronted with a new set of problems that are also new to the broadcasting sector. Electronic access control can influence the if and how consumers access content, starting with the question if a consumer can afford to subscribe to a certain service or if he or she has the required reception equipment. This not being the case, he or she is excluded from the service. As Chapter 2 will show, the aspect of exclusion from content that is distributed on exclusive and technically controlled terms has triggered a number of discussions on public information policy.\(^81\) Public information policy in broadcasting is directed at ensuring wide accessibility and availability of broadcasting content. The mission of the broadcasting media is to provide the audience with content and to inform the entire population about newsworthy events 'the public has the right to receive'.\(^82\) In some countries, such as the Netherlands, this mission seems to be carried out primarily by public broadcasting services. In others, for example, in Germany, France and the United Kingdom, commercial broadcasters also participate in this

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\(^{78}\) In this sense, Dommering 1990, p. 64; Nauheim 2001, p. 131-132; Hins 1999 p. 249.

\(^{79}\) See extensively in section 2.2.1. More generally on the perception of digital television by consumers, Ledoux Book 2004, pp. 123-145.

\(^{80}\) See section 1.3.1.

\(^{81}\) See section 2.2.

\(^{82}\) European Court of Human Rights, Sunday Times, Strasbourg, 26 April 1979, Series A, No. 30 [hereinafter 'Sunday Times'], paragraph 65; European Court of Human Rights, Lingens, Strasbourg, 8 July 1986, series A No. 103 [hereinafter 'Lingens'], paragraph 41.
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task. It is part of the legislator’s positive obligation to provide an environment in which these conditions are fulfilled. Broadcasting threatens to lose its function as an omnipresent and omni-accessible information forum. Both the general availability of and the choice between information sources become questions of access and slip away into private control. More than ever, access to information depends on the pay-TV platform controller and less than ever on the broadcasters or media politicians. For governments, this means that private control of access to information comes with a loss of public control over broadcasting. How serious the issue is taken by regulators is illustrated by the adoption of a set of specific broadcasting rules at the European level. These rules are explained in Chapter 2.

The other side of the coin is that the private management of an individualized relationship between service providers and consumers can influence the chances of rival service providers of gaining access to subscribers, just as it can influence the subscribers’ willingness or ability to switch to a more competitive offering. Monopolization of the subscriber base can have considerable impact on competition in the pay-TV sector, and as such will be a matter of competition regulation.

Subscribers are the most precious resource in pay-TV markets. Pay-TV providers depend on subscriptions and willing subscribers are scarce in particular in countries that have a well-functioning free-TV environment. It is not easy to win subscribers when consumers feel that free-TV offers them sufficient programming. Another reason why access to the consumer base is so precious has to do with the economic dynamics in pay-TV markets, namely the existence of first-mover advantages, economies of scale and of indirect network effects, and the relatively high individual/collective adaptation costs in this sector. The reception of access-controlled services requires that consumers subscribe to a service platform and make some form of investment to acquire the necessary equipment associated with the conditional access platform (smart card reader, PC, set top box, etc.).

83 Addressed in more detail in section 2.2.
84 See section 2.3.
86 Shapiro and Varian explain economies of scale with the words: ‘the more you produce, the lower your average cost of productions’, Shapiro/Varian 1999, p. 21. They further distinguish in supply-side economies of scale and demand-side economies of scale. Supply-side economies of scale are, according to Shapiro and Varian, the traditional economies of scale—larger firms tend to have lower unit costs, p. 179. Demand-side economies of scale refer to the fact that a product is widely used and because of that particularly valued by consumers: ‘if everybody else uses Microsoft Word, that’s even more reason for you to use it too’, Shapiro/Varian 1999, p.180. According to the authors, they are the norm in information industries, p. 181. Besen and Farrell use the notion of demand-side economies of scale to describe (direct) network effects, Besen/Farrell 1994, p. 118
87 Clements describes indirect network effects as follows: ‘a good becomes more valuable as more consumers use it because there is a greater variety of a complementary good available’, Clements 2004, p. 2.
88 See section 1.4.2.
Consumers and content service providers will generally favour the most popular standard that promises the widest coverage. As a result, it is often the leading pay-TV platform that determines the technical standard. When a newcomer enters the market and starts offering services to the installed consumer base, the offering must be sufficiently attractive to justify the often high switching costs, which involve investing in additional consumer equipment, breaking long-term subscription contracts, the prospect of double subscription, etc. The second obstacle is the possible loss of indirect network benefits because if the new conditional access platform is incompatible with the currently available technology and not yet popular, it will have fewer applications and programmes to offer. Content providers may prefer to focus on offering content and writing applications for one dominant platform instead of investing in tailoring their applications to several incompatible conditional access platforms. This can lead to indirect network effects. If indirect network effects are strong, consumers might be reluctant to subscribe to a new system with incompatible technology unless it offers very clear improvements and other subscribers are expected to follow soon, thus creating the critical mass for the new service.

Figure 8—Subscriber Monopolization. Figure 8 illustrates a phenomenon the author refers to as the monopolization of the consumer base. Service provider A has established a lasting relationship with the subscribers to this platform by undergoing a contractual relationship with them, by controlling a proprietary

See Shapiro 1999, p. 5.
standard in their set top box, and by controlling the EPG. In so doing, service provider A can make it more difficult for subscribers to service provider B to access services that are offered on platform A, because their set top box does not support B’s standard. Likewise, subscribers to A might find it difficult to switch to services that are offered on platform B.

This is why a pay-TV platform operator can have a gateway position for access to the installed consumer base. Figure 8 shows that access to the installed consumer base is the real bottleneck in pay-TV markets. Exclusively controlling over the dominant pay-TV-platform is an important means of monopolizing the consumer base, meaning binding subscribers and service providers to a particular platform and excluding other service providers from gaining access to their installed subscriber base. The ease with which consumers can switch between the services offered by a second platform B while they are subscribed to platform A can influence their decision to do so. Factors that may be relevant for them are the compatibility of B’s services with A’s set top box, whether they are bound to A by a long-term subscription contract or can terminate the contract any time, whether they can afford to subscribe to both A and B’s services at the same time and, last but not least, whether they have sufficient information about B’s services to make a decision.

Monopolization of the consumer base can be a result of control over a particular facility that is necessary for market entry and for which the operator of that platform holds a monopoly position. More commonly, monopolization of the consumer base will be the result of a combination of control over and the strength of a particular conditional access standard and associated facilities such as the billing system and the information agent (EPG), and the way access-controlled services are marketed through service platforms. The following paragraphs explain in more depth the instruments that pay-TV platforms can use to keep consumers in ‘walled gardens’ and discourage them from switching to competing providers: bottleneck control, technical and contractual lock-ins, audience fragmentation and, what the study calls, 'the information problem'.

**Bottleneck Control**

With the ongoing technical and organizational sophistication of electronic telecommunications services, market entry depends on an increasing number of facilities such as control over the conditional access platform or control over other elements of the technical platform, including APIs, Electronic Programme Guides, electronic payment systems, media players, etc. Other facilities required to provide pay-TV services are the marketing platform and programme rights such as those for the Soccer World Championship and new film releases.

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99 See also KEK 2000, 227pp.: Access to the consumers as most important strategic resource in the media.
‘Bottleneck’ can refer to such services or facilities, and at each level of the distribution chain, be it the transmission network, conditional access, the marketing platform or exclusive rights to content. The term ‘bottleneck’ is commonly used to describe a situation of monopoly control over a particular facility or service. This can be a temporary or a lasting monopoly situation, and the monopoly position can have its source in legal reasons such as the control over exclusive transmission rights. It can also have its source in practical reasons—the resource cannot be easily duplicated—or in economic reasons that have to do with the degree of market power of the operator of that facility. The precise identification of bottlenecks is thus not straightforward, but depends on a dynamic analysis of a particular situation. This is also why it can be so difficult to identify and remedy bottleneck situations ex ante, as will be demonstrated in Chapter 4.

Access to bottleneck facilities can be very interesting for newcomers to the pay-TV sector. If newcomers lack the financial means to bring in or establish their own technical resources, they will have to seek access to existing resources, possibly under comparably less favourable conditions than the established players arranged for them. The establishment of alternative facilities can be impeded by a number of obstacles such as high irreversible investments for the installation of conditional access and the creation of the necessary distribution and marketing structure, as well as the marketing costs. Other obstacles can be cost asymmetries in accessing necessary resources such as programme rights, and higher production costs or a large subscriber base for the first mover.

From the perspective of the incumbent, exclusive control over bottleneck facilities or the standard technology provides a range of opportunities to impede potential and actual competitors, in particular when exercised by a powerful market player. Possibilities of influencing competition to one’s advantage range from plain denial of access to bottleneck facilities or the imposition of unfavourable conditions such as proprietary design, discriminatory behaviour, predatory pricing, bundling strategies, or taking advantage of a stronger negotiating position when purchasing programme rights. The legitimacy of such strategies will be examined in more depth in Chapters 3 and 4.

From a competition policy standpoint, a monopoly situation is not automatically harmful or undesirable. Monopoly control is considered harmful when such control is abused to the detriment of functioning competition. A monopolist that abuses monopoly power might be in conflict with competition law. Chapter 3 explains how competition law can be used to intervene in such cases. Even without abuse, however, monopoly control in broadcasting markets can be undesirable from a general public information policy point of view. In broadcasting law in particular, monopoly positions are regarded with caution because they can conflict with major

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91 According to Poel and Hawkins, a bottleneck exists ‘where the availability and/or terms of access to a particular network facility or service environment fall below a benchmark or standard that has been deemed to be in the public interest’. Poel/Hawkins 2001, p. 73.

92 See sections 4.3. and 4.8.6.
broadcasting policy goals such as preventing a player from exercising too much journalistic influence on its audience and negatively affecting pluralism and diversity. This is why bottleneck situations in broadcasting raise concerns in the area of competition law as well as in the area of broadcasting regulation. This latter aspect will be discussed more in depth in Chapter 2.

Technical Lock-ins

In pay-TV, the economic power of a technical platform or elements thereof can be influenced by the popularity of a certain embedded standard. This has to do with the close economic links that are often found between the technical and the service platforms, with the aforementioned dynamics of the market in general, and the influence of indirect network effects and first mover advantages in particular. The consequence is that once an operator of a particular conditional access system has succeeded in establishing a dominant standard, (a) operators of access-controlled services may depend on compatibility with the dominant standard to reach a wide audience, and (b) the success and acceptance of a competing conditional access facility will depend to a considerable extent on whether consumers are able to switch between platforms. This is the argument behind the so-called decoder towers, namely the assumption that consumers are less likely to subscribe to a second pay-TV platform if both platforms require the purchase of different incompatible set top boxes. Arguably, the importance of this argument will vanish if set top boxes are offered at lower prices or are subsidized by the pay-TV platform operator.

Should the first platform use a proprietary standard and the second platform is not compatible, consumers would risk losing indirect network benefits. The newcomer’s chances of entering the market would depend on the enterprise’s ability to overcome this obstacle. Exclusive control over a technical standard is therefore an important means of binding subscribers and content producers to a particular service platform, and of preventing other service providers from gaining access to the consumer.

Closely related is the aspect of audience fragmentation, which could lead to a reduction of the number of subscribers available to a newcomer. Arguably, digitization will favour the development of more specialized niche channels and hence increase the fragmentation of the consumer base. The use of electronic access control can further contribute to this process by dividing the audience into different zones of incompatible conditional access standards. Audience fragmentation can also take place along national borders. Today’s access-controlled services such as pay-TV are often restricted to a national territory and the required smart cards are only sold to residents. This is often due to the licensing practice of content rights,

95 See, for example, the subscriber conditions at <www.sky.com/ordersky/home> and <www.canalplus.nl> (last visited on 14 March 2005).
which are often issued on a territorial or language basis. Other reasons are divergent broadcasting laws (for example, in youth protection), and the character of a service as national service for citizens of that state (such as public fee-financed broadcasting). The effect of the use of conditional access systems can be to re-install territorial borders in trans-border media such as satellite distribution. A Danish citizen living in France, for example, may be prevented from accessing the encrypted Danish public service broadcasts of DR1 and DR2, and hence from accessing information from his or her home country and cultural heritage. On the other hand, in countries with no or little home programming such as Luxembourg, using electronic access control in neighbouring countries could prevent those countries’ programmes from being broadcast in Luxembourg.\textsuperscript{96}

A somewhat grotesque side-effect of using conditional access for exclusive licensing purposes is that consumers in one country can be excluded from the reception of particular events that are transmitted in their own country. This was the case with the satellite transmission of the Soccer World Championship in 2002: Kirch owned the German transmission rights for the Soccer World Championship and sold them to the German public service broadcasting for transmission in Germany and to a pay-TV provider in Spain for transmission in Spain. The Spanish pay-TV provider successfully opposed the German public service’s plan to show the games on digital satellite television free-to-air, as this would mean that the games would no longer be exclusively available on Spanish pay-TV.\textsuperscript{97}

Finally, another form of technical lock-in is a complex technical design of consumer equipment because it makes switching difficult. For example, research into the available EPGs and set top boxes shows that they, voluntarily or involuntarily, make it very difficult for users to modify predefined settings.\textsuperscript{98} Moreover, once consumers have invested in learning how to use one technology, this can be a further reason to prevent them from switching to a different technology.\textsuperscript{99}

\textit{Contractual Lock-ins}

Another strategy used to monopolize the consumer base and to which relatively little attention has been paid in the pay-TV discussion, is that of contractual consumer lock-ins. Contractually locking in consumers describes a situation where subscription contracts are designed to discourage consumers from switching to a competitor.

\textsuperscript{96} Unless broadcasters from neighbouring countries will acquire the additional transmission rights for Luxembourg.

\textsuperscript{97} German public programming can be received in Spain via satellite.

\textsuperscript{98} See the study by Jürgens 2002.

\textsuperscript{99} See also Klemperer 1987 p. 376.
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In this context, the duration of the subscription contract is important as well as the ease with which consumers can terminate the agreement. Binding consumers to long-term subscription contracts or making it difficult to terminate the contract is a form of bundling in time. For pay-TV this is usually twelve to twenty-four months. This time frame may have a negative effect on the consumers' mobility and willingness to switch to a competitor before the end of their initial contract. Further research is needed to determine how long the duration of a contract must be before it discourages a consumer from entering into a second contract. Subscription contracts frequently foresee very far-reaching provisions about their automatic extension that are not always easy to detect. Contractual conditions that 'sanction' a termination of the contract can also have a discouraging effect. Examples include an obligation to return a set top box at the end of the contract, or the loss of an email address. Here, terminating the contract has the additional consequence of effectively barring consumers from receiving any digital, access-controlled or other information services before they have invested in new equipment and/or services. Such contractual conditions may be legitimate, reasonable and common in other sectors (for example, mobile phone subscriptions), but they can prevent competing providers of pay-TV services to reach the critical mass of consumers necessary to render their service economically viable.

Sub-forms of contractual lock-ins are the aforementioned programme bundling strategies that oblige consumers to subscribe to a whole package of services even if they only wish to access one particular channel, or that make the provision of certain information services (for example, premium channels) conditional upon the subscription to others (such as basic channels). Again, this can discourage

100 Aghion/Bolton 1985, 389pp. (making a distinction between nominal length and effective length of a contract). See also Farrell/Shapiro 1988, p. 125; Klemperer 1987, p. 376
102 See also Aghion/Bolton 1985, p. 399, pointing to some difficulties.
103 See, for example, BBC World Service, Terms and Conditions, No. 2 (Terms): 'The Agreement shall be automatically extended for further periods of twelve months, subject to payment of the Subscription by the Subscriber, unless terminated by either party giving to the other party not less than fifteen days written notice to expire on the last day of the then current term'. Also: Canalplus, Algemene voorwaarden van Canal+ N.V. voor de doorgift en ontvangst van televisieprogramma's via de kabel en voor de doorgifte en ontvangst van digitale aardse televisiesignalen via de infrastructuur van Digiteenne [hereinafter 'Terms and conditions Canal+ Nederland'], No. A4, available at <www.canalplus.nl> (last visited on 14 March 2005). Note in the small print that the contract must be terminated by registered letter.
104 See Canal+, Terms and conditions Canal+Nederland, No. C18. See also Shapiro 1999, p. 11.
107 See Aghion/Bolton 1985, p. 389. (making a distinction between nominal length and effective length of a
contract). See also Farrell/Shapiro 1988, p. 125; Klemperer 1987, p. 376
109 See also Aghion/Bolton 1985, p. 399, pointing to some difficulties.
110 See, for example, BBC World Service, Terms and Conditions, No. 2 (Terms): 'The Agreement shall
be automatically extended for further periods of twelve months, subject to payment of the
Subscription by the Subscriber, unless terminated by either party giving to the other party not less
than fifteen days written notice to expire on the last day of the then current term'. Also: Canalplus,
Algemene voorwaarden van Canal+ N.V. voor de doorgift en ontvangst van televisieprogramma's
via de kabel en voor de doorgifte en ontvangst van digitale aardse televisiesignalen via de
infrastructuur van Digiteenne [hereinafter 'Terms and conditions Canal+ Nederland'], No. A4,
available at <www.canalplus.nl> (last visited on 14 March 2005). Note in the small print that the
contract must be terminated by registered letter.
111 See Canal+, Terms and conditions Canal+Nederland, No. C18. See also Shapiro 1999, p. 11.
112 See Shapiro 1999, p. 8. See also the paper by Bakos/Brynofsson 2000; Farrell/Shapiro 1989 and
113 See Shapiro 1999, p. 10.
114 Section 1.4.3. On the effects for consumer switching costs in case of pay-TV bundling see also
consumers from subscribing to additional services that resemble services that they already have in their package.

**Information Problem**

An important factor for consumer choice is information about what is on offer under which conditions and for which prices. As the example of Google.com or Yahoo.com demonstrates for the internet, control over access to information about content or content services can have an effect that is similar to control over access to content. In the telecommunications sector, it is an acknowledged fact that functioning competition and the consumer’s ability to choose between different operators depend on the availability of adequate service information. It is not enough that consumers are technically free to switch between different services and interoperable platforms; they must also be able to access information about the choices available to them.

The significance of access to comparable information about content services is even greater in an access-controlled information environment. In the unencrypted world, consumers can search and choose freely, for example, by flicking through broadcasting channels. When consumers come across channels or programmes that are subject to electronic access control, it will be difficult for them to determine if the content they contain is relevant because it is encrypted or otherwise protected against access. This is even truer in the case of electronic access control to multi-channel service platforms such as pay-TV. Here, consumers find themselves in front of closed doors (knowing that the marketplace lies somewhere behind them). The opposite is also true: how will consumers who subscribe to one service platform know about the services available outside the ‘walled garden’? This was, for example, Disney’s complaint in a US case against AOL. According to Disney, AOL made it a condition for purchasing placement on the AOL service portal that content providers disable hyperlinks to unaffiliated websites and guarantee that no more than a fixed percentage of traffic at a site within the AOL network be ‘diverted’ via hyperlinks to sites outside the portal. The less overview consumers have of the marketplace (due to a lack of information), the more they rely on electronic information agents to find what they are looking for. The enormous amount of available information increases the demand for information agents such as EPGs that provide a pre-selection.

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The power of proprietary electronic information agents lies not only in their ability to present certain programmes more favourably, personally\textsuperscript{10} or associatively, but also, and especially, in their ability to generate a biased idea of the available offerings.\textsuperscript{11} Unlike, for example, Google.com, most existing EPGs are controlled by the operator of the access-controlled platform and are not open to third parties. EPG controllers can design the EPG in a way that makes it easy to find their own services, but difficult if not impossible to find a rival’s service or perform a comparison. This can give EPG controllers enormous potential to manipulate the way consumers access and receive content, particularly where no independent alternatives that would allow consumers to compare different services are available.\textsuperscript{12}

1.5.3. CONDITIONAL ACCESS AND COMPETITION

Even if an enterprise has the ability to use monopoly control to the disadvantage of its competitors, it does not say anything about its intention to do so. Obviously, enterprises are not automatically interested in anti-competitive behaviour.

Leverage

One reason that is at the core of many explanations of why an enterprise would engage in potentially anti-competitive practices is leverage. Leverage can be defined as a mechanism whereby a firm with monopoly power in one market can use its power as a lever to foreclose sales in, and thereby monopolize, a second market (hereinafter ‘related’).\textsuperscript{13} Such ‘levers’ can have different forms such as control over a bottleneck facility, a vertical merger transaction or bundling practices. There could be a case of leverage if the operator of a dominant pay-TV platform refuses to grant a rival access to the conditional access system it is using thereby making it factually impossible for the rival to enter the pay-TV market. Leverage could be the motive behind the same provider making the sale of set top boxes to consumers dependent on a subscription; or if a subscription service provider that offers both premium channels and basic channels makes the subscription to a premium channel conditional on the subscription to a basic channel. The question if, in a concrete case, leverage is the motive behind any of

\textsuperscript{10} Also O’Driscoll 2000, p. 217. For example, one international provider of iTV software solutions recently launched an EPG application that draws viewers into the iTV experience by letting them explore the kind of mood they are in by asking a couple of simple questions such as ‘How about leaving on a space flight tomorrow?’ or ‘Aliens have landed. You’re frightened? or You’re excited?’ The system then makes recommendations to help them find the programmes they ‘feel like’ watching. The extraordinary potential for gaining more control over consumer decisions is obvious.

\textsuperscript{11} See also Mackaay 1982, p. 161.

\textsuperscript{12} Even where alternative EPGs are available, they may be not supported by the technical platform that consumers are subscribed to.

\textsuperscript{13} Whinston 1990, p. 837.
these practices, or if there are other more likely explanations for the monopolist’s behaviour, is for the general competition law authorities or courts to determine.

It was due to the leverage theory that courts and competition authorities in Europe and also the United States tended to treat certain business methods such as tying or vertical mergers particularly harshly. Because the concept of leverage is very relevant to the way electronic access control was treated in the merger decisions of the European Commission and in the sector-specific regulation of conditional access in pay-TV markets, the following paragraphs use two examples to discuss the leverage theory. Although it would clearly exceed the scope of this study to provide a comprehensive picture of the economic and legal arguments accompanying the leverage theory, this is the place to provide at least an overview of the discussion:

**Example 1**—Pay-TV operator A operates a fairly popular pay-TV platform using its own proprietary conditional access system A, which happens to be the dominant standard for conditional access systems for pay-TV in its region. A makes subscription to its pay-TV platform dependent on the consumers’ willingness to purchase its set top box. The set top box is equipped with a technology that can process A’s proprietary conditional access technology. There are a few other set top boxes on the market made by independent producers that can process different conditional access standards, but not A’s.\(^4\)

In other words, A bundles the subscription to the pay-TV service and the purchase of its set top box technology.\(^{115}\) If A dominates the market for conditional access solutions and is at the same time active in the market for access-controlled services, A could be in a position to make the life of rivals in the service market more difficult. Rival B also offers access-controlled services in a different, less popular, conditional access standard B. B’s standard is, however, supported by a number of independent set top box producers. For B, it could be nevertheless attractive and cost-effective to direct its market strategy at consumers that already own a set top box, namely box A, because of the size of the consumer base. However, conditional access system A is proprietary, and A’s set top boxes are not compatible with B’s conditional access standard. Subscribers to platform A might, in principle, be interested in subscribing to B too, but that would mean having to buy a set top box that also supports B’s technology. Because they already bought set top box A as part of A’s bundle, they will probably think twice before subscribing to B, and eventually even decide against it. The case would have looked different if consumers had been free from the beginning to buy set top boxes that support different conditional access standards, namely both A’s and B’s.

By bundling the subscription and the set top box, A might have leveraged its power over the dominant conditional access standard A to make it more difficult for

\(^{114}\) For the purpose of this example, the market for pay-TV services and set top box technology are two different markets.

\(^{115}\) For an economic analysis of bundling strategies, see the papers by Bakos/Brynolfsson 1999; Liebowitz 1983 (bundling as a form of risk reduction); Hinloopen 2002; Nalebuff 1999; Choi 2004.
B to enter the pay-TV market. B’s market entry could be discouraged entirely, or it would leave only a limited customer base to the entrant.\textsuperscript{116} Even if it were principally possible for B to remain in the market, A’s strategy could substantially lower B’s profit expectations.

The strictest opponents of the leverage theory, namely the followers of the Chicago School, would probably warn us from being too quick to assume that the bundling strategy used in this particular case is the result of monopoly power regarding the conditional access standard A and the wish of A to leverage market power over the pay-TV market.\textsuperscript{117} At the heart of the Chicago School’s critical view of the leverage theory of bundling is the presumption that if an existing degree of monopoly power is legitimately obtained, then so is the profit deriving from it. A could not profitably exercise more monopoly power than it actually had in total. The fact that A has a dominant position for a particular conditional access standard does not imply that it can hinder rivals in the pay-TV market to attract subscribers. A Chicago scholar might argue that it would be more likely for A to adopt this particular strategy because it could maximize its profits by selling subscriptions and set top boxes.\textsuperscript{118} According to Posner, if a judge held, on grounds of the leverage theory, that unlawful bundling restricts competition, this would be

‘tantamount to saying that any time a monopolist decides to handle a step in the production process internally rather than to invite competitive bids, he is guilty of monopolizing because he is unnecessarily restricting competition. This is not the general rule, and it makes no sense to apply it only to the tying context’.\textsuperscript{119}

The criticism expressed by the Chicago School was criticized by the so-called ‘Post-Chicago School’. Both the Chicago School and the Post-Chicago School critics finally paved the way for a more differentiated view of the leverage theory. One major point of criticism of Post-Chicago scholars of the Chicago School’s criticism was that the Chicago School replaced simplistic self-evident arguments—why certain practices should be considered illegal because they triggered leverage—with self-evident arguments that were no less simplistic—why leverage will not occur.\textsuperscript{120}

Post-Chicago scholars carried on to develop the Chicago School’s criticism to a more differentiated, dynamic and case-by-case-based application of the leverage theory. As different as the arguments are, there seems to be some agreement that a number of market conditions must be fulfilled before one can speak of leverage: namely sufficient market power on the market for set top boxes and for pay-TV

\begin{footnotes}
\item[117] See Posner 1976, pp. 172-173.
\item[118] Posner 1976, p. 173, 197.
\item[119] Posner 1976, p. 175.
\end{footnotes}
services, as well as the presence of barriers to market entry in the pay-TV market. Were the pay-TV market fully competitive, it would be difficult to see how A could leverage market power and obtain a monopoly in the pay-TV market. Market entry barriers in the pay-TV sector can be high if newcomers are required to make high irreversible investments for the installation of conditional access systems and the creation of the distribution and marketing structures required to build a reputation and display goodwill, or to obtain the necessary resources and programme rights.\footnote{For a concise general overview of the discussion, see the paper by Yoo 2002.}

And even if pay-TV platform A had sufficient market power, A would not necessarily employ this bundling strategy to leverage market power if such behaviour were not profitable.\footnote{See also Choi 2004, p. 5, 11.} Bundling the subscription with the pay-TV platform and the purchase of the set top box could also reduce A’s profits, for example, if he were to miss out on a number of subscribers that do not value A’s pay-TV platform enough to purchase a set top box that can process only A’s services. A would thus have to have additional and probably strategic reasons to engage in anti-competitive bundling. In the provided example, such reasons could be to drive B out of the market or make market entry more difficult.\footnote{Whinston 1990, p. 840, Yoo 2002, 206pp.} The situation would be different if A produced and sold non-proprietary conditional access solutions. In this case, it would probably be in A’s interest to encourage new entries in the pay-TV market because this would result in higher sales of its decoder technology.\footnote{Whinston 1990, p. 850.} One must also take the impact of self-correcting market processes into account.\footnote{Kaplow 1985, pp. 525-552. See also Klemperer 1987, p. 377, pointing to the effect of intensive competition to attract new subscribers on monopolistic returns.} If a new pay-TV operator whose platform is more innovative and attractive than A’s were to enter the market, A’s bundling strategy would not make much sense anymore.

Even if a monopolist has incentives and believes it is profitable to engage in bundling, this does not necessarily mean that such a strategy is undesirable and should be banned. There may be efficiency reasons that justify such behaviour and explain why such behaviour should be permitted.\footnote{Instructive is the article by Yoo 2002, 200pp.; Larouche 2000, pp. 196-203.} At the beginning of pay-TV deployment in particular, operators face considerable risks and high costs. They need to reach a critical mass of subscribers. A major obstacle to achieving this could be their inability to convince consumers to invest in set top box technology. Offering subscriptions and set top boxes in an attractively priced bundle could make it easier to overcome such obstacles.

**Example 2**—The importance of efficiency and consumer welfare considerations is demonstrated in the second example, namely that of channel bundling. Pay-TV platform operator C is dominant in the market for retail and wholesale programme content. C sells its programmes to cable operators and other broadcasters who offer
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access-controlled services. Besides selling third-party programmes, C also distributes a number of niche channels for sports, films, cooking, gardening and news via its own pay-TV platform. C offers these channels in bundles, in the form of two so-called basic packages: a lifestyle package and a hobby package. C does not offer the channels unbundled to consumers. There are also a number of access-controlled service providers that offer similar niche channels separately.

A well-considered channel bundling strategy would enable C to seize a prominent position in the market in form of packaging the product space and give it a competitive advantage over rivals that offer similar channels separately. The better a platform succeeds in answering audience demand by providing more diverse and broad services, the less room it leaves for alternative offerings from competing information service providers. Service platforms can use such strategies to influence the market chances of competing providers of niche channels, and more widely, those of free-TV providers or providers of E-commerce services. C can use bundling strategies to leverage market power from the wholesale programme market to the retail pay-TV market.

However, large-scale bundling can also be a way to improve the efficiency of C's platform. Bundling can exclude much of the uncertainty about the consumers' valuation for individual channels, which can be a major factor of uncertainty when pricing services and performing transactions. Bundling can, as described previously, also be used to differentiate between different consumer segments that are willing to pay different prices. The role of electronic access control in this context is to enable the cost-effective delivery of services to those consumer segments that have been identified as a particular category of users to which a certain price or service has been allocated. Bundling different channels can also be a means to save production costs and benefit from economies of scales. An important aspect in this context is the way content rights are licensed, namely as presale or output deals that are meant to reduce the production risks

128 See the paper by Bakos and Brynjolfsson, Bakos/Brynjolfsso n 2002a.
129 The European Commission already observed: 'When a television operator has a leading position in pay-TV and free-TV, and also holds the main programme rights for free-TV and pay-TV, he is in a position to control the interaction between free-TV and pay-TV', European Commission, Commission Decision of 27 May 1998 relating to a proceeding pursuant to Council regulation (EEC) No. 4064/89 (Case IV/M.993–Bertelsmann/Kirch/Premiere), Brussels, 27 February 1999, OJ L 52, p. 1 [hereinafter 'Bertelsmann/Kirch/Premiere'], paragraph 88 and paragraphs 97-99.
130 See the papers by Bakos and Brynjolfsson, Bakos/Brynjolfsso n 1999; Bakos/Brynjolfsso n 2000; Nalebuff 1999, p. 19.
132 Differentiating, Nalebuff 1999, p. 16.
133 Presale refers to the licensing of programmes that are yet to be produced.
134 The selling of programme rights in packages, where packages are usually composed of both more and less attractive content.
for production companies. For licensees, these deals can be advantageous as they guarantee programme supply while putting such content out of the competitors’ reach. Generally, it is the larger operators who can afford to invest the often considerable sums of money in rights packages and take the risks involved—risks they can re-allocate to consumers through differentiated bundling strategies.\(^{136}\)

Of course, there are limits to the profitability of such bundling strategies, too. Obviously, a platform operator will not sell content as part of a bundle if it can be sold more profitably separately. First film releases or top sports events, for example, are often sold in the form of pay-per-view or premium offers. Because consumers value such content particularly highly, it is also possible to obtain higher revenues by selling it separately.\(^{137}\) Moreover, the transmission rights of such content are often particularly expensive, which could justify selling them separately and at a higher price than could be asked for if they were offered in a bundle. The costs of programme rights also limit the size of bundles; from a certain moment onwards packages would be too large to offer to consumers at an attractive price. Bundles would then comprise elements that consumers do not value highly, or the bundles would be so large that consumers would have difficulty finding what they are looking for.

Within the context of the leverage theory of bundling, the possible welfare-enhancing effects should be taken into account before banning a particular practice for the sake of functioning competition.\(^{138}\) It is helpful to distinguish between the effects for consumers and competitors.

**Effects for Consumers**

Bundling can have both negative and positive effects on consumer welfare. On the one hand, it was explained before that bundling might, from an economic point of view, enhance the efficiency, value and compatibility of a particular service.\(^{139}\) Subscribers to one of C’s basic packages could have access to not only one, but several different channels that fulfil their interests, and access to a package could be cheaper than subscribing separately to similar channels from competitors. This also depends, of course, on C’s pricing strategy. To this extent, bundling can eventually lead to more advantageous and larger service offerings for consumers at a lower price and hence increase consumer welfare.

On the other hand, subscribing to a whole bouquet of channels also deprives the consumer of choice: the choice not to take certain channels he or she is not interested in or to take certain channels from third-party providers and so to arrange

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135 Combination of presale and package deal, where licensed packages include the future output or parts thereof, of a production firm. For a general discussion of these practices, see Neumann 1998, 165pp.
139 Critical Klemperer 1987, p. 877.
his or her own bouquet. For example, a study conducted for the UK Consumers' Association concluded that to watch live Premiere League soccer consumers would have to subscribe to either BSkyB or a cable service. Because of the construction of programming bundles, however, they were forced to purchase a bundle of content including much more than live Premier League soccer. In general, bundling arrangements are less advantageous for consumers with specialized interests, as they might end up paying a proportionally higher price than if the services were offered individually. Bakos and Brynjolfsson explain that the profitability and efficiency benefits of bundling are easiest to quantify when the consumer valuations, meaning preferences for distinct programmes, are identically distributed and not closely correlated for different products. This might mean that access-controlled bundles, similar to television advertising, are again orientated towards mass rather than individual preferences. Bundling different services to large packages in a subscription contract is one means of binding consumers to a particular operator's offer. Providing the package is a) sufficiently broad to cover most of the consumers' interests and b) switching between different service platforms/packages is made difficult because of contractual or technical obstacles, the consumer might find himself or herself in a lock-in situation.

A variation on this theme is a situation in which C does not bundle different channels as basic channels, but offers premium channels with popular sports events and new film releases, and makes subscription to the premium channel dependent on the subscription to a basic channel. Consumers who are only interested in C's premium channel but would like to have a basic channel from another provider must choose between taking both channels from C, although they want only the premium channel, or foregoing the premium channel and taking the competitor's basic channel.

Effects for Competition
The possible effects of bundling for competitors also should be taken into account. The aforementioned efficiency reasons can make it more attractive for smaller third-party service providers with only a small range of content services to include their services in the bundle of a larger platform instead of selling them separately and directly to consumers. This also explains why it can be vital for smaller no-name niche service providers to be included in the package of C's popular platform. In the premium channel variant, participation in C's basic channel could be even more attractive if competitors knew that C's premium channel is so popular that it will attract even more subscribers.

140 Harbord/Szymanski 2005, pp. 8, 21.
141 Oftel 1997a, paragraphs 6.1-6.21.
143 They could, of course, decide to subscribe to both.
144 KEK 2000, p. 228.
As explained, however, bundling can also directly affect the economic viability of competitors because it can reduce the number of subscribers that are willing to subscribe to their niche channel. One of the controversies in pay-TV is whether a pay-TV operator should be allowed to make the subscription to a premium channel dependent on the subscription to a basic channel from the same operator. Depending on how attractive the premium channel is, such a strategy can make it more difficult for operators of rival basic channels without a similarly attractive premium channel to sell their services to consumers.\footnote{Breuning 2000, p. 380: ‘Vernetzen statt Versparten’.}

It is not the task of this study to decide in favour of one or the other argument—this is a task for the legislators and regulatory and competition authorities. The purpose of this overview is to show that intrinsic statements that certain market practices such as bundling are competitive or anti-competitive should be treated with caution as they may not reflect market realities and in the worst case discourage possible pro-competitive, welfare and efficiency-enhancing behaviour. This makes the regulation in the pay-TV sector, as in many other dynamic sectors, particularly difficult.

More generally, differentiated considerations, especially where the argument of leverage is concerned, are not only necessary in the context of bundling, but also in the context of other possible strategies to leverage market power such as control over bottlenecks or vertical mergers.\footnote{Whinston 1990, p. 856; Yoo 2002, p. 244.}

\textit{Vertical Integration}

It is often argued that leverage in the form of bundling or access refusals would be particularly likely to occur where an enterprise is vertically integrated and thus active in two related markets because such enterprises would not only have the ability, but also the incentive to engage in anti-competitive strategies. This argument is often heard in the pay-TV discussion. König, for example, speaks for many when he claims that the risk of anti-competitive behaviour depends on the state of the vertical integration of digital service providers in the distribution chain,\footnote{König 1997, p. 89; Neumann 1998, p. 239; the study of Lemley/Lessig 2000 for the broadband sector. More differentiated, Owen 1975, 888 pp.} and recommends that, in order to approach the ‘competition destroying’ vertical integration in pay-TV markets, the regulator separate as much as possible the different levels in the distribution chain. The analysis of the early decisions of the European Commission’s merger decisions in pay-TV markets in Chapter 3 shows that the European Commission, too, was, in the beginning, quick to ban the emergence of vertical structures in the pay-TV sector. It argued that such structures could invite enterprises to leverage their market power in the form of bottleneck control or other strategies.\footnote{See section 3.3.1.}
It is important to remember, however, that whether an enterprise that is dominant in one market engages in anti-competitive activities in another market depends on the structure of both markets as well as on the profitability of such behaviour. The previous section sought to illustrate the need for a differentiated view of the argument of leverage using the example of bundling strategies. Furthermore, there can be valid efficiency and welfare arguments that need to be taken into account before making a final decision to step in against particular vertical structures or vertical mergers.\textsuperscript{149} Although it would be going too far to provide a comprehensive discussion of the economic aspects of vertical integration this is the place to say at least so much: the discussion of the impact of vertical integration and the resulting threat for leverage is ambivalent.\textsuperscript{150} Vertical integration in the form of mergers, internal growth, agreements, etc., can simply flow from a legitimate business strategy. One example would be to aggregate content services and market them to subscribers via a pay-TV platform: here, exercising joint control over the technical and the service platform as well as the content delivered via these platforms could create efficiencies. The control over different elements in the distribution chain could enable the realization of secure cost-efficient access to supply and distribution channels, possibly under more favourable conditions than those generated by the free market. Due to the optimization of internal processes and cost structures, a vertically integrated pay-TV platform could offer similar services at more attractive conditions and so improve its competitive chances. There is nothing wrong with creating efficiencies. This is also why powerful vertically integrated market players can be important drivers behind innovation and progress in national markets. That is to say, vertical integration not only provides opportunities and incentives for anti-competitive behaviour, it can also enhance welfare and economic efficiency. The final decision whether vertically integrated structures are desirable from a public policy point of view must balance the different arguments.

1.6. Conclusion

The introduction of conditional access is changing the traditional ‘broadcasting’ structure. Conditional access introduces a new gateway or platform to the telecommunications process after a programme is made. Access to media content becomes subject to restrictions and depends on the controller of the pay-TV platform. The pay-TV business model focuses on managing exclusive relationships with consumers so that only subscribers to a platform can access particular content. Because pay-TV subscribers are scarce, platforms are competing for a limited audience. Monopolization of the consumer base in the form of bundling strategies,

\textsuperscript{149} See the papers by Waterman/Weiss 1996; Speta 2004. See also Nocke/Peitz/Stahl 2004, pp. 14-15 and 18-21.

technical or contractual lock-ins as well as manipulating consumers’ search patterns and increasing their search costs are strategies to improve one’s competitive position. For the regulators, one of the challenges consists of identifying the situations in which such strategies are anti-competitive, meaning that interference is necessary to protect functioning competition. A second challenge consists of formulating rules that are sufficiently flexible to prevent overregulation and negative effects on innovation, efficiency and welfare. This is the subject of Chapters 3 and 4.

However, the regulation of pay-TV is not only a matter of competition. Public information policy plays an important role, too, and faces different challenges. Existing regulatory measures concerning conditional access in broadcasting are a mixture of competition and public information policy considerations. The fragmentation of the audience into unsubscribed and subscribed consumers could create information lock-ins and lock-outs. States have a positive obligation to create an environment in which consumers can benefit from freedom of expression and are not locked out from matters of interest, and in which democratic principles and other public information policy considerations are safeguarded. Private subscriber monopolies can also raise issues of pluralism and diversity within pay-TV platforms, issues that will be dealt with in more depth in Chapter 2.

Chapters 2, 3 and 4 examine the current European approach to the regulation of pay-TV in general and conditional access in particular within the context of European competition and public information policy. No literature was consulted after 1 December 2004.

1.7. Outline of the Study

Chapter 2—examines the use of electronic access control within the context of public information policy and broadcasting regulation at the European level. The first part of the chapter discusses wider public information policy goals and what the motives are for public intervention. The goal of this section is to identify the parameters for government involvement in conditional access in broadcasting. More specifically, it looks at electronic access control within the context of Article 10 of the European Convention on Human Rights (ECHR), and examines if there is such a thing as a fundamental right of access to information on pay-TV platforms that regulators are obliged to realize. It also examines whether such a claim can be derived from other public policy and democratic principles. The role of public broadcasting as a public interest carrier and the promotion of the free flow of services in the Internal Market are further aspects that are examined. In the second part of Chapter 2, existing instruments used to translate the identified public information policy objectives are described and critically analyzed. In so doing, Chapter 2 focuses on broadcasting regulation and takes a closer look at Article 3a of the Television Without Frontiers Directive (TWF Directive), the right to short
reporting in Art. 9 of the European Convention on Transfrontier Television (ECTT) of the Council of Europe and on the 'must-carry' rules in Article 31 of the Universal Service Directive. Throughout the analysis, particular attention is paid to the situation of consumers, alias citizens, in broadcasting law.

Chapter 3—discusses the issue of conditional access control from a general competition law perspective. The chapter starts with a concise overview of European competition law and proceeds with an analysis of the main merger cases in the pay-TV sector over which the European Commission has decided so far. The next section takes a closer look at the applicability of Articles 81 and 82 of the EC Treaty to examples of anti-competitive behaviour that can occur within the context of pay-TV. The examples concern the refusal of access to facilities, discrimination and bundling. The main question is the extent to which general competition law is suitable to respond to the competition problems around electronic access control, which were outlined in Chapter 1. Non-economic aspects in general competition law and the position of consumers will also be dealt with.

Chapter 4—examines the regulation of conditional access in European telecommunications law. This is a critical analysis of Article 6 of the Access Directive, which stipulates mandatory access to conditional access systems. The main question in this chapter is whether Article 6 of the Access Directive can effectively guarantee the functioning of competition in pay-TV markets. Chapter 4 also takes a look at the alternative approach towards bottleneck regulation in Articles 8 to 13 of the Access Directive, which applies to all other telecommunications networks and facilities. The chapter compares both concepts and examines whether the current distinction between rules that apply to broadcasting and non-broadcasting facilities is justified and helpful. It further identifies at a more general level the aspects to consider when identifying critical bottleneck situations in digital pay-TV and explains why the current approach is not adequate to solve the bottleneck problems.

Chapter 5—provides a summary and conclusions. It contains findings of the study, including findings that could be relevant in areas other than pay-TV such as electronic access control in mass media more generally.