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Abstract: Imagine the economy and society of a completely digitized media world in 2015. To predict such a world is difficult or rather impossible. Peer-to-peer systems such as Kazaa give an impression of how fast millions of users are able to threaten conventional ways of distribution and inflexible royalty systems. Traditional forecast methods cannot cope with such fast changing and highly uncertain environments. Scenario planning is a much more useful tool, as it does not assume one predictable future but moreover tries to determine which plausible outcomes of the future are possible. Main driving forces and key uncertainties predominant for the future are identified. A possibility space of the future is opened up and different scenarios are developed. The world will probably not actually turn out to be one of these proposed scenarios, their explanatory power, however, is undeniable.

Keywords: Digital Media, Scenario Planning, Media Economics.

1 Introduction

The world is becoming ever more complex in a highly accelerating environment. Only very few people, however, find the increasing pace of technological innovations, including phenomena such as Moore's Law, and the effects they might have on both economy and society, shocking. Yet the world has never been confronted with a situation of such severe change and dramatic uncertainty. Information technology is already transforming major industries and it continues to change almost every aspect of the economy and of every-day life.

The media industry in this case is hit particularly hard as its business model relies solely on content which is increasingly being digitized. This digitization allows data to be reproduced easily at virtually zero marginal cost and no loss of quality [BaBr00, p. 64]. Much leaner cost structures and new distribution mechanisms become possible as the number of Internet users explodes and bandwidth technology sophisticates. This also results in a process of disintermediation which threatens middle layer companies and forces them to adapt their business model. "The desperate call-to-arms, 'Change or die,' which can be heard echoing down

the corridors of businesses everywhere, is ample evidence that leaders have recognized the need to change" [Youn97, p. 9]. In addition, the digitization of content and facilitating technologies such as file compression and file sharing techniques, have led to an increasing occurrence of piracy. This drains revenue streams of the music industry [MaSa00, pp. 254-255] in particular and with a growing degree of digitization it can be expected to also affect other media industries, such as the movie or the book industry.

An unmatched number of uncertainties affect the course of the future. Leaders, employees and people in general ask what this future might look like. But traditional forecasting techniques are unable to provide a single answer deduced from the past. "The future is no longer stable; it has become a moving target"[Wack85a, p. 73]. We have to accept that the future is no longer predictable. The scenario planning technique builds on this assumption and tries to visualize a broader set of possibilities. It is a multitrack tool that enables imagining a range of possible future developments, a range of plausible future scenarios. Its aim is not to pin-point a single scenario which will come true, but to "illuminate the major forces driving the system" [Wack85b, p. 10]. Scenario planning is about creating stories of equally plausible futures that open up a possibility space of how the future might look like. In this paper the concept of scenario planning will be applied on the digitization of the media industry. In particular, four scenarios will be developed which assume a completely digitized media world in the year 2015. Effects on both economy and society will be illustrated.

2 Digitized Media – Status Quo

The digital revolution has resulted in information being increasingly represented in digital as opposed to analog form. Since the data is digital and thus independent of the carrier medium it can be transformed in any way that suits the users' needs [Ku01, p. 7]. In addition, it is possible to make an unlimited number of copies of media such as digital books, videos, and music. These copies have the same quality as the original. Just as the Sony commercial in the year 1999 for its new Minidisk-Player claimed "Every copy is an original." With the upcoming peer-to-peer (P2P) filesharing platforms in the late 1990s, the distribution and exchange of digital media was made as easy as possible. Technical developments, such as increasing bandwidth and more efficient compression algorithms, have further enforced this trend [Jua+01, p. 19]. So far, this has led to a situation where digital media in the Internet can be described as a public good; with its characeristics of no rivalness and no excludibility in consumption [Gaus02, p. 251, Buhs01, pp. 385-387]. These developments have hit the unprepared media industry. From the beginning statutory and national laws hindered the industry to

keep pace with illegal, international filesharing communities. The adaption of copyright law and law suits to shut down illegal P2P systems have always been one step behind. Decentralized P2P systems and firms registrating in offshore countries make it hardly possible to enforce law. The Recording Industry Association of America (RIAA) has recently stated, that illegal P2P filesharing can probably never be abandoned. The International Music Industry has experienced a significant drop in record sales for the second year in a row claiming P2P filesharing is mainly responsible for this trend.

Nevertheless, digital distribution in the Internet also represents chances and opportunities for the media industry. With almost zero marginal costs in reproduction and distribution [Sieb02, p. 90] a digital good can be offered for a reasonable price to attract potential legal consumers. Especially small size productions or distributions profit from the higher economies of scale for media distributed over the Internet compared to physical distribution [BaBr00, p. 64]. Furthermore, protection and royalty management can be facilitated with Digital Rights Management (DRM) and the initiative of the Trusted Computing Platform Alliance (TCPA), which plans to protect all hardware, able to play media content, against illegal usage. The media industry is pushing forward these initiatives, but has not yet succeeded in providing the Internet community with convenient and widely accepted digital media portals. Existing legal solutions still suffer from weak offers and conveniancy. This results in poor acceptance compared to their illegal pendants.

Another effect which came up with the Internet is the disintermediation, "defined as the elimination or reduction of the middle layers of the value chain" [Zhu01, p. 279]. Particularly media companies, which are specialized on the physical distribution of media carriers, such as the music CD, the video-tape or simply the book, are experiencing the threat to become obsolete as a middle layer. In the music industry, for example, disintermediation is a critical issue especially as the retailers are by far the most costly part in the value chain. Also, Video-on-Demand (VoD) is likely to result in a disintermediation of the movie industry resulting in the elimination of traditional video rental stores and it possibly threatens the retailers as well [Zhu01, p. 276].

3 The Concept of Scenario Planning

The basic concept of scenario planning has a long history. It was first used by the military in war games. During and after World War II a company called Research and Development (RAND) Corporation moved scenario planning to the civil domain. In the late 1960s scenario planning was utilized in the corporate domain and has evolved quite significantly since then. As the world had been relatively stable before that time, the traditional planning methods which rely on forecasting

had worked quite well [Wack85a, p. 73]. However, this started to change as the business environment became increasingly unstable and as a result forecasting errors started to occur more often and with greater magnitude. The assumption that the world evolves as a function of the past had become obsolete. Paradoxically forecasts are often wrong exactly when they are needed the most – when radical changes outdate strategies. The future is no longer predictable and has become a moving target [Stau02, p. 3]. The resulting uncertainty of the future demands a multitrack tool that instead of predicting one single future is able to imagine a range of potential developments. The first company to effectively utilize and thus popularize the scenario planning technique was Royal Dutch/ Shell in the early 1970s, which on this basis could deal more successfully with the oil crisis than its competitors [Merc95, p. 32]. Today scenario planning is a technique that is mainly being applied in the strategic planning process of companies.

The paradox is that the power of scenario planning lies in what at the first glance appears to be its greatest weakness – unknown outcomes. In contrast to traditional means of imagining the future, scenario planning acknowledges that the future is in itself not predictable. Scenarios aim at structuring and understanding the uncertainty instead of simply neglecting it [Wack85b, pp. 9-10]. They create several plausible pathways in the future of which not simply one may be right and the others wrong. Actually, instead of a single scenario coming true, it is much more likely that the actual future will contain some elements of the different scenarios. But: If it is unable to clearly predict the future, how can it be a useful planning tool?

The small number of predetermined and the large number of uncertain elements prohibit a single-line forecast. Instead of pinpointing the future, scenario-planning highlights major forces that can push the future in diverging directions; it facilitates an understanding of the dynamics that shape the future. Scenarios can be described as buoys in uncertain and turbulent waters, each constituting a boundary marker that collectively serve to illuminate the future. Through this technique scenarios enable an understanding of the system as well as the forces driving it, how they are interrelated and what critical uncertainties exist. As a result it draws not only on issues directly related to the question at hand, but on drivers that influence the reasoning of the entire system. This is particularly important for the dynamic information and media industry.

According to Mercer [Merc95, pp. 32-33] the major rule in scenario planning is that it should be kept simple for two reasons: First, this makes it much easier to apply and also to communicate its implications with others. Second, scenario planning aims at highlighting the major forces driving the system and thus has much more explanatory power when kept simple. Nevertheless, it should be based on profound and extensive information. In order to understand a scenario and its underlying key driving forces, it is essential to identify the steps of the development process. The steps displayed in Figure 1 below are strongly related to Ringland and the work of Arbor [Ring01, p. 82, Arbo01, pp. 4-5].

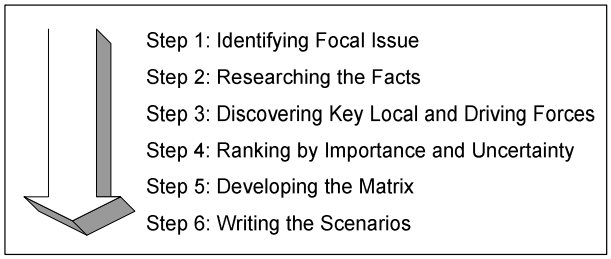

Figure 1: Steps in the Scenario Planning Process. *Source: Based on Arbor (2001) and Ringland (2001).*

Scenario planning begins with deciding on the focal issue. This is the starting point of the entire process. There are an infinite number of futures that can be imagined and thus it is of critical importance to agree on the central issue at the very beginning. It should be agreed on both the question at hand and the time frame. This serves as a reference point to continue the process. The reference point of this scenario planning process is the question of how a completely digitized media world can have changed the economy and the society by the year 2015. The second step in the planning process is about finding as much information as possible about the subject and its context [Arbo01, pp. 5-6]. The goal here is to gather many different views and data sets that minimize any bias and maximize the overall understanding of the focal issue. The third step aims at identifying the key driving forces that are relevant. The biggest challenge here is to think broadly enough to be able to understand the change drivers of the system [Jame02, p. 6]. Although the literature presents differing views about which factors should be taken into consideration, in general they fall roughly into four categories: society, technology, politics and economics [Bald99, pp. 53-55, Heij98, p. 155]. The key here is to identify the local forces as a first step and then work outward from the question itself to be sure that all factors which are identified are truly relevant. These forces are the larger issues that provide the framework within which the local forces will operate in the future. They will be analyzed in step four. The analysis will focus on the interrelatedness of the various drivers and subsequently they will be clustered. This helps to better understand the dynamics of the entire system. Furthermore, their relative importance and their degree of uncertainty will be assessed. At the end of this step there should be two lists: predetermined elements and critical uncertainties ranked according to importance and the critical uncertainties additionally according to the degree of vagueness. Finally, the scenario matrix will be developed in step five. At this point the list of critical uncertainties will be utilized and their commonalities will be reduced to two single spectrums, two axes of uncertainty. The emerging matrix allows defining four different and hopefully plausible quadrants of uncertainty – the scenarios. There is quite some disagreement [Heij98, p. 187, Tuck99, p. 74, Merc95, p. 36] about the optimal number of axes and scenarios in the literature.

The number of scenarios often vary depending on the topic and the outcome of the analysis of the key driving forces. Ringland [Ring01, p. 80] proposes four scenarios providing the best outcome as they constitute an optimal tradeoff between maximizing divergent thinking and minimizing confusion [Tuck99, p. 74]. Once the matrix has been developed suiting names need to be found that describe the essence of the scenario. In the last step – step 6 – the scenarios are sketched out. In each scenario quadrant the driving forces, the predetermined elements, and the uncertain factors play out in a logical manner. All key factors and the role they play should be considered in each scenario. Good scenarios are vivid, consistent and plausible stories told along these factors. In fact the reader should be able to get the feeling of what it is like to live in these scenarios. This demands a rather creative writing style [Arbo01, pp. 10-11].

4 Scenario Planning Applied

4.1 Assumptions

Before proceeding with step three of the scenario planning process several assumptions have to be made. The major reference point is to assume a completely digitized media world in the year 2015. This has far reaching consequences for many technological issues that otherwise would inherit some degree of uncertainty. A completely digitized media world implies that a large number of technological developments have enabled and promoted the total digitization of media. Furthermore, it means that the degree of acceptance of digital technology must be very high. Another related assumption is that the hardware-to-cost-ratio has decreased significantly thereby allowing the majority of households to afford the necessary hardware needed in a completely digitized media world. Personal computers should have become standard equipment in private households, comparable to for example the status of refrigerators today. Furthermore, Internet access has been exhaustively extended and serves as the standard device for information access, transfer and distribution. Due to its tremendous popularity and necessity, almost every household has Internet access including a high speed flat rate at very low cost, comparable to telephone connections today. Broadband connections and bandwidth have become extremely sophisticated and highly developed and allow large data transfer at minimum speeds of 10 gigabits per second (Gbps). Increased network speeds allow multiple, distributed systems to share and transfer data from a single source. The increase in volume, complexity and importance of data has led to highly efficient storage systems. In addition, new storage management software has been developed which can monitor equipment and data movement, provide data clustering and replication for high data availability and protection, ensure data integrity and allow for cross-platform

data availability. These very intelligent storage solutions permit the efficient growth of data-intensive applications. The increased network speeds, improved storage systems and architectures, as well as intelligent software management allow new distribution forms of data across the global network. These are for example bandwidth intensive streaming media applications which make data transfer possible without downloading and without any delays. To conclude, the central assumption that the media world in the year 2015 will be completely digitized has far reaching implications for a large number of key technological drivers. As a result these drivers can be presumed to have reached high minimum levels which are mandatory for a digital media world. These levels can be assumed to be fairly constant amongst the scenarios and thus they will not explicitly be regarded as key driving forces.

4.2 Identification of Key Driving Forces

As mentioned in before the identification of the key driving forces relevant for the focal issue is an essential part of the scenario planning process. In order to be able to find as many drivers as possible a very broad approach needs to be taken. In an extensive analysis more than 40 change drivers could be found which are relevant for the focal issue. According to the 80:20 rule the most important drivers were extracted. They are grouped according to the four main categories society, technology, politics and economics.

Society

- *Privacy vs. Control*: The digitization of media has resulted in an unprecedented discussion about privacy rights and control issues. On one side consumers demand far reaching rights for their personal privacy and on the other side law enforcement agencies and companies, especially from the media segment, seek increased investigation and monitoring rights in order to better control illegal activities. The outcome of this battle will have interesting consequences for copyright as well as intellectual property rights issues.
- *Consumer Ethics*: Ethics significantly influence the public opinion and the according actions regarding issues such as piracy. As traditional values are in a great deal of flux around the world ethics are a significant driver as well.
- *Intelligent Agents*: The new digital technologies and especially the Internet bring with them vast amounts of information. Intelligent agents can help society overcome this problem, but at the same time result in intellectual arteriosclerosis [Negr95].

Technology

- *Steady Rise*: Generally speaking it can be predicted that technologies will continue to improve. Hard- and software should steadily become better, faster and more consumer oriented. Thus in the long run a steady rise facilitates the digitization process.
- *Wireless Connectivity*: At the moment there are three main possibilities for wireless connectivity [Arbo01, p. 13]. Bluetooth and Wireless Fidelity (WiFi) technology, which have a limited broadcast range, will almost definitely be present in the year 2015. The existence of cellular connectivity standards providing adequate bandwidth are however rather unpredictable. They would have a booming effect on the digital media industry.
- *New 'Killer' Tech.*: The emergence of new 'killer' technologies in the areas of both software and hardware, would most likely have tremendous effects on the focal issue, which is especially true in a world that is completely digitized and highly globalized. Particularly in these days, it is likely that such technologies could emerge in 13 years time, but it is not possible to predict what kind of technologies these might be nor how sophisticated and conveniant they could turn out to be.

Politics

- *Gov. Commitment*: The establishing of digital standards largely depends on the enabling information technology infrastructure. As a result investments in necessary infrastructure are needed from governments. Consequently the economic success of digital technologies depends on their willingness to do so.
- *Opening of Markets*: The opening of strictly regulated Internet markets, such as that of China, would considerably increase the number of 'full-scale' Internet users. This opening of markets would expand the reach of the media industries and create a much larger market for their digital products.
- *Adaptation of Law*: As mentioned earlier the laws concerning mainly copy- and intellectual property rights can be expected to adapt to the digital situation. However, also in relation to privacy and control issues, it is questionable what this adaptation might look like. Will future laws highly regulate digital media and severely punish illegal copying and distribution or will they be loose and trust modern security technologies and human moral? In addition, will close international collaboration or even international laws and law enforcement exist? These issues should chiefly influence the occurrence of illegal digital activities.

Economics

- *State of Economy*: The state of the economy plays an important role particularly in the speed of future development. A booming economy will

provide large funds for investments in new technologies and standards and thus accelerate the speed of change. A sluggish economy will instead impede future development.

- *Payment Methods*: Until today e-payment systems are not satisfying. None of them has become a standard and traditional payment methods such as credit cards which still dominate the market. We expect that in a completely digitized world adequate e-payment systems should be developed and established in the market. The existence and standardization of such systems would positively stimulate e-commerce.
- *Disintermediation*: Driven by virtually no marginal cost, disintermediation should have significantly reshaped the media industries. Middle layer companies will have been forced out of business unless they dramatically changed their business model to suit the new value proposition posed by the digitization.

4.3 Ranking of Key Drivers by Importance and Uncertainty

In step four of the scenario planning process the key drivers are ranked according to their relative importance and uncertainty. In order to provide a better overview of the specific characteristics of each driver they are mapped out in the 'importance – uncertainty framework', which is illustrated in Figure 2.

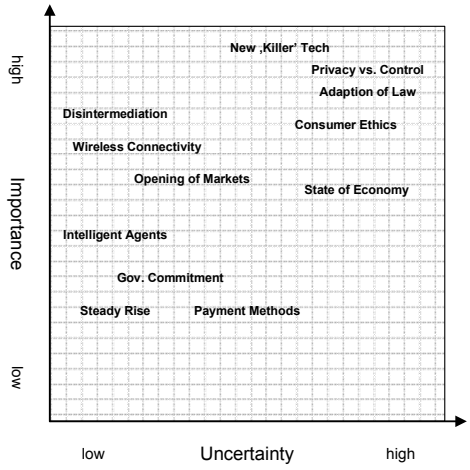

Figure 2: Importance Uncertainty Framework.

The position of each driver highlights the degree of its importance in relation to the focal issue as well as its level of uncertainty. Since only the most important key drivers were included, there are none which have a very low importance. The

higher a driver is located in the framework, the more important it is for the focal issue. Equivalently, the further to the right a driver is situated, the more uncertain it is. This means that factors on the left are rather predetermined and the further it is to the right the more uncertain it is. For example, as mentioned earlier, disintermediation will significantly influence business models in the media industries. Since the forces causing the disintermediation process, such as the continuing drastic reduction of marginal cost, are already apparent today and can additionally be expected to reinforce this trend, disintermediation has a very low uncertainty. Or with other words it can be said to be predetermined. Consequently disintermediation is located in the top left corner of the matrix. The most interesting drivers are those which are the closest to the top right corner. They have a strong influence on the focal issue and are highly uncertain. Furthermore, the interrelation of the drivers is essential in order to understand the dynamics of the system. Try to think of how one factor could reinforce or counterpart another and how this could change the course of the future. These interrelations will be addressed in the next section.

4.4 Developing the Scenario-Matrix

So far, the key driving forces have been identified and ranked according to their grade of uncertainty and importance in the framework above. In the next step the scenario-matrix will be developed. In order to do so, the most critical uncertain drivers have to be identified first and then clustered into two single spectrums. The emerged axes of uncertainty open up the possibility space for the scenarios.

Regarding the uncertainty-importance framework presented in section 4.3, the most critical uncertainties follow the order new ‘killer’ technologies, privacy vs. control, adaptation of law, consumer ethics and state of economy. To a certain extent, wireless connectivity and opening of markets are critical as well. By clustering the factors into two single spectrums, on the one hand privacy vs. control, adaptation of law and consumer ethics seem to be very closely related. They jointly decide whether the Internet and digitized media will be highly regulated or loosely structured. On the other hand, new ‘killer’ technologies, state of economy and wireless connectivity are not related to the regulation issue, and seem to form their own cluster. The state of the economy affects the investments in new technology. Further, the successful introduction of new wireless and especially mobile connectivity technology sets new standards. These two factors have an additional pushing effect on the development of completely new ‘killer’ technologies. Therefore, this cluster determines the degree of unmatched and supreme technological innovations and developments in the future. In addition, the opening of markets has a similar pushing effect on both clusters. As a result of the analysis two axes of uncertainty can be found: Regulation and Unmatched Technological Innovations. The emerging scenario-matrix is illustrated in Figure 3:

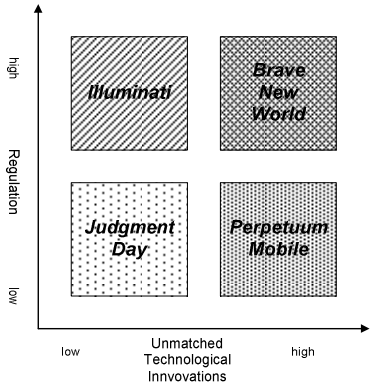

Figure 3: Scenario-Matrix.

'Perpetuum Mobile' describes a scenario where on the one hand a high degree of unmatched technological innovations and developments and on the other hand very little regulation or restrictions exist, which leaves the participants much space for flexibility and freedom. The 'Judgment Day' scenario describes a chaotic state due to total self-regulation without any progresses regarding the development of technology. In the 'Illuminati world' where a low degree of technical innovation combined with highly regulated circumstances exist, rigidity and inflexibility are predominant. The world is controlled by a few media 'giants'. The fully-regulated scenario of a 'Brave New World' is characterized by many technical innovations and strong development and offers a world which can easily become dangerous in several ways. These four possible and plausible scenarios will be described in further detail in the following section.

4.5 Four Plausible Scenarios of the Year 2015

4.5.1 Perpetuum Mobile

"It is Wednesday the 28th of July 2015, 7am. Please wake up…Wake up Peter!" Alright. Good morning. "Would you like to read your morning news?" continues the home information system (HIS). "In the bathroom." Once Peter is in the shower, the HIS starts to read the news to him which have been filtered by intelligent agent systems according to his personal profile. "Britney Spears signed an incredible ten Cent contract with Bertelsmann Multimedia yesterday." Peter laughs. This is ridiculous he thinks. No multimedia company can afford such a deal, not even with Britney Spears. Peter should know. He is the Chief Executive Officer (CEO) of the Virtual Multimedia Group. The biggest contract his company has ever offered was with Robbie Williams for the amount of four Cents, and even that was too much. A lot has happened in the last 15 years he thinks. Since then he

had to drastically change the business model of his company. They had been amongst the first companies to comprehend what future the digitization of the media world might bring. The drastic reduction of marginal cost and the uncontrollable illegal copying of digital data had seriously threatened his business. As it became ever more apparent that international law was unable to cope with the increasing file-sharing activity, due to reasons of strong privacy concerns of the people and also lacking international cooperation in this regard, the idea started to spread that the only possibility to escape the economic and ethical breakdown was to create a new balance in the system. In particular the rules needed to be changed so that the open media standards such as the Internet would be sufficiently self-regulating. But how could that be done? He still remembers how he had been thinking very hard those days trying to find a solution. And then it had come to him just like that. Oh, it was so easy. If the marginal cost came down to almost zero, why not let the price come down to a similar level? He had realized that at a certain price level consumers would prefer the legal supply of wanted digital goods. The product proposition just needed to be good enough. But how could this price level be determined and wouldn't it simply be too low to still enable his company and the artists to make a profit? Many factors needed to be considered. First of all the market would need to be big enough to enable large enough economies of scale. Luckily Internet access was growing exponentially and the opening of the formerly closed market almost doubled the market size at an instant. The improvements in bandwidth, file compression technology and mobile connectivity surely were additional major enablers. But in addition to adequate market size new technologies were needed that would allow the new business models to succeed and to further spur consumer interest. The technology at the beginning of the third millennium had not even been nearly sufficient for these purposes. Fortunately, the economy started to boom again and large Research and Development (R&D) investments were made. Hardware and software products were getting better and better and some groundbreaking inventions took place. These constantly kept pushing the industry forward and increased the pace of change. For example books with digital paper share the benefits of digital technology and holding a 'traditional' book in the hand. Or special glasses that allow watching TV or VoD just about anywhere you go. Just think of unlimited possibilities.

Peter had started to like the idea of the new business model, a model that was based on balance instead abuse of market power. He had imagined a better world, where consumers would get any product, be it music, movies, books or news, in digital form according to their wishes at a price that they were more than willing to pay. He had been excited. And now that everything has actually come true, he thinks: "Wow! Great things we have done for our business and society. Everything seems to be in balance." Today is a great day for Peter. He will give a presentation on the new media industry business model, which he envisioned many years ago. On the drive to the location where the presentation is held, he relaxes in the back seat while watching the new video of Britney Spears "I'm a

woman, not yet a lady" that is streamed from the Internet and 3-D projected right in front of him.

15 minutes later the presentation starts and Peter shows how the digitization had threatened the media industry and how the idea of the new business models had emerged and what enablers had been needed. Then he goes in more detail about how today's business model works in particular. He explains that his company, quite similar to all other major players in the industry, provides the whole range of media services. This includes magazines, books, music, television and movies. "The main idea is that we want to enable our customers to draw from the whole range of services but at the same time provide the possibility of intelligent agent support. This way a customer gets a pre-selection of products suited to his special needs, but at the same time he can expand this selection at his wish. We provide a one-stop experience and closely collaborate with our competitors." "But how do you achieve the balance in the system. Why is there so little piracy", a guest asks. "Well", Peter says, "it's all in the prices. You have to pass on the much lower cost to the consumer. This way the hacking effort and the point of committing an illegal act are unattractive. In addition, there are advanced encryption systems in place that impede piracy. We have a market share of 14% in a market that has three billion customers. With zero marginal cost it is quite easy to reach very low prices. Additionally we employ modern bundling strategies [BaBr99, pp. 1613-1614] that include membership fees, token systems, which are linked to an internal billing system, and other forms of bundling that allow us to better calculate the price a consumer is willing to pay." One worried looking listener raises his hand and asks: "What about the artists? Don't they suffer from the low prices? Britney Spears got a contract for the sum of ten Cents, only." Peter smiles; he had been waiting for this question to arise. "Trust me, Britney won't be poor. In fact she just got a ridiculously good contract. Just imagine three billion customers of which let's say one billion want to download her song or video. For every download she earns ten Cents! You do the math. Usually, the figures are around one Cent for a song and one dollar for books as well as movies depending on the size and other issues. To conclude, artists, writers and any other producers of digital media content can still earn a living to be moderate. You see, this is what I mean with balance. The only thing that is not in balance is Britney Spear's ten Cent contract."

4.5.2 Judgment Day

"… Universal Pictures follow Warner Brothers and close their doors. After being in show biz for more than 100 years, low revenues force them to leave the stage …" New York Times Online, 17 May 2015.

After the disappearance of the smaller film studios, even the larger ones have to file bankruptcy as it has become impossible for them to pay out their employees, actors, directors or producers. The problem the movie industry faces is the same as that of the music and book industry: copy-right holders like artists, writers or

actors hardly receive any royalties due to heavy piracy. Newly shot movies, even produced at very low cost due to inexpensive digital production techniques, are getting 'ripped' by professional hackers before the they have their premiere nights. And as Internet access including high speed connections has become affordable to every household, within a couple of days the movies are distributed around the world and watched by millions of people without paying a cent for it. The sharing, downloading or as in the case of movies watching of media files have become as simple as doing a telephone call 15 years ago. The root of this disaster lies in the decision of the 'United Nations/European Union (UN/EU) Internet Commission' in 2004 stating" … the Internet will regulate itself in the most efficient economic way… therefore no laws whether national or international about data sharing are necessary … the privacy, on the other hand, with respect to digital content must be given …" Obviously, this turned out to be wrong. The first media industry seriously hit by this decision was the music sector. Peer-to-peer sharing systems, 15 years ago mainly used by young people, have become much more user-friendly, and data transfer much faster due to technical developments. As musicians and music labels were receiving hardly any royalties or payments, one after another disappeared from the market. The same happened with the book industry when writers and authors were not receiving any fees after their books were published in digital form. The lack of ethical education by parents, schools and other educational institutions imposes immoral consciousness of people and therefore enforces the piracy development. The fading of artists has led to a constant loss of cultural goods and therefore a decreasing cultural society. This trend is getting even worse as privacy is protected and any digital content is allowed to be distributed. In addition, none of the media industries have been able to develop secure encryption techniques to protect their intellectual property or efficient payment systems for billing downloading or streaming and thus are not generating sufficient revenues in order to stay in business. Data encryption specialists have been successful in 'hacking' the codes and make the digitized goods available for the public. The hacking of the encrypted files is illegal, but due to low technical innovations it is impossible to prevent the hacking process or track illegal hackers. The following sharing of the media goods, as already mentioned is legal. This vicious circle has now led to a continuing cultural and economical downfall.

Looking back, the complete digitization of media has not created new markets, as expected, but due to a large degree of disintermediation it has resulted in the downfall of several industries like the audio/video retailers, physical film manufactures, print pressing industry or bookstores, just to mention a few. The elimination of these industries harmed the whole economy, and the constant downfall of the media industry due to radical piracy has further enforced its weak state. As a result new technological innovations and development have turned out to be expensive for the public, especially on the wireless sector. High R&D cost and not sufficient support from the government or other public institutions made the new technical devices such as 'mobile-TVs' (handheld devices for watching

movies via streaming) not affordable for consumers, contrary to industry forecasts a few years ago. Thus, further technological development stayed out.

The fading of several industries due to disintermediation, the disappearance of media industries due to self-regulation laws and insufficient IP protection and the declining technology industries due to missing sales led to a dramatic weak state of the economy. In addition, the fading of artists and their cultural goods has led to a cultural-less society. The remaining question is, when the digitized media will report: "… mankind leaves the stage …".

4.5.3 Illuminati

"One million people including many famous artists and writers protest at the World Information Organization (WIO) headquarter in New York against the increasing two-class society. They demand the abundance of prohibitive information laws." FreeYourMind News, July 13th 2015.

Times surely have been better. Well, at least for most people. There is an increasingly large gap between the elite and the poor majority. Strict regulation results in an information society at its worst. Only the rich have access to valuable information, which is heavily protected by encryption mechanism, strict copy and intellectual property rights as well as far reaching national and international laws. The few who can crack the system are sooner or later identified by the 'sweepers', agents from information protection agencies, and are prosecuted heavily. Information, which is the most valuable good of the time, is costly and in these days signified by a sluggish economy and high unemployment, only the privileged few can afford the high prices. Quality of life is low and there is almost no chance to break the vicious circle. But how could it have come to this? Just 15 years ago the economy had been booming and then the supposedly pushing force of digital technology had caused the longest bear market in history. Let's see how it all started. In the beginning of the 21st century the economic leaders urged the governments of the world to stop piracy, to stop the illegal copying and distributing of intellectual property that took away so much of business revenues. In order to avoid chaos and disaster the UN held a summit on this topic in the summer of the year 2005 and passed the following bill: "… to control the growing number of illegal copying and distribution of intellectual property … to avoid growing corruption…the international community establishes a central intelligence agency, whose main task it is to stop … this agency can utilize any means it requires …" In the following years information media became highly regulated and intense legal punishments were being established. Governments put their main focus on this issue, worked closely together on an international basis and invested heavily in security technology. The regulation has become even more strict since then and there is virtually no privacy that allows undermining the system.

This information or knowledge blocking policy and the trend of R&D investments in this direction have led to little innovation in the technology sector. The development is almost non-existent and the world economy is slowing down constantly. It all started with the disintermediation of the media industry in the beginning of this century. Most middle layer companies were unable to successfully adapt there business models and were additionally pushed out of the market by the big media conglomerates. The industry experienced a lot of merger activity and at the end of the consolidation process only a few 'giants' were left over. The power of these giants is immense. They control the information provision for the entire world, if we neglect the minor power of a small group of highly illegal hackers of the free press who until today have managed to evade the 'sweepers'. These giants build a cartel-like oligopoly and constantly hold prices for information goods such as books, music, movies, newspapers and magazines very high. Since the marginal costs are virtually zero and since they share a huge market their profits are immense, although the demand is comparably small. Popular artists and writers earn significant royalties as the profit margins are very high. Nevertheless, the media giants take the major part. Minor artists and writers have significant difficulties, because they sell fewer books and consequently get smaller royalties. This results in a lack of new ideas, a lack of creativity. Furthermore, since most people are poor they cannot afford necessary higher education and the social gap is widening. The small elite gets richer and richer and tries to control the poor masses through the distribution of manipulative information. Technology standards were quite similar as today's. The only differences are a wider information access (which is heavily controlled) and increased bandwidth. But again, the more sophisticated technologies are, they are affordable only for the rich. The question here is whether the elite, the Illuminati, will be able to keep control or whether the masses will start a revolution.

4.5.4 Brave New World

A regular lecture at an international business school in the year 2015: The professor starts off with "… in today's lecture we will talk about digitized media and the effects on economy and society. Everything started 12 years ago when the ministers of the leading countries decided to carry out a scenario planning about the possible outcomes for the future regarding the digitalization of media. After they had presented the results of the individual scenarios, it was clear for all countries that digitization is good, because due to the binary digits' characteristics, it is possible to distribute all kinds of media around the whole world at exceptional speed and very low cost and therefore, to facilitate global integration. But in order to achieve the best possible outcome, digitization has to take place in a regulated setup. This mainly concerns data exchange networks like the Internet, which have to be fully regulated and controlled by national and international laws with respect to content, data sharing, hacking activities, and other things. Otherwise, negative issues such as piracy will have serious consequences, e.g. the fading of intellectual

property due to missing royalties and copyright fees, bankruptcies of media industries due to missing revenues or the disappearance of culture – so the predictions of one scenario. Therefore, an international monetary fund, the International Internet Fund (IIF) was placed. The returns of the fund where used in order to achieve the following three main goals: called technical innovation, educational innovation and legal innovation.

Within technical innovation, the aim was to improve the infrastructure of data networks like the Internet with respect to broadband connectivity, bandwidth or transfer rates; further, to guarantee access to such networks for every household comparable to the provision of electricity 50 years ago; and mainly, to subsidize and to support young innovative companies for the research and development of new technologies. The most important products of these companies are wireless connectivity devices and billing tools. The wireless applications are hand-held devices to ensure a fluent, wireless data transfer. The tools which enable watching or listening of video or audio files should be mentioned at this point. Songs, movies or other digitized media such as texts can be chosen from an indefinite list and can be heard, watched or read after being downloaded or via streaming on the mobile devices. Further, successful billing mechanisms are developed to ensure a fair and legal payment to the copyright holders of the digitized contents. In addition one aim within technical innovation was to develop better security standards. These security standards include secure data transfer and distribution systems, encryption systems to protect intellectual property and content control systems. These security systems are either developed by public or by private companies supported by the funds.

Within the second main goal, the educational innovation, the monetary funds of the IIF have been used, to establish a fundamental understanding for ethics concerning intellectual property and copyright. Especially young people should get reasonable understanding of why stealing intellectual property of media such as songs, books or movies is the same as stealing physical property. Further, the sharing of digitized content such as child pornography is harming the whole society and is a crime. The last aim, the legal innovation, includes the severe tracking and identifying of hacking or piracy activities; the prevention of illegal file sharing of digitized media via dangerous peer-to-peer systems like the famous Napster example as well as efficient content controlling. So far, the aims of the IIF are still being realized today.

As the history of the digitization has shown, the important issue was that the whole digitization process had to take place within a regulated framework supported by the different governments and countries in order to ensure an optimum state for the economy and society. Thanks for the attention." The students turned off their computers, monitors or hand-held devices and wondered what it must have been like about 15 years ago when all lectures took place in physical classrooms.

5 Conclusion

In this analysis the scenario planning technique was applied to open up the possibility space of how a completely digitized media world in the year 2015 could affect both economy and society. The analysis was based on the incremental steps of the scenario planning process. As a result the commonalities amongst the critical uncertainties were reduced to two single spectrums: the degree of regulation as well as the degree of unmatched technological innovation. These two axes provide the basis for the scenario matrix, the possibility space. While the degree of unmatched technological innovation can only be influenced to a certain extent, such as investment in R&D and adequate incentives from the market, it will partly rely on chance as well. The degree of regulation however, does not depend on chance. Only the discussion in politics and society as well as the underlying ethics can decide on this matter. Therefore, the governments can significantly influence the course of the future. They can shape the scenario that will eventually come true. This real future scenario is probably not equivalent to any of the ones presented in this paper. It will rather have some characteristics of each scenario and most likely lie somewhere in the possibility space that we have opened up.

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