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# BigData. BigMovies

HOW ALGORITHMS TRANSFORM THE FILM & TV INDUSTRY



An international conference dedicated to the effects of big data on the film and television industry

CONFERENCE PROCEEDINGS  
EDITED BY JANNIS FUNK

CLUSTER

ICT, MEDIA AND CREATIVE INDUSTRIES

BERLIN BRANDENBURG



**BIG DATA, BIG MOVIES – HOW ALGORITHMS TRANSFORM THE FILM AND TV INDUSTRY**

is a project by the Erich Pommer Institut and the Film University Babelsberg KONRAD WOLF in collaboration with Marketing Center Münster at the University of Münster, the DFG research unit “Marketing of Hedonic Media Products in the Age of Digital Social Media” and the Cluster Management ICT, Media and Creative Industries at the Brandenburg Economic Development Board and supported by the Medienboard Berlin-Brandenburg.

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## TABLE OF CONTENTS

<b>INTRODUCTION</b>	<b>4</b>
Introductory Words by the Organizers (Susanne Stürmer & Nadja Radojevic)	4
Introductory Words by the Co-Organizer (Henrik Sattler)	5
Introductory Words by the Conference Co-Chairs (Jannis Funk & Thorsten Hennig-Thurau)	6
Editorial: Data Analytics in the Film Industry (Jannis Funk)	9
<b>SCIENCE DAY</b>	<b>20</b>
What do We (Think We) Know about Film Performance? (Allègre Hadida)	21
Understanding Movie Preferences from Big Data (Paul Marx, André Marchand)	22
Risk Effects in the Movie Industry (Alexa B. Burmester, Michel Clement)	24
Pre-launch Analysis of Competitive Dynamics (Fang Wu, Natasha Z. Foutz, and Vithala R. Rao)	26
The Phenomenon New Drama Series – Initial Insights on Key Attributes, Motivations, and Emotions from a Large-Scale Consumer Survey (Nora Pähler vor der Holte & Thorsten Hennig-Thurau)	29
<b>INDUSTRY DAY</b>	<b>31</b>
Speech by the Federal Minister of Justice and Consumer Protection (Heiko Maas)	32
Taking a Producer’s Perspective (Benjamin Benedict)	36
How Data Science can become Creativity’s New Best Friend (Colin Brown)	39
Reaching the Cinema Power Users – With Movie Taste Based Audience Targeting (David Croyé)	44
Better Film Business Through Data-Driven Decision Support Tools (René Bastian)	49
Digital – A Paradigm Shift in Film Scheduling in Cinemas (Claudiu Tanasescu)	55

## Introductory Words by the Organizers



**Prof. Dr. Susanne Stürmer**  
President  
Film University Babelsberg KONRAD WOLF



**Nadja Radojevic**  
Managing Director  
Erich Pommer Institut

Big Data is everywhere. Be it in your “smart home” or your internet-connected car or through personalised advertisement. Or be it in the entertainment business, which bets on big data as the new driving force, since the new streaming players have appeared on the horizon. “You do not make a \$100 million investment these days without an awful lot of analytics,” Netflix’s Director of Product Analytics, Data Science and Engineering Dave Hastings described his business strategy once.

But what exactly is “big data”? And how can the media industry really make use of it? In autumn 2016, the international conference BigData.BigMovies attracted over 250 international scientists and industry professionals to the Berlin-Brandenburg area to discuss the benefits and implications of big data in the development, the marketing and the success analysis of media productions.

The conference’s concept of bringing together leading scientists and top-level industry professionals proved to be very successful. To evaluate the value of a new development, it is crucial to get both perspectives into a productive interplay – a systematic scientific approach to determine benefits and perils as well as an industry view that ideally helps adapting the research results to everyday practice. Hence, the conference has created a unique forum where these synergies could prosper. We as organisers of the conference and publishers of this book could not have had expected more.

During the conference, the dictum “building bridges” was brought to light, which perfectly reflects the overall aim and attitude of the event: Building bridges between the old and the new, between science and industry, between production and consumption, between art and commerce. In his opening speech, Germany’s Federal Minister of Justice and Consumer Protection Heiko Maas has put the opportunities of using big data in the media business as follows: “If we use them properly, data might help us bring people into the cinemas and introduce them to important films and topics.” It is important and necessary to not just gather all the data, but to handle it in a meaningful way, so that the industry may be able to break new ground. In short: to unite the priorities of algorithms and creativity.

Many thanks to our cooperation partners of the Marketing Center Münster of the University of Münster, the DFG research unit “Marketing of Hedonic Media in the Context of Digital Social Media” and the cluster ICT, media and creative industries of the ZAB ZukunftsAgentur Brandenburg. We would also like to thank the Medienboard Berlin-Brandenburg for their kind support.

## Introductory Words by the Co-Organizer



**Prof. Dr. Henrik Sattler**

DFG Research Unit

“Marketing of Hedonic Media Products in the Age of Digital

### How Social Media is changing Marketing

The DFG research unit (FOR 1452) “Marketing of Hedonic Media Products in the Age of Digital Social Media” had the privilege to co-host the BigData.BigMovies conference and to co-chair it with Thorsten Hennig-Thurau and Jannis Funk in 2016. Hedonic media products include computer games, books, music, and especially: movies. The aim of the group is to generate a well-grounded scientific understanding within three interrelated fields of expertise: network structures, consumer reactions, and market reactions. In particular, we try to bridge the gap between science and industry.

Members of the DFG research unit provided several research insights. For instance, Raoul Kübler and Koen Pauwels talked about movie product placement and advertising sales effects. Paul Marx and André Marchand presented their work on “Understanding Movie Preferences from Big Data”, while Alexa B. Burmester and Michel Clement demonstrated risk effects in the movie industry. Nora Pähler vor der Holte and Thorsten Hennig-Thurau showed why series are better movies.

FOR 1452 brings together leading researchers from the University of Hamburg, the University of Münster, the University of Cologne, and the Kühne Logistics University. A number of distinguished researchers from global top class business schools also participate as international fellows. Experts from Google, Harris Interactive, Random House, the Motion Picture Association, and Warner Bros. complement the research unit and ensure a practical orientation of all research projects.

### Prof. Dr. Henrik Sattler

DFG Research Unit “Marketing of Hedonic Media Products in the Age of Digital Social Media”

## Introductory Words by the Conference Co-Chairs



**Jannis Funk**  
Cinuru Research |  
Film University Babelsberg



**Thorsten Hennig-Thurau**  
Marketing Center Münster, University of  
Münster

When the first registrations came in for our „Big Data, Big Movies“ conference, we observed the unfolding of an interesting dynamic. While most scholars booked their conference tickets right at the point when they became available, most of the film producers and distribution executives in the audience decided to join us only briefly before the event. This was a small, but nonetheless telling indication of the two cultures that we were about to bring together under the umbrella of one science/industry summit. People in the academic field made their plans months in advance, the creative industry folks improvised, remained flexible and were always ready to follow an interesting trend.

After repeated announcements in the trades and recommendations in industry newsletters, the topic gained traction in summer and there was a considerable buzz noticeable among at least the German film industry. During that time of high attention, a German feature film producer active in the art house sector told us that she was looking forward to the event, but mentioned at the same time that there were many “opponents“ among the industry who despised the idea of our conference – not a single aspect of it, but the overall topic of exploring the potential to harvest data for improving management decisions in the film business altogether. Needless to say we were awestruck. Of course we had been aware of a certain aversion toward data among the creative industries, probably powered by a deeply rooted fear of “number-crunching“. People seemed afraid that the analysts might one day arrogate to dictate creative decisions based on ominous, data-based insights. And granted, it is certainly a legitimate choice for a producer to look at the possibilities of data analysis, understand them and then decide: I do not want to use those tools, because I do not see sufficient value. But how can one refuse to have that look in the first place, without a sound understanding of what’s to be gained? How can one oppose a conference which aims to foster the exchange of knowledge in a new field made possible through advancements in digitalization and technology, and critically discuss the implications?

It is our firm belief that industry professionals should engage in those discussions, whether hosted by us or others — otherwise they will forego the chance to shape the future of their own industry and possibly face the threat of being disrupted by more technologically savvy market participants with a different agenda. Some might think now that we are pathetic now – film, as the greatest of all mediums, being disrupted is a little far-stretched. But is it? Film is essentially about getting entertained, and film has no monopoly on doing that – and certainly those who have become institutions in film have not. Younger consumers are making their own choices when it comes to entertainment, and the options are as diverse as never before in the history of mankind. Data analytics is heavily used by social media firms, games producers etc., but certainly also by fresh providers of filmed entertainment, such



## Introductory Words by the Conference Co-Chairs

as Netflix and Amazon, which are about to develop much closer ties to consumers than traditional film studios ever had.

After having been made aware of this reluctance and skepticism, we were absolutely amazed by the eventual turnout at the event: When we entered the stage of the Big Data, Big Movies conference for the first time on September 22, there were nearly double as many people in the audience as we had initially expected — and it was not only scholars who went to see the “Science Day,” and practitioners who attended the event’s “Industry Day,” but the crowd was very intermingled. It seemed that participants were eager to use even the shortest breaks to get in touch with the “other side” and to network across all professional and disciplinary borders. This was delightful for us to witness, since sparking this very dialogue between science and practice, which had so painfully been missing during the past, was the foremost goal of our conference. The well-received speed dating session in the afternoon of the first conference day and the common excursion to the sound stages of Studio Babelsberg in the evening further helped to build bridges, and as we write this we know of several regional, national and international collaborations between academia and practice on the topic of data analysis that are currently being developed. Thus we perceive the conference as a tremendous success in that regard.

Our second goal was to actually promote academic progress by providing a stage for the presentation of state-of-the-art research results on our “Science Day”. We could not have been happier with the line-up of speakers who agreed to share their latest findings in Potsdam. Scholars came from all over the world (literally!) and the talks, which are documented in this proceedings brochure, span a great variety of topics from release date timing of motion pictures in the United States of America to watching behavior on streaming services in the People’s Republic of China. While not every methodological detail may be understandable at first glance for people in the industry that are unfamiliar with the scholarly discourse in marketing and management sciences, we hope that the abstracts included in this volume will prove interesting to anybody and provide an overview of all the areas that data analysis might be applied to. In case you find something promising and want to know more, please feel free to get in contact with the authors – believe us, scholars are thankful for comments and impulses from outside their academic bubble.

Additionally, the conference aimed to provide an overview of practical applications of data analysis in today’s film and TV industry. Again, the line-up was very international, including companies from New York as well as New Zealand, and whereas the first day had explored the possibilities of data as a scientific capacity to understand the industry, the second part showed what can and is already been done by the application of smart analytics to understand and reach audiences in everyday business. You will find abstracts of those talks in this brochure as well. Although they are by definition just a snapshot of what is possible today, we are strongly convinced that these are interesting case studies that may inspire both practitioners and researchers to think further.

As conference co-chairs, we are very happy with what „Big Data, Big Movies“ did achieve as an event and hope that the spirit of the conference may be preserved in these proceedings as well as the collaborations and partnerships that are currently evolving in its wake. May we finally break that nasty cultural barrier between science and industry and engage together in the endeavor of understanding and shaping tomorrow’s film and TV industry!



## Introductory Words by the Conference Co-Chairs

**Jannis Funk** is co-founder of Cinuru Research, a company building data-driven research and marketing tools for movie theaters. He works as a producer with bittersuess pictures in Berlin and at the same time pursues a PhD at Film University Babelsberg with his dissertation focusing on “Algorithms and Producers”. In 2016/17, he has been a Fulbright Visiting Researcher at the University of California, Los Angeles. He initiated and co-chaired the conference “Big Data, Big Movies”.

**Thorsten Hennig-Thurau** is Professor of Marketing & Media Research at the University of Münster’s Marketing Center. He has been ranked among the top German business scholars by Frankfurter Allgemeine Zeitung and Handelsblatt multiple times and has published extensively on entertainment industry-related topics and digital challenges in leading academic journals. He is a recipient of the Mallen Lifetime award for his work on filmed entertainment and was co-chair of the American Marketing Association Winter Educators’ Conference in 2016. Thorsten is currently working on a monograph entitled “Entertainment Science,” in which he explores how the entertainment industry can harvest big data. He also is a dedicated movie aficionado, with a particular adoration for the works of Sergio Leone and Clint Eastwood, and enjoys traveling to the locations of great films.

# Editorial: Data Analytics in the Film Industry



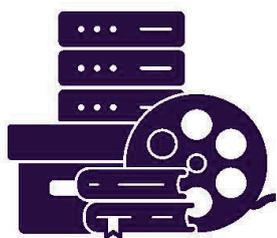
**Jannis Funk**  
Cinuru Research |  
Film University Babelsberg

After Donald Trump was elected for president of the United States in November 2016, the German-speaking Internet circulated an article from the Swiss Magazin, which linked the electoral success to the activity of consulting firm Cambridge Analytica and the research of a Stanford psychologist. According to the authors, psychological profiling of millions of Americans had enabled the Trump campaign to create hundreds of thousands different variations of their messages and cater them to individual voters in a personalized way. Although the article did not explicitly claim it, it suggested that this subtle form of influence had been decisive in a tight electoral race. The mysterious algorithm behind it was likened to nuclear bombs.

William Goldman, screenwriter of “Butch Cassidy and Sundance Kid”, wrote in 1983: “Not a single person in the entire motion picture field knows for a certainty what’s going to work.” This “Nobody knows anything” has since evolved into an industry mantra and keeps resurfacing whenever the topic comes to data and analytics.

These are two extreme opinions: On the one hand, data are regarded as an alchemist super-weapon which rendered half the population of the world’s oldest democracy abulic, on the other hand analytics is portrayed as a scientists’ pipe dream. In fact, scientific accounts as well as industry applications show that all parts of the film and TV industry could benefit from an informed use of data analytics.

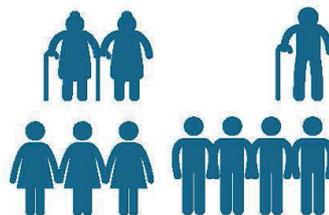
“Big data” is the buzz word which has emerged in recent years to allude to the fact that data sets keep getting bigger. To understand the possible surplus value for the industry it is much more helpful to speak of “data analytics” instead. Data do not need to be big, but profound analytics is indispensable.



**Content**



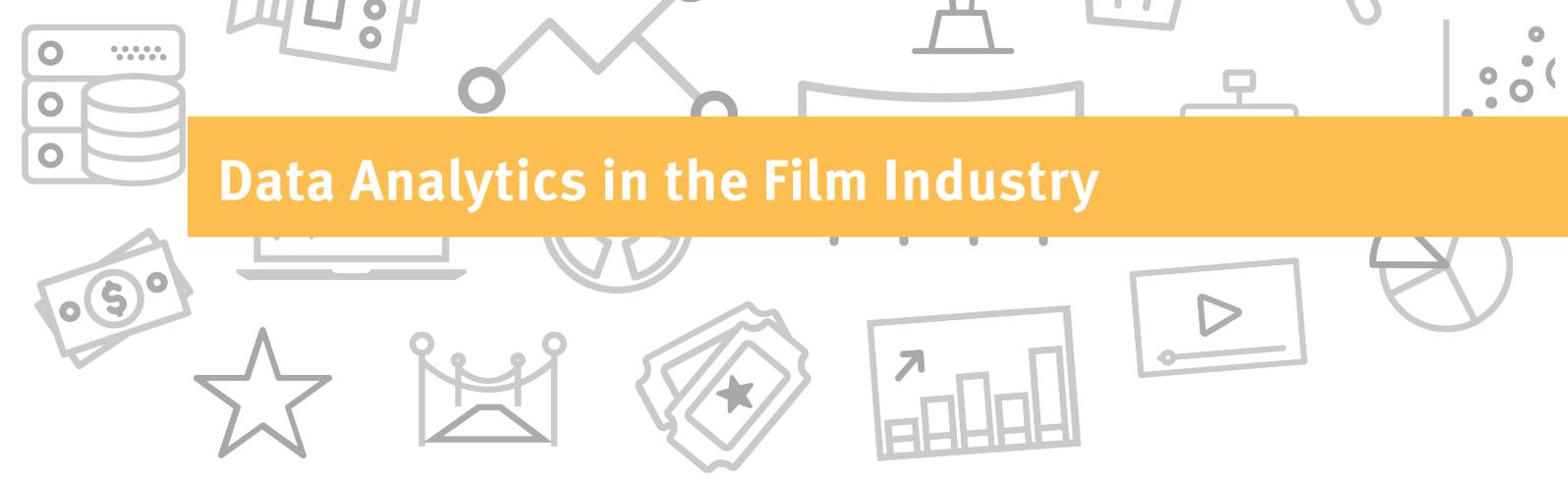
**Metadata**



**Aggregated  
User Data**



**Individual  
User Data**



# Data Analytics in the Film Industry

What is the nature of these data? Obviously, the most important data in creative industries are the contents. From the first draft of the screenplay to the final DCP these contents are usually digital nowadays.

To be able to communicate about and compare contents, there are metadata, i.e. abstract information about the quality of the content. Among others, these are data about a film's genre, cast, crew, budget and production year. Everything what can typically be found on an IMDB page is considered metadata.

Apart from these data that are referring to the content, there are data about the interaction between film and audience: user data. Old mass media have been a one-way street for decades, which transferred information only from media makers to spectators. The digital world has brought about a back channel which allows the media makers to gather information about the people in front of the screen at a large scale.

The availability of large scale individual user data in particular marks a paradigm shift. A sufficient amount of such data allows to recognize patterns, decode preferences of individual spectators and even predict their behavior.

## **Several large trends will further contribute to the increase in significance of data analytics:**

### **1) More and more films**

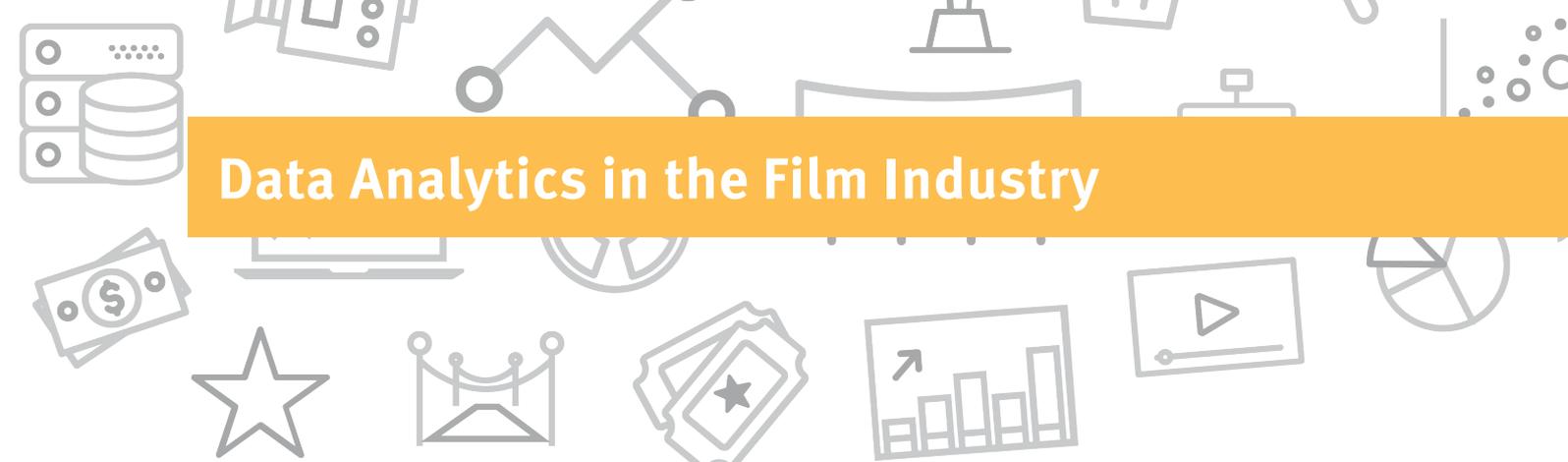
The global production of content is growing enormously. This goes for feature films, TV networks, and of course for online content. The world of audiovisual media has long become vast. In the development of a "long tail" economy, data analytics will help connect specific contents to specific audiences.

### **2) Rising marketing costs**

The marketing spendings of a studio film per admission are three times as high today as they were 30 years ago and regularly outsize a film's budget. Thus any way to make marketing more efficient is more than welcome. Data analytics allows a sharper definition of target groups, precise campaign tracking and targeted advertising across media.

### **3) Rise of direct-to-consumer business models**

A non-linear video-on-demand subscription service such as Netflix faces decidedly different incentives compared to the project-based business of the studios or the slot-based rationales of the TV networks. The most important metrics are not how many people watch a certain piece of content at a certain time, but the popularity of the brand, the number of new subscriptions and - most eminently - the "churn rate", i.e. the percentage of people who cancel their subscription any given month. If a show manages to increase the value of the brand, to attract new customers or to prevent subscribers from cancelling,



## Data Analytics in the Film Industry

It can well be considered a success. Such effects can no longer be measured by aggregated rating numbers, but their steering requires deep analysis of personalised data, intelligent segmentation and customized offers of new, specifically targeted contents.

### 4) Personalisation of TV commercials

The convergence between television and online media will extend to the expectations of advertising clients as well. As early as 2005 the New York Times predicted that TV commercials would soon be delivered in a personalised way. There is evidence that this prediction will come true during the next years. The chief executives of Time Warner and AT&T mentioned the combination of their user data for targeted advertising as a key feature of their planned merger, certainly in an attempt to pit themselves against the likes of Facebook and Google. If, in 10 years from now, only dog owners will get to see dog food ads on TV, data analytics will be the secret sauce behind that.

### 5) Rising significance of fanbases

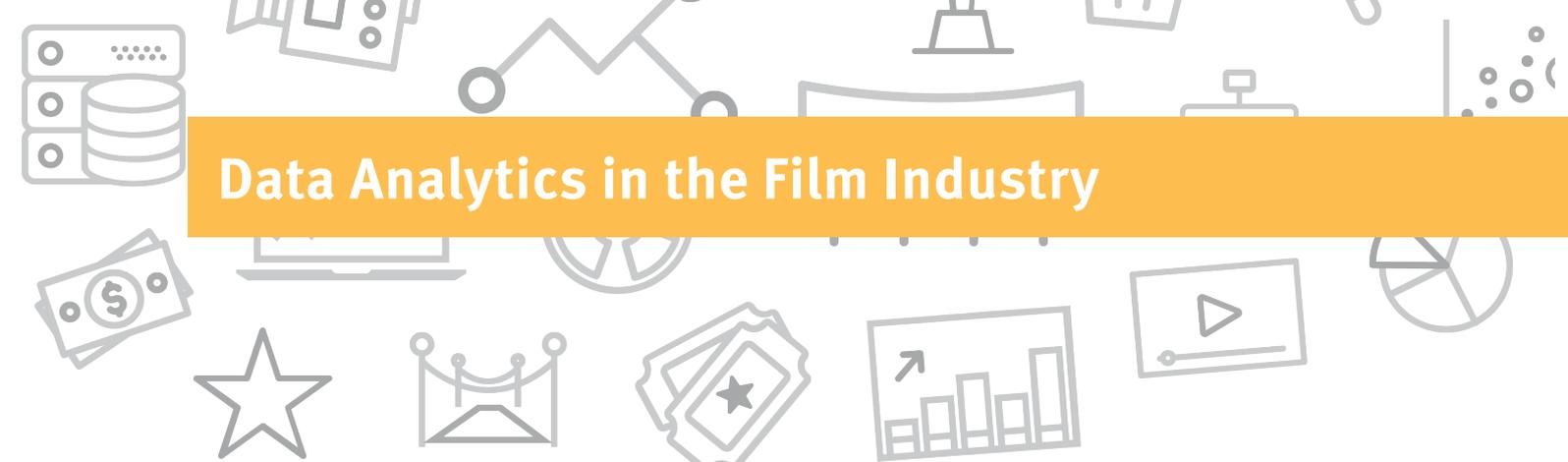
YouTube stars have long exemplified this approach: Building and maintaining their own fanbase is also of high interest to independent filmmakers. Thought leaders such as Ted Hope and Jon Reiss have claimed for several years that indie filmmakers should no longer think from project to project, but rather adopt a “career development” perspective and build a fanbase over several projects. Data analytics will prove essential here: The better one knows one’s audience, the easier it will be to reach out.

### Data analytics as a competitive advantage

In practice, data availability is often low. Data accrue at different times and in different places along the value chain. Seldom they are collected systematically and even more rarely they are combined and shared with other stakeholders. The increasing significance of data analytics means that datasets and analytical skills will soon evolve as a major competitive advantage.

Where small and medium-sized companies lack the resources to develop their own solutions, collaborative efforts are needed. Industry associations and public funding bodies can put the issue on their agenda and support market participants. Both academia and independent startups may contribute to innovation throughout the industry.

Some promising approaches have been presented at our conference “Big Data, Big Movies – How Algorithms Transform the Film & TV Industry” in Berlin and Potsdam in September 2016. They show how data can already be leveraged today in a smart and responsible manner.



# Data Analytics in the Film Industry

Thorsten Hennig-Thurau, Professor of Marketing and Media at the University of Münster, and I co-chaired the conference. During the planning it quickly became obvious that science and industry were interested in the same kind of questions –

but more often than not, those two worlds operate in very different languages and barely understand each other.

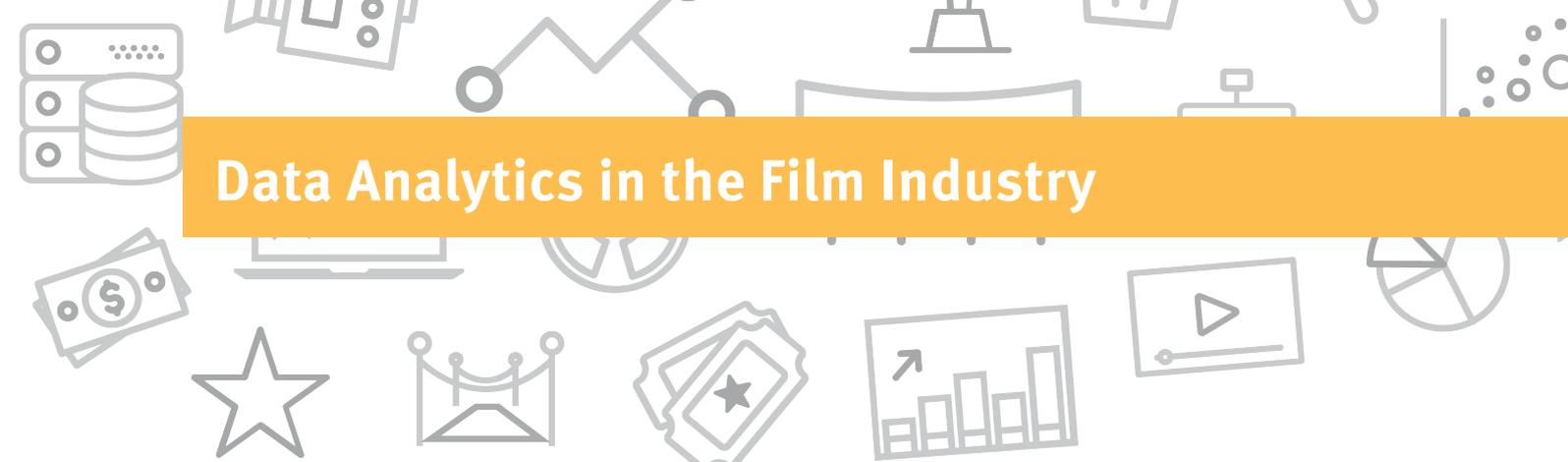
This was also observed in our “Science meets industry” panel discussion. Industry veterans Malte Probst (SKY), Wilfried Berauer (SPIO), and Andreas Kramer (formerly of HDF Kino) met scholars Suman Basuroy (University of Texas, San Antonio), Mark Houston (Texas A&M University), and Ann-Kristin Knapp (University of Münster). All participants demanded more exchange and mutual access to data and research results. Given the enormous research and development capacities of silicon valley corporations, it might be a particularly viable path for European companies to collaborate with public research facilities on issues of common interest. Moderating the panel discussion, Thorsten Hennig-Thurau emphasized that data analytics alone will not suffice: “Two other components are of central importance: First, the power of intuition, which was, is, and will remain indispensable for the creation of anything new. Second, the proverbial “good theory” - which is not to mean boring tractates, but wise understanding of the complex relationships underlying statistical results. Again, learning from Netflix is learning to win in this regard: They do not only have a team of graced analysts at their disposal, but work with great artists as well as the best researchers.”

Marketing scholars have researched motion picture consumption by the means of data analytics for decades. Professor Allègre Hadida of Cambridge University summarized in her keynote at the beginning of the conference, what is known so far. In a meta study she looked at what trends are manifest in the scientific publications of the last 35 years. For example, in recent studies the influence of star power on box office results is much weaker than it used to be. Modern studies no longer aim to develop the one formula that determines the relative importance of the director, the script, and the production value for all films. Different films have different target audiences which different aspects appeal to. Scientists are well aware of this fact and modern statistical methods are able to model these complex interactions. Yet, access to data from the industry is often limited.

Among the industry itself, data and analytics have only begun to get important during the last years. The following examples – most of them from the conference – are meant to provide an impression of what intelligent use of data analytics may look like throughout all stages of the value chain – from displaying the content in movie theaters, on laptops, or smart TVs to creating it in the producer’s office.

## Display and exhibition

If in the movie theater or on the smart phone: Displaying content involves a diverse set of decisions: Which content is presented? How, at what price, and in which environment? What advertising will go with it?

The header features a light blue background with various white line-art icons. On the left, there are icons for server racks and a stack of coins. In the center, there's a star, a crown, and a film ticket. On the right, there are icons for a bar chart, a play button, and a pie chart. The title 'Data Analytics in the Film Industry' is written in white text on a dark blue horizontal band.

# Data Analytics in the Film Industry

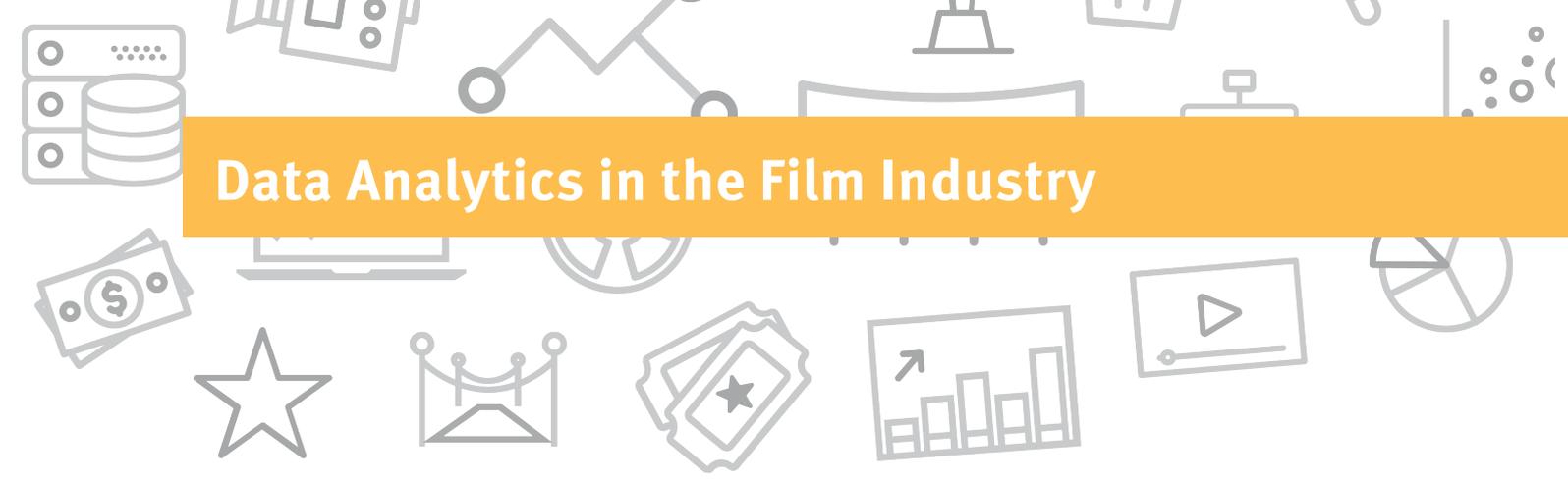
Netflix will never look the same to two different people upon login. Everything is personalized and tailored to the individual consumer. Joris Evers, Director of Global Communications, told the New York Times in 2013, there were 33 million different versions of Netflix – one for every user. Employing recommender algorithms, Netflix shows all customers those movies and shows which they will most likely want to consume, based on their past consumption preferences. Netflix excessively tests and optimizes this user experience design. Different target groups get different preview images and even different trailers presented for the same product. Up to ten different trailers for the same show have been commissioned by Netflix. 75 per cent of streaming activity on the platform can be linked back to recommendations, according to Netflix itself.

To enable a similar degree of customization on TV as well, for example in order to display personalized advertising, an infrastructure for data collection must – and will – be established. So far, providing data on TV audiences has been the exclusive domain of large market research companies such as Nielsen and GfK. Due to the technological convergence of TV and Internet one can assume that the manufacturers of smart TVs and OTT sets will increasingly come up with their own solutions. The American company TiVo already offers their TiVo Research & Analytics service. In Germany, SKY has announced in 2015 to create their own 15,000 household panel. Another back channel from the living rooms may be opened up by people's smart phones. A service like Gracenote Entourage, which automatically identifies TV contents by listening to the audio and presents additional information to the spectator on the smart phone display, turns every smart phone in a market research device.

Movie theaters also have lots of opportunities to collect and analyze individual user data to optimize the movie-going experience for the individual customer. Claudiu Tanasescu, founder of Cinema Intelligence, explained at “Big Data, Big Movies”, how showtimes and screens can be adjusted to local demand on a short-term basis. Berlin-based startup Smart Pricer offers a similar service: They take the dynamic pricing approach of the airline industry and transfer it to movie tickets. By not knowing who sits in their seats, movie theater owners waste a lot of opportunity: Given the rise of online ticketing and electronic loyalty programs, now there are ways to collect these data. New Zealand-based company Movio, which – like Cinema Intelligence – belongs to the Vista corporation, offers theater owners personalized campaigns based on their box office data, as Sarah Lewthwaite presented at the conference. Thus, individual spectators are targeted and pointed to new releases based on their past ticket purchases. My own company, Cinuru, is building a data-driven loyalty system for independent cinemas, increasing the number of digital interactions between exhibitor and consumer.

## Distribution and marketing

If a certain piece of content will actually reach their audience is mainly determined at the stage of marketing and distribution. Considerations about the envisioned audience are absolutely central here: Who are my spectators? How can I reach them? Through which channels? Using what ads? How can I transform them into regular consumers, evangelists or fans? When should I release which parts of the content and what exactly will be my competitive environment?

The header features a collection of light gray line-art icons on a white background. These include server racks, a pie chart, a bar chart with an upward arrow, a play button, a star, a crown, a film strip, a dollar bill, and a laptop. An orange horizontal bar spans the width of the page, containing the title text in white.

## Data Analytics in the Film Industry

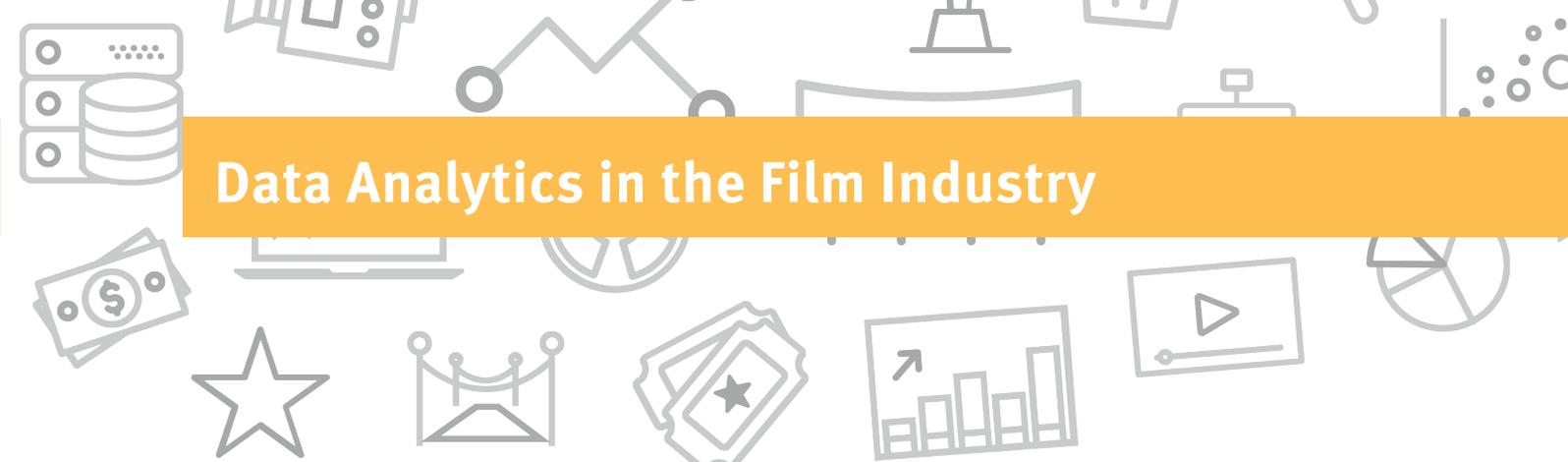
The analytical developments that have been brought about by new technologies are very different between the TV and VoD market on one hand and the theatrical market on the other hand. This can be explained by their different relationship with the end user: For TV and VoD, the decisive figure is customer retention: Everything is about binding the consumer and maintain their recurrent engagement. In the project-based economy of the theatrical distribution companies though, the main goal of marketing is activation, i.e. prompt the consumer to engage in the first place. Data analytics works and can help make better decisions within both frameworks.

Again, streaming platforms are in a more comfortable starting position, as they interact with all their customers individually and can target them with personal offers to prevent them from canceling their subscription or lure them back with a free month. For the conventional TV networks, aggregated ratings still provide their hard currency. Direct digital interaction takes place primarily in the online libraries. Bernhard Engel, spokesperson of the technical commission of the German Arbeitsgemeinschaft Fernsehforschung (AGF) explained at “Big Data, Big Movies”, how small and big data (the GfK-operated panel and views in the online libraries) integrate with each other to allow deeper insights about the respective audiences. In the future, more content will be accessed through apps and the home screen of smart TVs, tablets, and OTT boxes will replace the programming of the remote controls button as the primary battle field for consumers’ attention in the living-room.

For theatrical distribution, the greatest potential of data analytics lies in increased advertising efficiency. As many important channels (TV ads, posters) still run by a catch-all principle, existing approaches are mainly found in the field of online marketing.

Benjamin Vogler, Industry Manager for Media and Entertainment at Google, presented at our conference, which conclusions about a consumer’s mood may be drawn from online search behavior specifics such as point in time (before/after release, day of week, time of day) and information sought (web search, trailer view on YouTube, ...). He also pointed to how these insights may be acted upon during campaigns. Christoph Hoyer presented the service of JustWatch, a content search engine for legal video-on-demand platforms, which creates taste-based user profiles from the search behavior of its users and targets those users with advertising in campaigns for new films. JustWatch is particularly efficient in targeting heavy users, who stream more often — and also go to the movies more often — than others. It is safe to assume that distributors will adopt the strategies of the large video-on-demand platforms to define core audiences earlier and more precisely based on individual-level user data and target them personally throughout the campaign.

Another widespread problem in theatrical distribution is how to set release dates and mitigate the risk posed by competition. Prof. Natasha Foutz of the University of Virginia analyzed at “Big Data, Big Movies”, how announcements of changes in release dates affect revenue expectations of competing motion pictures and how the American studios react on one another, using data from the online prediction game “Hollywood Stock Exchange”. On the same note, Matthew Eric Bassett introduced his service Gower Street Analytics, which partners with veteran industry data provider ComScore (formerly Rentrak) to offer optimization of release date scheduling as a commercial service.

The header features a collection of light gray line-art icons on a white background. These icons include a server rack, a pie chart, a film strip, a star, a crown, a bar chart, a play button, a dollar bill, and a laptop. A solid orange horizontal bar spans across the top, containing the title text in white.

# Data Analytics in the Film Industry

## Production and development

A producer needs to fall decisions all the time: What screenplay shall be realized? Starring what actors, directed by whom, on what budget? In what country, with which partners? What do the results from the test screenings mean? What changes need do be made to the edit? Data and analytics cannot replace intuition regarding all these questions, but they can still provide valuable tools, where the human brain reaches the limits of its memory capacities.

The most prominent example for the application of data analytics at the production stage is provided by rise and fall of Ryan Kavanaugh's company Relativity media, which brought Monte Carlo simulations from Wall Street to Hollywood and went bankrupt in 2015. In fact, both success and failure of Relativity are probably more closely linked to the personality of Kavanaugh than to the quality of any algorithms. Still, the case reinforced the industry's old "Nobody knows anything" belief.

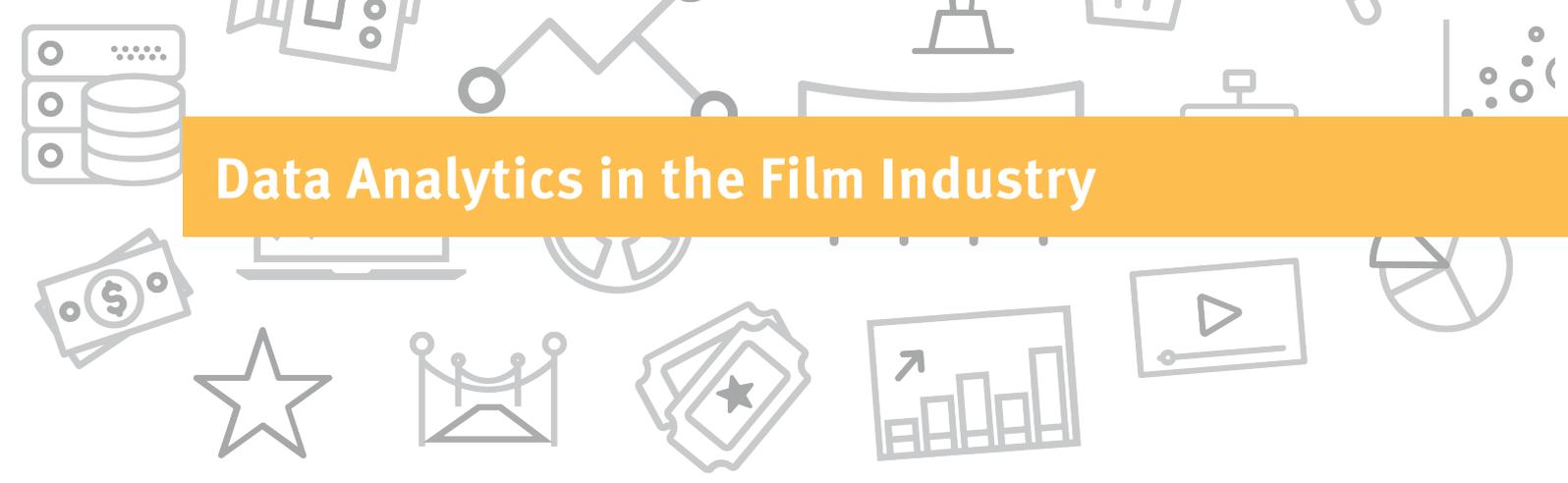
To be clear about this: success cannot be predicted with complete certainty. Data analytics are based on stochastical methods and, thus, on probabilities. Also, professional intuition is by far the most prevalent and important mean to select and produce projects as a producer. This was also reinstated by the panel discussion at "Big Data, Big Movies", which included Jan Mojto (EOS Entertainment), Sabine de Mardt (Warner Bros. International TV Productions), Frank Jastfelder (SKY), Marvin Lange (Maxdome) as well as Colin Brown (Slated) and was hosted by DWDL's chief reporter Torsten Zarges. Intuition is always the result of long experience and pattern recognition, something good producers thrive at.

René Bastian, producer and founder of Cinelytic, provided a sneak peek into the beta version of their web tool, which is meant to support producers in creating a package and combining the right script with the right team. As the team selection process usually does not start with a blank sheet, but is the result of long-established working relationships, it remains to be seen whether producers will be open to such tools as actual support or whether the insights they provide will rather serve as an argument talking to financiers.

Evaluating ideas will remain a domain of producers for the foreseeable future. Understanding language, let alone stories, is still an unsolvable problems for the most advanced artificial intelligence systems. Tom van Laer of Cass Business School in London, presented first approaches of how a computer may assess a text's "narrativity". Also, software engineers around the world are currently making enormous progress in machine translation and so-called sentiment analysis, i.e. recognizing which emotions are expressed in a text: If a tweet is positive or negative about a film, can easily be decided by machines today. But actually understanding a complex text such as screenplay like a human reader, developing a mental model of the acting characters, picturing an inner movie, grasping what emotional effect the depicted actions will have on a human audience — that is far from possible for computers nowadays.

There are a couple of commercial offers on the market, companies such as Epagogix, Vault, and Script-book, which claim to be able to (semi-)automatically analyze a screenplay, but they have not yet provided any scientifically sound evidence in support of their claims.

It seems a lot more promising to use data not to analyze the screenplay quality itself, but to determine

The header features a solid orange bar with the title 'Data Analytics in the Film Industry' in white. Above and below the bar are various grey line-art icons: server racks, a laptop, a pie chart, a dollar bill, a star, a crown, movie tickets, a bar chart with an upward arrow, a play button, and another pie chart.

## Data Analytics in the Film Industry

whether there is an audience for a specific script. Again, Amazon and Netflix may serve as examples of how to implement such thinking right from the start. Sebastian Wernicke of Solon Consulting analyzed their respective approaches in his talk at the conference and took “Alpha House” and “House of Cards” as examples. It is important to point out that Netflix did not use data to create the story or even the package of “House of Cards”, but to determine, whether the fans of political thrillers among their user base were also interested in David Fincher films and Kevin Spacey. Ted Sarandos told the New Yorker at Sundance 2015, that content decisions at Netflix relied on data analysis for about 70%. Yet, most production companies have very little direct contact with their audience and thus almost no audience data. It is well known that Netflix does not even share aggregated viewer numbers with their content suppliers, let alone consumer data on the individual level. There is a clear need for producers to lobby for more disclosure, otherwise they lose access to an important asset — or will need other, creative ways to engage their audience directly. YouTubers have set an example.

Even today, there are possibilities to gather audience data at the early stage of a film’s production, for example crowdfunding, which might well be more valuable as an analytical tool than it is as a funding source. Insights may also be gained from similar movies’ consumption data. Nora Pähler vor der Holte and Thorsten Hennig-Thurau showed in their conference presentation focusing on drama series, how even relatively small data sets from surveys can provide rich insights into needs, expectations and consumption behavior.

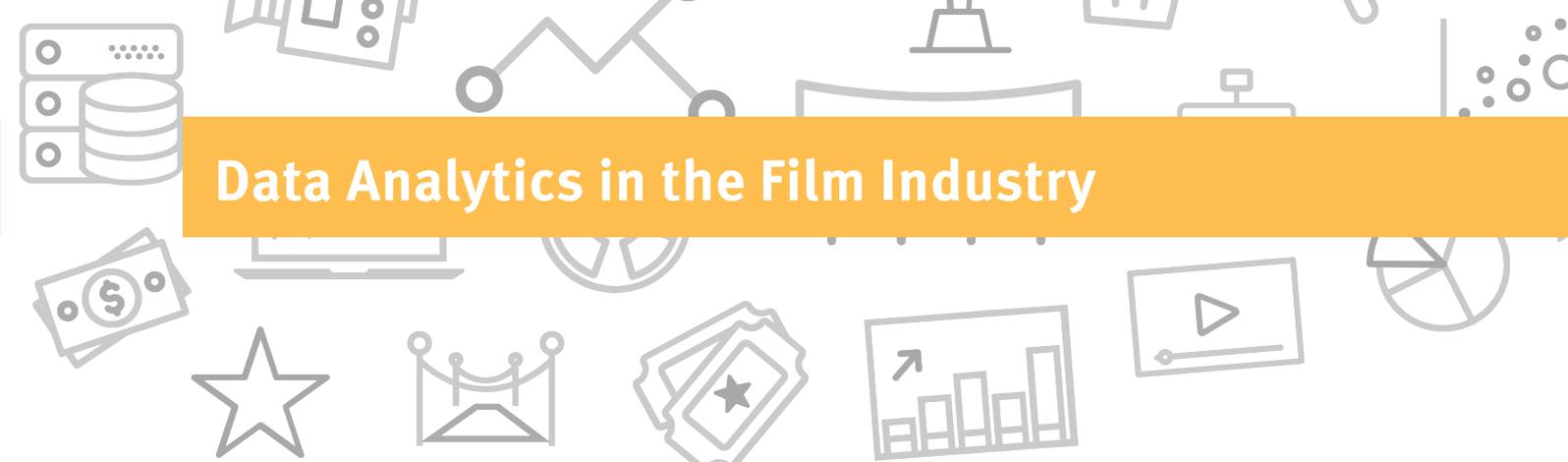
Better analysis can improve well-established tools of market research, either. For example, the results from recruited audience test screenings nowadays suffer from the fact that nobody knows who how representative the test audience’s taste actually is. In lack of a better alternative, participants are selected by age, gender and income. It is safe to expect these methods to change significantly as soon as richer information about the audience are included into the analysis.

Combining tests and surveys with large sets of individual user data, producers of the future will be able to develop detailed hypotheses about their target audiences very early on and test, improve and refine these assumptions over the course of the production.

### **Outlook: Vertical Integration**

At the AFM 2016, Luke Xiang of Weying Inc. From Beijing provided a sneak peek into a future of vertical integration and data analytics: Weying was founded in 2014 and sells cinema and sports tickets on China’s omnipresent social network WeChat. Based on these individual user data of millions of Chinese moviegoers, they determine new films’ target audiences and market to these directly via WeChat as well. Last year, they started to finance and produce their own movies, as well. The modern Chinese movie industry has emerged at a time when the global economy was already dominated by the paradigms of Silicon Valley, thus tech startup principles such as early testing and excessive analysis of user data is already part of their industry DNA.

The paradigm shift might be slower in more mature film industries, but as the analysis of trends above

The header features a light gray background with various icons related to data and film. On the left, there are icons for server racks and a stack of coins. In the center, there are icons for a film strip, a star, a crown, and a bar chart. On the right, there are icons for a play button, a pie chart, and a line graph. A solid orange horizontal bar spans the width of the page, containing the title text in white.

# Data Analytics in the Film Industry

has shown, we are sure to experience similar developments in Western markets as well. If established players want to continue playing an active part, two things are decisive: A tighter dialog between research and practice, which was repeatedly demanded during the conference as well, and a clear vision of the rules that shall apply in the new world. Media creators bear a special responsibility and should take legal, aesthetic, and ethical aspects into consideration.

## Legal aspects

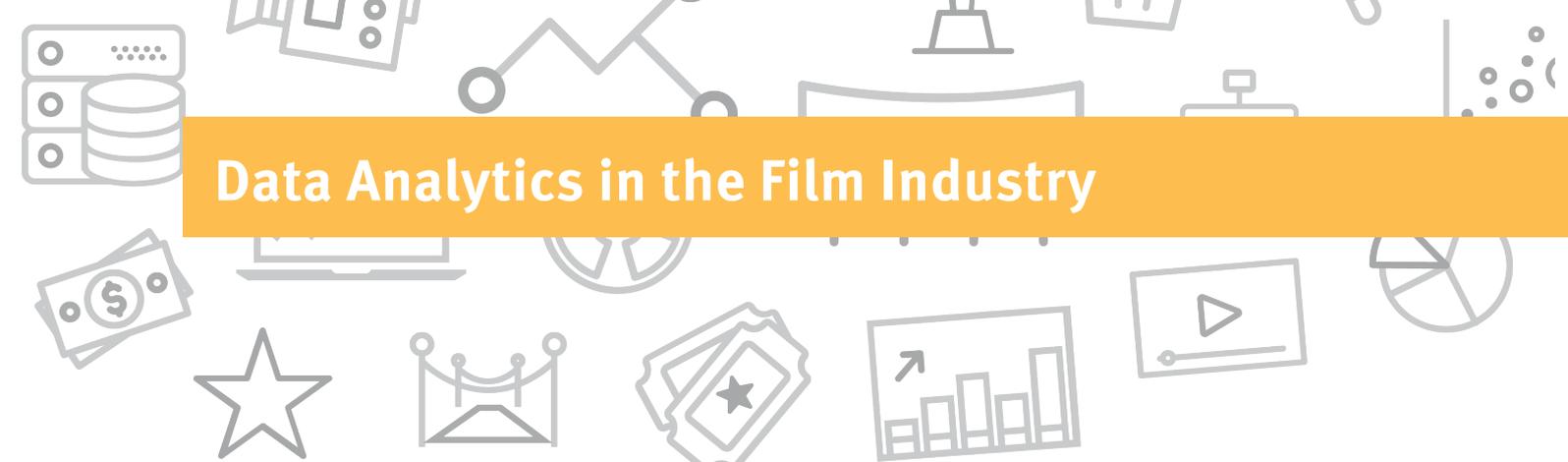
Privacy is probably the first thing that comes to mind when one thinks about legal considerations of data analytics. As explained above, several distinct types of data play a role in the film industry: contents, metadata, aggregated and individual user data. Privacy applies to personal data only, yet other data may be protected by different laws. At “Big Data, Big Movies”, we had German Federal Minister of Justice and Consumer Protection, Heiko Maas, as a guest speaker, who pointed out the importance of privacy in his introductory speech: “Knowing all of that data means intruding deeply into the private sphere – into the inner thoughts and feelings of individuals.” Maas went on to present some important aspects of European privacy laws relevant to the film industry. The world-wide situation is far more complicated, as data privacy laws vary significantly among countries. In particular, European legislation is stricter than US legislation, which rely mainly on companies’ self-regulation. Europe has certainly the most consumer-protective and progressive data privacy laws, but paradoxically this can lead to a competitive disadvantage, when American or Chinese companies can collect more data and develop and build new products based on these data. To remain competitive, European companies should find ways to work with research facilities, share datasets anonymously and build open databases that may be used by industry and academia alike, while at the same time offensively communicating European consumer protection as an advantage for customers. A good example of how this can work is MovieLens, an open database by the University of Minnesota that was created to study recommender algorithms, and provides anonymous, individual movie taste data online and has been cited in more than 10,000 scientific papers world-wide. During the conference, a similar idea has been developed for the European market and is currently pursued by the Film University in Babelsberg.

Besides data privacy laws, other legal considerations may apply, for example databases can also be protected by copyright laws. Again, regulation varies between countries. Thus it is highly recommended to seek legal consultation before starting a new data analysis project.

## Aesthetic aspects

It is often assumed that a wide-spread application of data analytics in the film industry will lead to more streamlined, uniform, and ultimately: boring content. Yet the opposite seems more likely.

This seems counter-intuitive at first sight, as the use of data originates from economic considerations and should thus be believed to make films more commercial. But more commercial does not



# Data Analytics in the Film Industry

necessarily mean more uniform — this correlation is a phenomenon of the old world before data analytics became available. Of course, economic considerations have always played a major role in film producing. The production process needs a lot of resources and efforts and producers must finance their films with (pre-)sales, equity, debt, and soft money/public subsidies. In a market economy, it is unsustainable to consistently burn equity or accumulate debts, thus sales (direct-to-consumer, to licensees, or ad buyers) and public subsidies are the two true sources of income for the audiovisual industry. These two sources mirror the two socially legitimate reasons for the efforts of motion picture production: Either there is a sufficiently large audience that can recoup the film's cost through purchases or advertising relevance – or, the project fulfills a set of cultural or economic criteria, according to which society has democratically agreed to enable the production although the target audience is too small to recoup the costs. These two patterns of legitimation remain intact in a world of big data. What changes is only the means to determine, describe, and reach the respective audience.

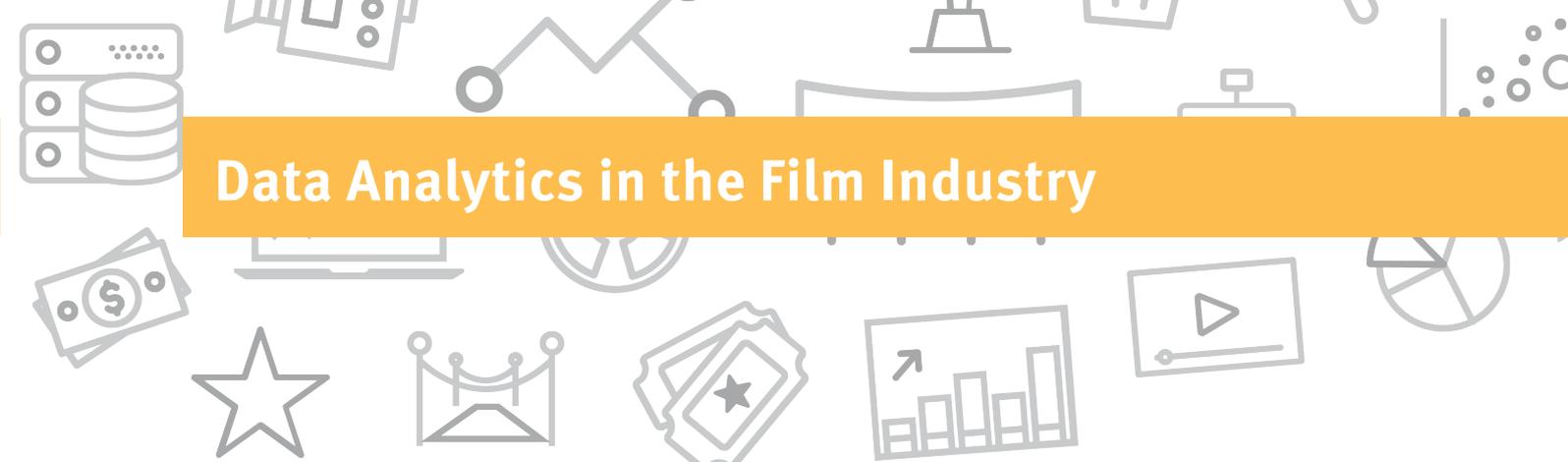
Old business models reward content that appeals to an audience as broad as possible. This tendency has been pointed out for decades. Max Horkheimer and Theodor W. Adorno wrote in their “Dialectic of Enlightenment” in 1944: “What is new about the phase of mass culture compared with the late liberal stage is the exclusion of the new. The machine rotates on the same spot. While determining consumption it excludes the untried as a risk. The movie-makers distrust any manuscript which is not reassuringly backed by a bestseller.” The critique of the Frankfurt School may have an elitist subtext, but there is undoubtedly a kernel of truth: If the goal is to reach a broad, unspecified audience, possible contents and aesthetics are confined to a narrow set of lowest common denominators. This is because most stories and most styles do not appeal to everybody. In the 1960s, looking at TV programming, NBC market researcher Paul Klein developed the theory of the “least objectionable program”: The program that manages to annoy the smallest number of customers enough to make them switch to another channel will usually receive the highest rating.

With the rise of means to reach customers individually and base content offers on their personal taste, the preconditions for commercial success change fundamentally. In a world of pay TV and streaming services, it is no longer important to reach the highest number of customers, but to please them enough to make them pay a monthly subscription fee. Across the board, critics celebrate a new golden age of television. Nora Pähler vor der Holte and Thorsten Hennig-Thurau even named their talk at our conference: “Everyone agrees that series are the better movies!”

When broadcasting is more and more replaced by narrowcasting and even small target audiences may be reached efficiently, more commercial does no longer mean more uniform, but more tailor-made and more versatile. Contents do not get more boring, but more intriguing for their respective audiences. At the same time this raises new, ethical concerns.

## Ethical aspects

Google shows different search results to everybody and Facebook delivers personalized news. Thus it may seem as if we were living in lots of different, personalized realities. Activist Eli Pariser coined the

The header features a collection of light gray line-art icons on a white background. These icons include a server rack, a pie chart, a film strip, a star, a crown, a play button, a bar chart, a dollar bill, and a laptop. A solid orange horizontal bar spans across the middle of this icon area, containing the title text in white.

## Data Analytics in the Film Industry

term “filter bubbles” for this phenomenon back in 2011. In fact, personalized content production and distribution may result in personal beliefs and values only being affirmed and never challenged by their media diet. Additionally, social media make it seem as if everybody else agreed as well. But democracies need plurality and exchange of perspectives and arguments. As Heiko Maas remarked in his introductory speech: “If data is always used to serve up to the public what we already know and appreciate, new and surprising things will usually fall by the wayside – but that is exactly what makes movies so special. Sometimes, great success emerges gradually over the course of time. ‘Art foreshadows reality rather than reflecting it’ – said Karl Kraus a hundred years ago.”

This threat may be more eminent to news and information than films and series. But many documentary and narrative filmmakers also aspire to reach and affect people beyond their own social niche. The prerequisites for such effects change if messages are endangered to always fade away in the same echo chambers.

Yet this problem cannot be solved technologically, as it is a political problem. As Belarusian publicist Evgeny Morozov argues, it would be a dangerous proposition to assign software engineers the task not only to figure out what we are interested in, but what we ought to be interested in.

Public media undoubtedly find themselves in a special position here, as their democratic mandate obliges them to reach out to the entire society. It will be interesting to see how they will behave in this debate. But as media makers, we all need to take a stand. Jan Mojto, CEO of EOS Entertainment, said something remarkable at the conclusion of our panel discussion at “Big Data, Big Movies”: Audiovisual media were the most important carrier and promoter of values in our society. This leads to a particular responsibility. We should begin now to develop strategies for a time of fragmented public spheres – as it has long begun. Data and algorithms will only accelerate this development.

Walter Benjamin demanded from authors in 1934 to become producers. It seems like nowadays the producer also needs to become a distributor – and to consider right from the start, who they aim to reach, what are the right channels and the right aesthetics to do so. This can only succeed if the creative understand, apply and actively shape the new instruments and possibilities of data analytics.

**Jannis Funk** is co-founder of Cinuru Research, a company building data-driven research and marketing tools for the movie industry. He works as a producer with bittersuess pictures in Berlin and at the same time pursues a PhD at Film University Babelsberg with his dissertation focusing on “Algorithms and Producers”. In 2016/17, he has been a Fulbright Visiting Researcher at the University of California, Los Angeles. He initiated and co-chaired the conference “Big Data, Big Movies”.

# SCIENCE DAY



# What do We (Think We) Know about Film Performance?



**Allègre Hadida**  
University of Cambridge Judge Business  
School

Research on motion picture performance has produced ample empirical evidence about the drivers of box-office success. This presentation discusses findings from two complementary research articles investigating such drivers.

The first one provides a comprehensive literature review of empirical studies of motion picture performance in the following five disciplines of the social sciences: strategy, organization theory, marketing, cultural economics and sociology. The novel framework it develops serves two complementary purposes. First, it clarifies the current state of the literature, stresses core contributions and exposes limitations in existing research by emphasizing hitherto neglected independent explanatory factors, dependent dimensions, and correlations between them. Second, it introduces five conceptual, methodological and empirical suggestions for further cinema performance research aimed at addressing these limitations, and accordingly, at providing better accounts of motion picture performance in view of the fast changing conditions of cinema production, marketing and consumption.

The second article (co-authored with Francois Carrillat and Renaud Legoux) discusses a meta-analysis based on 431 effect sizes from 143 articles to reconcile conflicting results and confront untested assumptions with data. It develops a signaling theory framework focused on how star brand equity and third-party reviews may reduce information asymmetry about movie quality between studios and audiences. Results show that artistic talent is a singular dimension of star brand equity: contrary to the commercial and media dimensions, it has staying rather than opening power (i.e., stronger impact on long-term rather than short-term box-office), and it is the only dimension which signal strength has not decreased over time. Our research also disconfirms the widespread assumption that users' reviews signal is strengthening against that of professional critics' reviews, as both are constant over time. Finally, third-party reviews by critics act more as predictors than as influencers of box-office success.

**Allègre Hadida** is Senior Lecturer (Associate Professor) in Strategy and the Director of the MPhil in Management programme at the University of Cambridge Judge Business School, and a Fellow of Magdalene College, Cambridge. Her research focuses on strategy in the creative, arts and media industries, and on creativity in business. She has held visiting positions at UCLA, CRG-Ecole Polytechnique, MIT, Tel Aviv University, and HEC Paris. She is Head of the Strategy Track at AIMAC (International Association for Arts and Cultural Management), Co-Director of the Strategic Management Society (SMS) IACMENA initiative, and Representative-at-Large of the SMS Teaching Community. Allègre has won numerous awards for her research and for her teaching, including the Cambridge MBA Professor of the Year Award.

# Understanding Movie Preferences from Big Data



**Paul Marx**  
University of Siegen

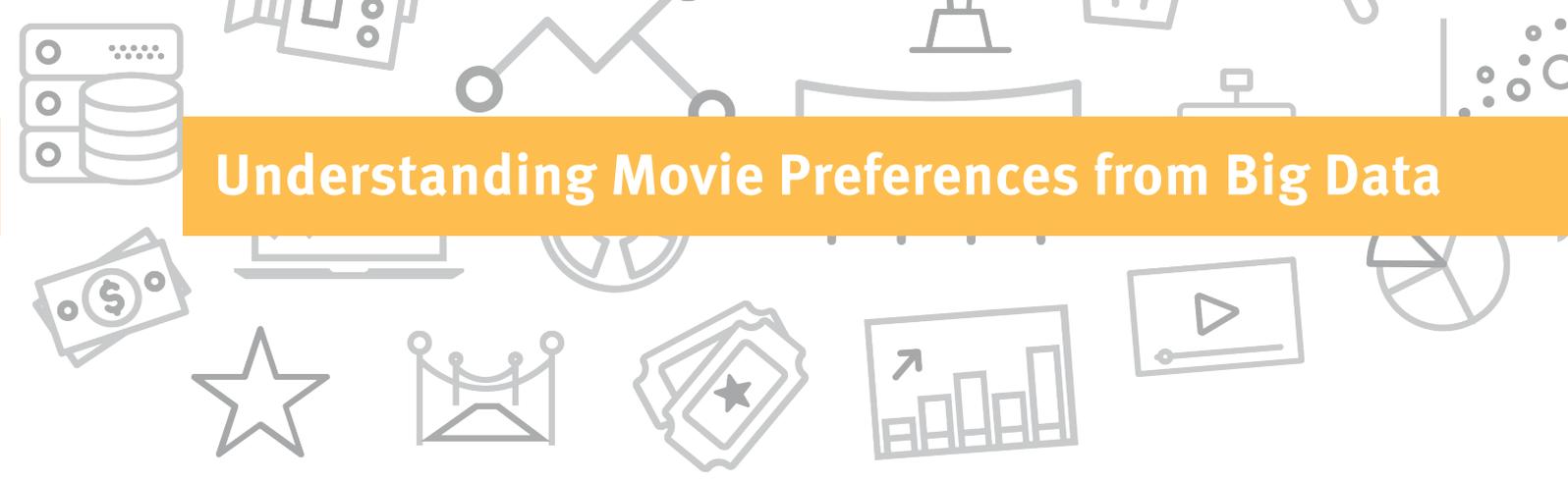


**André Marchand**  
Marketing Center Münster,  
University of Münster

Huge amounts of consumer related data are available to today's movie businesses. Consequently, companies in the movie business are eager to utilize this consumer related and personalized information. One sort of information that can be potentially extracted from these data is attribute-based product preferences of individual consumers. The elicited attribute-based preferences enable companies to better understand their customers and cater their offerings to individual needs of a target customer. However, in many cases the task of estimation of attribute-based preferences by means of statistical techniques is unfeasible due to the scarcity of data. That is, the amount of data points needed to estimate all the preference relevant attributes typically exceeds the number of data points available for the estimation.

In this research, the authors present a novel statistical approach to the estimation of highly underdetermined regression models. This technique overcomes the issue of scarce and incomplete data by using statistical and optimization methods and allows eliciting a big number of attribute part-worths given a small number of data points. This approach employs a set of auxiliary regressions that estimate one regression parameter at a time. The initial estimates are then corrected for omitted variable bias and multicollinearity and subsequently optimized for further reduction of prediction errors.

To demonstrate the applicability of the proposed method in practical settings and to understand its limitations, the authors conduct an empirical study that involved the described two real-world big datasets with more than 100 million movie ratings, provided by half a million consumers. They combine these data with movie attributes provided by IMDb InsideKino. The results of prediction runs of different algorithms are similar and consistent for both datasets. The analyses further show that the proposed method provides reasonably accurate part-worth estimates of individual customers that allow for accurate prediction of customer future movie preferences.



## Understanding Movie Preferences from Big Data

**Paul Marx** is Assistant Professor in Marketing at the University of Siegen where he researches e-commerce, preference measurement, new media, big data, and recommender systems. He studied Aero-Hydrodynamics and Business Administration at Novosibirsk State Technical University (Russia). After working as marketing director at Vital Supply Company, he moved to Germany in 2000, where he continued his studies in Business Administration at University of Hannover. He received his PhD degree in Economics from Bauhaus-University of Weimar and has published in several leading journals, including the Journal of Marketing.

**André Marchand** (PhD, Bauhaus-University Weimar, Germany) is Assistant Professor at the Marketing Center Münster. His research focuses on digitalization in marketing. Furthermore, he is interested in strategic media marketing, consumer behavior in the digital era, and innovation management. Previously, he also worked as a strategic business analyst for several enterprises. His work has been published in leading international journals such as the Journal of Marketing and International Journal of Research in Marketing.

# Risk Effects in the Movie Industry



**Alexa B. Burmester**  
University of Hamburg



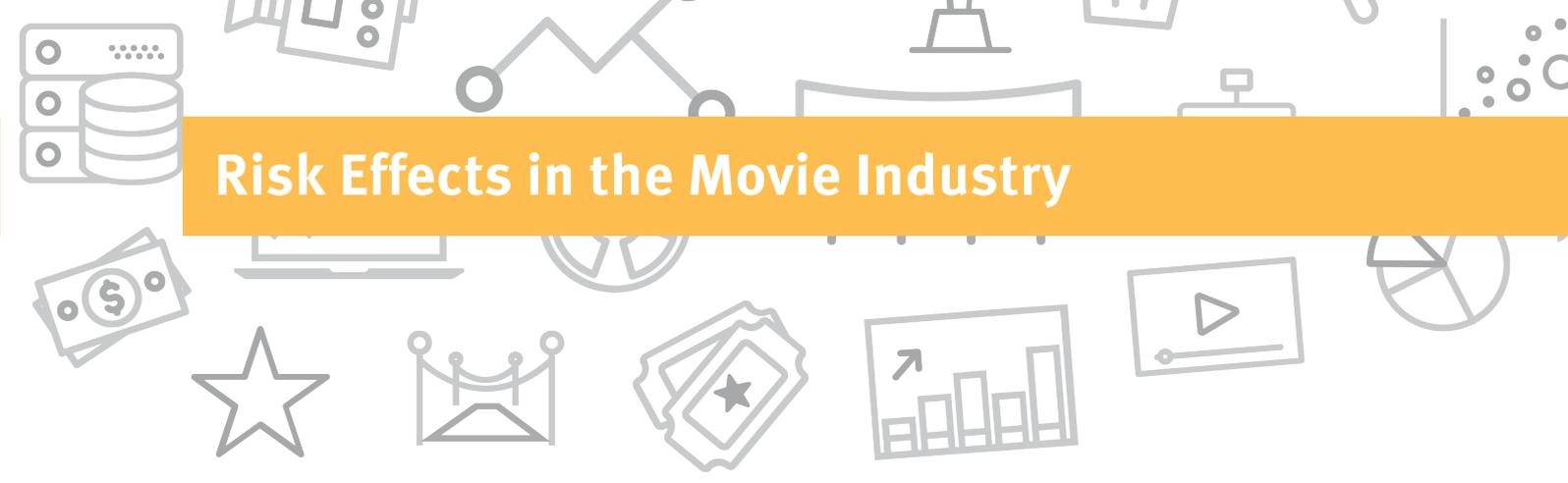
**Michel Clement**  
University of Hamburg

Artistic and business considerations lead to substantial risks in the management of entertainment products. The financial risks in the motion picture industry are theoretically grounded in the nature of hedonic and cultural products. The extreme investments and outcomes in the movie business require a thorough understanding of the risk-implying drivers for each movie, extending, from a methodological standpoint, simple analyses of standard deviations.

In this research, we provide a generalizable framework to analyze the risk effects of product-related input variables. Specifically, we analyze how the input factors used by studios (actors, directors, critics, and advertising) subsequently influence the risk of a movie's box office results. Risk is considered as the width of the distribution of box office revenues. It indicates the predictability of the results. It can also be interpreted as a chance for high results with the risk of high losses.

Generally, most research in marketing ignores the risk effects and focuses on the effect sizes (e.g., elasticities) of the inputs based on the mean (e.g., using OLS). Whereas prior findings allow managers to compare effect sizes, they do not allow for a thorough analysis of the risk effects of the various marketing variables. For example, a significant positive regression coefficient for star power using OLS implies that box office revenues increase with higher star power; however, the coefficient does not provide any information about the risks involved when an expensive star is hired. Thus, although we expect that stars will increase box office results, the variance of the potential outcome might also increase with higher levels of star power. This indicates that it becomes more difficult to foresee the outcome with increasing star power due to the higher variance with higher levels of star power. Thus, our framework is related to the methodological concept of Quantile Regressions and allows managers to compare inputs not only based on the elasticities but also with respect to the input-specific risk effects. For example, when two input factors show identical elasticities but differ with respect to the risk, managers can use the risk information to decide whether they wish to avoid risks or if they want to aim for the possibility of high outcomes while accepting the high risk of low outcomes.

The estimation results of the quantile regressions reveal, as expected, that higher actor and director power, positive critical acclaim, and higher advertising budgets lead to higher box office outcome. However, we find substantial differences in the four focal variables with respect to their risk effects. While positive critical acclaim and more advertising reduce the risk of box office failure, we find that star actors significantly increase the risk. Interestingly, director power has no significant influence on the risk at the box office. The findings allow managers to better understand the total effects of their actions by trading off the risks associated with their executed marketing mix actions.



## Risk Effects in the Movie Industry

**Alexa B. Burmester** is an Assistant Professor for Marketing & Media at the University of Hamburg. She received her Ph.D. from the University of Hamburg. Her empirical research focuses on marketing strategies for entertainment products, especially movies and games. She won the Professor-Herbert-Jacob-Award 2013 for her dissertation, second price in the EMAC McKinsey Marketing Dissertation Award competition, and was awarded with the IJRM Best Paper Award 2015. Alexa was a visiting scholar at the University of Groningen.

**Michel Clement** is Professor of Marketing at the University of Hamburg, holding the chair for Marketing & Media at the Institute for Marketing. He owns a doctoral degree in marketing and a master's degree in business administration from the Christian-Albrechts-University at Kiel. Before joining the University of Hamburg, he was a faculty member at the University of Passau (Marketing & Services in 2005/2006) and the Christian-Albrechts-University at Kiel (Innovation, New Media and Marketing from 2002-2005). He is a regular visiting Scholar at Penn State University (eBusiness Research Center) and at Jönköping International Business School (Sweden). His research focuses on managing entertainment media products, new technologies, and customer management.

# Pre-launch Analysis of Competitive Dynamics



**Natasha Zhang Foutz**  
University of Virginia

**Vithala R. Rao**  
Cornell University, Ithaca, New York

**Fang Wu**  
Shanghai University of Finance  
and Economics

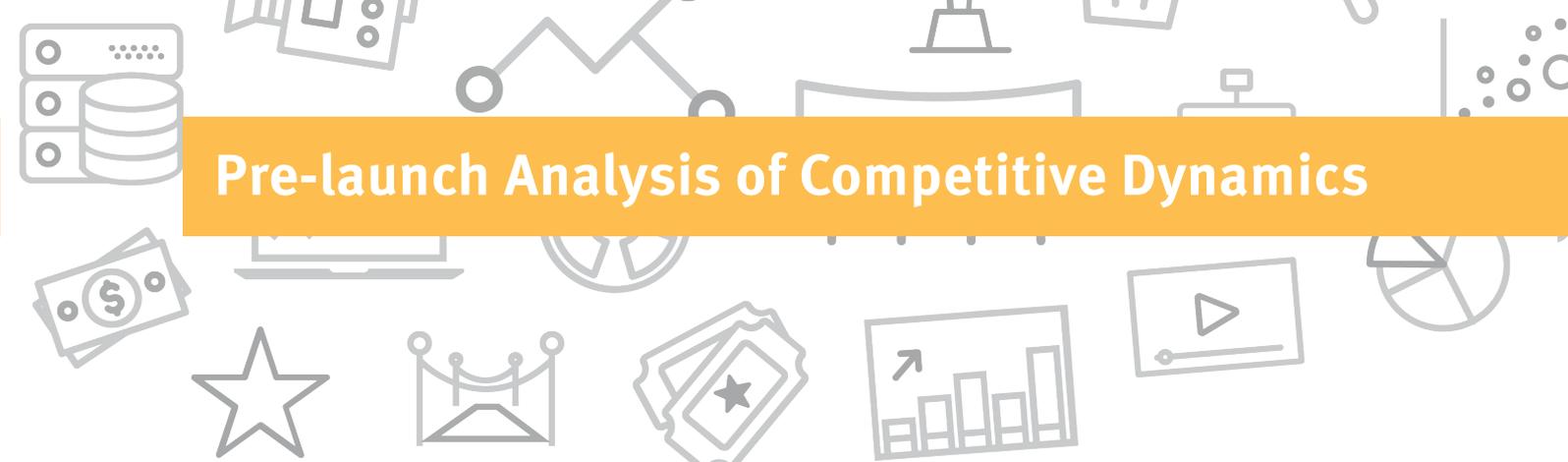
Short product lifecycle and highly seasonal demand make strategic selections of release dates the most crucial decision facing the multi-trillion dollar entertainment industries, such as motion picture, gaming, and music. These industries profit from frequent introductions of new products and compete intensely pre-launch over a handful of holidays that garner the highest demand, while avoiding head-to-head competition. Thus, identifying how brands' competitive positions dynamically evolve pre-launch, as new brands enter a competition and incumbents alter targeted release dates over time, will critically guide firms' release date selections.

However, such identification is challenging because of the lack of sales data pre-launch and dynamic shifts of the brands in a competitive set targeting the same holiday due to entries, exits, and changes in announced dates. Also, existing academic studies on market structure, that is, competitive positioning, of brands offer limited guidance, as these studies have focused on brands from stable, mature product categories and on post-launch competitions along continuous dimensions such as pricing and advertising.

The authors thus address these challenges by combining the weekly records of the Hollywood studios' announcements of the targeted release dates with the data from the Hollywood Stock Exchange, where traders collectively predict the upcoming films' box office by trading virtual film stocks. The combined data sets permit the pre-launch inference of the films' dynamic competitive positioning as the potential consumers dynamically forecast the films' revenues in response to the studios' release date announcements.

The authors also develop a dynamic factor analytic model to link the predicted revenues to the targeted release dates; and to uncover the latent competitive dimensions and the brands' positions along these dimensions over time. This modeling framework can be applied to aggregate data and is thus well-suited for the pre-launch context when disaggregate-level sales data is not readily available. It also accounts for the context effects imposed on each film by its competitors, since the consumers do not evaluate a film in isolation, rather, by comparing it with other films released around the same time.

Calibrating the model on the films targeting the Independence Day, and the two weeks before and after, the authors uncover the evolutionary path of each film's competitive position over time during the pre-launch period. As time elapses and more information is revealed via, for instance, advertising, the films are perceived as becoming increasingly distinct from one another. Moreover, significant context effects



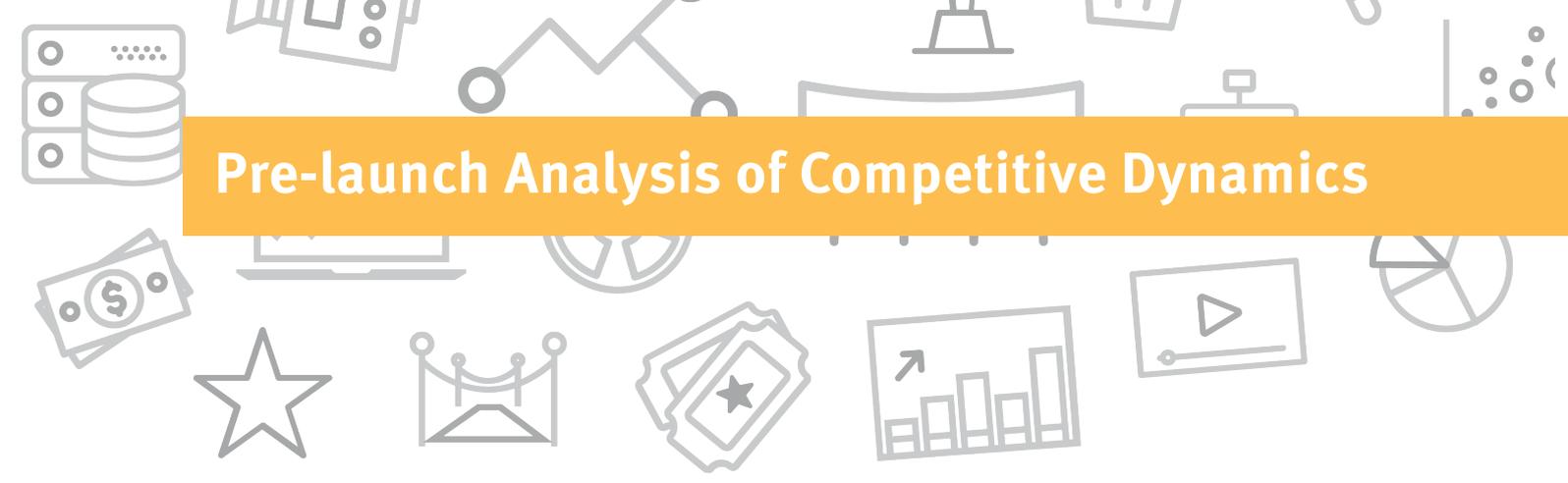
## Pre-launch Analysis of Competitive Dynamics

rive the competitive dynamics. For instance, when a film enters the competitive set, it weakens the competitive positioning of an inferior film perceived as more similar to it. Also, interestingly, while the studios have long utilized genres to classify and market films, genres provide little explanatory power to the clustered positioning of the films. Instead, latent dimensions, such as light-hearted escapism versus serious reality-seeking, do.

A series of strategy simulations further shed light on how a studio may act or react to new competitors entering or incumbents shifting release dates. In summary, building upon the theories of choice utilities and context effects, the authors propose novel data and methodological solutions to tackle a long-standing challenge of pre-launch competitive analysis. These solutions may offer strategic guidance to numerous industries when selecting more lucrative release dates for their new products with short revenue windows.

**Natasha Zhang Foutz** is Associate Professor of Commerce at the University of Virginia. She teaches and researches in the area of media and entertainment marketing. In particular, she studies consumer choice and firms' new product and media advertising strategies in the entertainment industries, such as the motion picture, television, and sports. She uses empirical data collection and econometric and statistical methods in her research. Her research is published in leading Journals such as Journal of Marketing Research and Marketing Science. She has taught marketing management, choice models, and entertainment marketing at the undergraduate, M.B.A., and Ph.D. levels. She is also a recipient of several teaching awards.

**Vithala R. Rao** is the Deane Malott Professor of Management and Professor of Marketing and Quantitative Methods, Johnson, Cornell University, Ithaca, New York. He is well known for his scholarly contributions to several topics including conjoint analysis and MDS for analysis of consumer preferences, bundling, pricing, corporate acquisition, and brand equity and his numerous papers have appeared in such journals as Journal of Marketing Research, Marketing Science, Journal of Marketing, and Management Science. He published several books, the most recent being Applied Conjoint Analysis. He received the 2008 Charles Coolidge Parlin Marketing Research Award presented by the American Marketing Association Foundation. He is an elected Fellow of the INFORMS Society of Marketing Science and American Marketing Association. He serves on the editorial boards of several top journals in marketing. He also consults with various organizations and serves on the board of companies.



## Pre-launch Analysis of Competitive Dynamics

**Fang Wu** is the associate professor of Marketing at the School of International Business Administration at Shanghai University of Finance and Economics. She received her PhD degree in Marketing from University of Alberta, Canada. Her research focus on modeling of consumer choice, marketing structure analysis, market segmentation and competitive strategy. She uses econometric and statistical methods in her research, which involves entertainment industry such as the motion pictures and automobile industries. Professor Wu's research is published in Journal of Regulatory Economics, Health Economics, and Journal of Transport Economics and Policy. She also has paper currently under review in Journal of Marketing Research and Marketing Science. Professor Wu has taught principle of marketing, international marketing, marketing models, multivariate data analysis at undergraduate and Ph.D. levels

# The Phenomenon New Drama Series

## Initial Insights on Key Attributes, Motivations, and Emotions from a Large-Scale Consumer Survey



**Nora Pähler vor der Holte**  
Marketing Center Münster, University of  
Münster



**Thorsten Hennig-Thurau**  
Marketing Center Münster, University of  
Münster

New drama series like *GAME OF THRONES* and *HOUSE OF CARDS* resound throughout the media landscape. They reshape the film industry by drawing away massive talent from film and consumers to channels and stations, which have positioned themselves around them. Journalists and media scholars name our times the “Renaissance of the TV Series” and “The Golden Age of TV”, but nearly no empirical analysis of this new phenomenon exists.

Our research shed light on the essential questions regarding this new phenomenon by applying a Stimulus-Organism-Response (SOR) model of TV Series processing. How do consumers (the “organism”) perceive the characteristics of new drama series (the “stimulus”)? Does processing of the motivations, cognitions as well as emotions with regard to those series differ from those for conventional drama series? Consequently, which characteristics, motivations, cognitions and emotions foster the usage of new drama series and can therefore be regarded as success factors (the “response”)?

For answering these questions, we developed a framework of new series characteristics as well as identified the relevant motivations, cognitions and emotions for series consumption. Subsequently, we conducted a large-scale survey with about 4,000 respondents, which is representative for the German online population. Thereby we measured characteristics, motivations, cognitions and emotions for 30 new and 30 conventional popular drama series, based on media classifications. We apply a logistic regression to analyze the differences between the new and the conventional drama series regarding the characteristics, motivations, cognitions and emotions. Furthermore, we conduct several Ordinary Least Squares regressions to detect their role for the usage intensity of new drama series.

The results show that horizontal storytelling as well as high levels of radicalness and enhanced audio-visual expression uniquely characterize new drama series. Among the motives, we find that especially the fantasy fulfillment and the communication with others are the most constituting ones. With regard to cognitive and emotional processing, the concentration as well as the attention are found to be dominant for new drama series.

With regard to the role of the characteristics for the usage intensity of the new drama series, the results show that horizontal storytelling has also a high importance here, but that the audiovisual expression has no significant impact. Furthermore, also for the emotions and motivations we find that the



## The Phenomenon New Drama Series

constituting concepts are not necessarily the ones with high relevance for the usage intensity. We find role projection, which is not a constituting motivation of new drama series, being a relevant motivation for the usage, but we rather not find a significant impact for fantasy fulfillment. Among the cognitions and emotions, concentration and attention are also relevant with regard to the usage intensity. In addition, we here also find the evoked level of imagery to be of importance.

In conclusion, it can be stated that new drama series are indeed a unique media format that deserves scholarly attention. The series differ significantly from conventional drama series not only with regard to their characteristics, but also with regard to the motivations for consumers as well as the cognitive and emotional processing during consumption. Furthermore, we shed light the main drivers for the usage of this new media format, which might be used as a blueprint for the creation of new series by authors and producers.

**Nora Pähler vor der Holte** is a research assistant and doctoral student at the Department of Marketing & Media Research at the Marketing Center Münster. She graduated with a master degree from the University of Münster in 2014. She gathered work experience at various companies (e.g. Henkel, W.S. Tyler Canada, Andreas Bareiss Pictures) and wrote her master thesis in cooperation with Studiocanal on the Hunger Games franchise. Her research interests are in entertainment media marketing and management. Nora has been awarded with the Best Paper Award of the Brand Management and Integrated Communications Track at the 2016 AMA Winter Marketing Educators' Conference, Las Vegas.

**Thorsten Hennig-Thurau** is Professor of Marketing & Media Research at the University of Münster's Marketing Center. He has been ranked among the top German business scholars by Frankfurter Allgemeine Zeitung and Handelsblatt multiple times and has published extensively on entertainment industry-related topics and digital challenges in leading academic journals. He is a recipient of the Mallen Lifetime award for his work on filmed entertainment and was co-chair of this year's American Marketing Association Winter Educators' Conference which attracted a record-breaking crowd of 800+ scholars. Thorsten is also a dedicated movie aficionado, with a particular adoration for the works of Sergio Leone and Clint Eastwood.

# INDUSTRY DAY



# Speech by the Federal Minister of Justice and Consumer Protection



**Heiko Maas**  
Federal Minister of Justice

The interplay between “Big Data“ and “Big Movies“ is fascinating to me, not just as Justice Minister, but as a moviegoer as well! So I’d like to thank you very much for your invitation!

Movies like “The Matrix“ have shown us what all can be done with large data sets in the digital age. Simulating the beautiful world of “The Matrix“ not only required a great deal of memory; it also formulated a negative vision of the dangers posed by Big Data to freedom and self-determination. I don’t know whether the Wachowskis already realized when they were making “The Matrix“ that Big Data doesn’t only make for good film material. It is also a way ensure that a movie is popular with the public.

Data and statistics enable precise predictions about success – or lack thereof. We have seen this in the movies as well. The film “Moneyball“ shows how a coach leads his baseball team to success – no, not with instinctive decisions, but rather based on precise data analysis.

Predictions as to

- which plot is the most popular,
- which is the movie’s target audience,
- or when the best time is for its premiere,

can be assisted by data. For that reason, data might actually be the ultimate secret recipe for the success sought by this Symposium. But “Big Data“ raise a lot of questions as well – both ethical and legal. That is probably why you invited a lawyer instead of a film director or a computer scientist to open the second day of your Conference.

New marketing strategies require gathering and analysing huge amounts of personal data. And this harbours risks for the freedom and self-determination of moviegoers.

For those who market movies, it is worth its weight in gold to know exactly

- who “liked“ a movie on Facebook,
- when a movie was watched on Netflix,
- or at what minute in the movie it is turned off out of boredom.

But knowing all of that data means intruding deeply into the private sphere – into the inner thoughts and feelings of individuals. This does indeed conjure up memories of George Orwell.



## Speech by the Federal Minister of Justice and Consumer Protection



But human dignity, the general right of personality, and the basic right to informational self-determination cannot be placed at the disposal of others.

Our data protection law here in Germany and Europe balances commercial interests in information with the individual's right to data sovereignty. I don't want to go into too much detail, but let me briefly introduce three basic characteristics of our law on data protection:

- Firstly: Less is more! Some companies operate according to the principle of: gather all the data first, and then decide what they need. Turning that around is both more efficient and customer-friendly. The less data is gathered, the lower the risk of violating individual rights.

Secondly: Anonymity protects! Big Data are a treasure trove even if the information doesn't provide any details on individuals. Nobody needs to know Heiko Maas's favourite movies in order to develop a good marketing strategy. Often, the question of "who" is actually uninteresting. Isn't "male, late 40s, interested in politics" enough? In many cases, anonymised data are just as valuable for marketing – without interfering with the data sovereignty of individuals.

- And if the watching habits of Heiko Maas are really of such interest, then number 3 applies: Consent legitimises!

I have the right to decide what information I want to provide when I stream a film. That is why we need to inform consumers so that they can make their own decisions. But we need to do it differently than they did for a Smart TV in a case which recently occupied the courts. Users were expected to first scroll through 56 screen pages of information and at the end click on: "I have understood and I consent." The courts declared that consent to be invalid: Nobody reads 56 pages of data protection provisions! Consumers need to be informed concisely and comprehensively about the most important aspects – this is the only way they can freely make decisions.

I am certain that these principles are in the self-interest of the film industry as well.

After all, digitalisation is not only a great instrument for making fabulous movies. Abuse of data is a topic for filmmakers as well – one outstanding example is Laura Poitras, who won an Oscar last year for her documentary about Edward Snowden. So the dangers of "Big Data" and digital surveillance attract a broad moviegoing public as well – and this shows how sensitized people are to the topic.

The opportunities created by Big Data are fascinating – but we can't ignore the risks! Certainly not those involving privacy and data protection, but also not those which involve art per se. I would like to make this clear with an example from the digital book market:

Based on Amazon's new fee model, authors are paid by the number of pages read. But this also means: Amazon knows which page of which novel I was reading last night at ten thirty-five p.m. When Amazon introduced its new e-book flat rate last year, not only data protection activists were outraged: so was the Association of German Writers. They pointed out the pressure that



## Speech by the Federal Minister of Justice and Consumer Protection

this model exerts on writers to adjust their style so that readers, whatever they do, don't abandon the book at the end of a page...

Movies are adapted to the tastes of the public as well. From what we know, films like "Rambo" and „Pretty Woman“ had originally planned for final scenes that were different from what we saw in the cinema. Vietnam veteran Rambo was supposed to break down crying at the end, and "Pretty Woman" didn't marry a millionaire, but rather went back to working as a prostitute. But the test public didn't want to see that much suffering, and forced a Happy End. In the era of Big Data, there might soon be more and more algorithms shaping the art we consume.

But nobody should overestimate data. We sometimes give them more objectivity than they deserve. What algorithms calculate, of course, depends on who programs them and who interprets their data.

My doubts are also fueled by the automatic completion of search terms by Google. After all, they supposedly reflect the inquiries, interests and opinions of all Google users. But if you enter the search words "The Earth...", the first suggestion for completion that comes up is "...is flat." This indeed casts some serious doubt on the collective intelligence of the Net.

If data is always used to serve up to the public what we already know and appreciate, new and surprising things will usually fall by the wayside – but that is exactly what makes movies so special. Sometimes, great success emerges gradually over the course of time. "Art foreshadows reality rather than reflecting it" – said Karl Kraus a hundred years ago.

Films are much more than merely a run-of-the-mill commodity. Brain researchers and psychologists tell us that people who enjoy sophisticated stories in films and series have more empathy for and less prejudice against foreign cultures. That doesn't surprise me: Films help us better understand the world and its people.

Many current productions by students at Babelsberg Film University look beyond national borders: at women's rights in Iran, at refugees from Syria, or at the fight against child labour in Nepal. We share the lives of these people for a couple of hours, and when we return to our own world, we know that "forced to flee their homes" is much more than a catchy news phrase.

You invited me to tell you something about the legal categorization of "Big Data in Film." But as Justice Minister, I don't deal only with the laws on the books. In the past several months, I have also focused on the many refugees who have come here to Germany. Integrating these people is an enormous task for all of us in our country. I believe that art is a social force, and that films are able to contribute to integration. They can open up the hearts and minds of people who have lost everything and who need our help.

Perhaps "Big Data" doesn't tell us much about which "Big Movies" will go down in film history and will signal progress in film and society. But if we use them properly, data might help us



## Speech by the Federal Minister of Justice and Consumer Protection

bring people into the cinemas and introduce them to important films and topics.

So I would like to wish you many ideas for great films; and I hope that Big Data will play a role in bringing those great films – made in Babelsberg and everywhere else – to as many people as possible.

Thank you very much for your attention!

## Taking a Producer's Perspective



**Benjamin Benedict**  
UFA FICTION

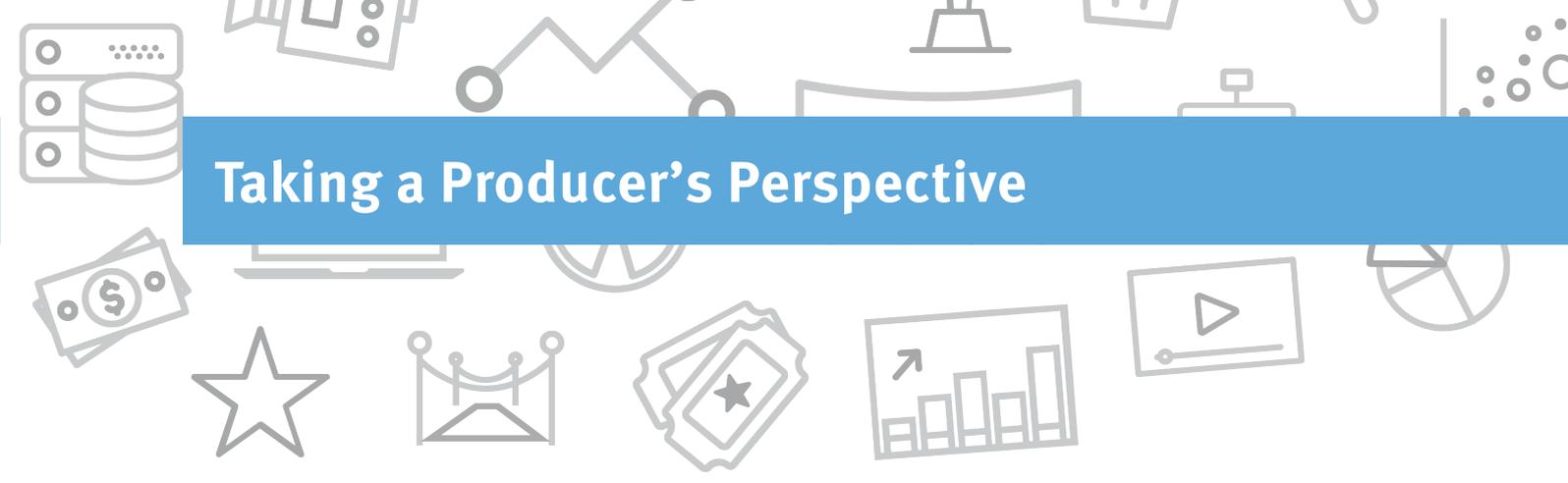
A producer's work is characterized by a complex combination of diverse jobs, functions and skills. However, one question that is crucial to all the stages of a movie's production: how is the audience going to respond? Therefore, reception analysis - from an academic as well as a non-academic point of view - plays a crucial part in a producer's work, sometimes explicitly, sometimes implicitly.

The diverse stages of a movie's production – the initial idea, project development, marketing and public relations, to mention just a few, – are all determined by the question, the uncertainty of how an audience is going to respond to the movie. Which reaction and demand can be hoped for or dreaded? Is the movie going to evoke fascination, irritation, passion or other powerful emotions? And consequently, can success be expected or even guaranteed?

There are diverse ways to approach an audience, both literally and figuratively. The interaction with the audience can occur in several different ways, there exist diverse means of generating knowledge - in a qualitative or quantitative or an intuitive or methodical scientific way. Different methods can be applied in order to anticipate the reaction of an audience. These include: the hypothetical or internal spectator, the first audience test, market analyses and finally the diverse possibilities of Big Data Analytics.

These intuitive procedures might seem obscure, but can at the same time be deemed as intelligent. However, they do not only appear in anecdotes, narrated by the first generation of Hollywood producers. In fact one of Hollywood's most acclaimed producer of the „Golden Age“ admitted to only filming novels he had read at the age of twelve. This is due to the fact that he had faith but in his childish enthusiasm, his inner child as a capable judge. More scientifically speaking, one could say that this producer addressed a hypothetical and idealised internal spectator, whose reactions and inclinations should give an idea about how the audience was going to respond.

A producer's knowledge and the reasoning behind his decisions stems from many different sources and is proven by his films' success, which can be measured in both audience success and awards. However, since the beginning of the film industry and the first rather intuitive attempts in anticipating the audience's response, reception analysis has developed dramatically. Today, diverse methods exist to identify the audience's preferences and desires.



## Taking a Producer's Perspective

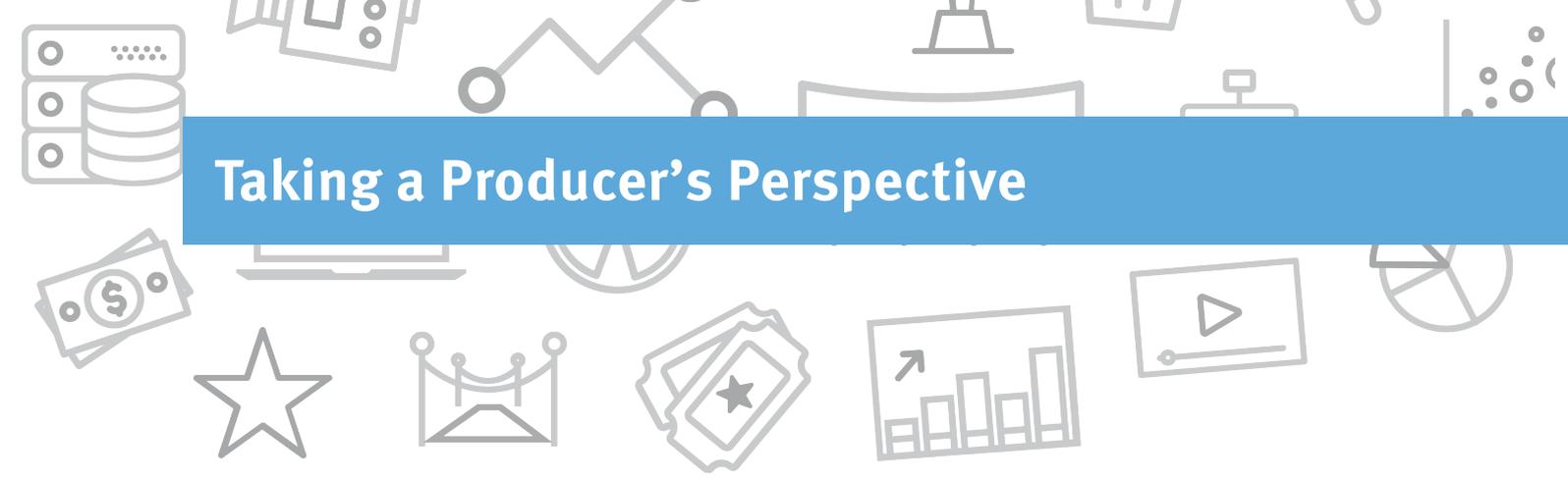
Analysing the genesis, epochs, methods and guidelines of this form of market research would demand its own scientific discourse. In this context, however, it is crucial to understand and consider that market research has long been an essential part of film producing. Hence, there exists a history of methods and procedures to gain information about the audience's response and desires. In this sense, Big Data is a new development stage of one of the core aspects of film producing.

What led to the creation of this conference on Big Data was the assumption that an intensive dialogue reflecting the scientific point of view as well as the practical implementation would be beneficial for both sides – science and industry.

While preparing the conference we have often reflected on how to best enhance the dialogue between researchers and industry representatives and how to bring these two worlds together. The discussion and exchange that preceded this conference have made us realize the wide scope of the topic: the perception of Big Data varies dramatically. Neither researchers nor industry representatives merely focus on one single aspect. Hence, this conference depicts this search for a quintessence and at the same time constitutes a continuation of this search.

The evaluation of both the lectures and discussions has shown that it is mandatory to continue this dialogue. However, there does not seem to be one core issue that is relevant to both industry and science to the same extent. Hence, both sides need to approach Big Data Analytics more accurately according to their respective interests. The precision and intensity of this exchange will determine to which extent the various offerings of Big Data analytics will become a part of producing routines.

Our exchange these last two days has made it evident that we are at an extremely important turning point - a Copernican revolution. Data is available to us to an extent never seen before. Being able to evaluate and use this data accurately can change the production of TV Shows and movies fundamentally. However, we should also keep in mind that a producer's work comprises many tasks such as project management and faces challenges such as the unpredictable nature of creative work. Thus, despite the multiple possibilities Big Data is offering, there is not always necessarily a formula for creative work. Or, as Kafka put it: "Logic may indeed be unshakeable, but it cannot withstand a man who is determined to live."



## Taking a Producer's Perspective

**Benjamin Benedict**, Executive Producer, Head of High End Drama and CEO UFA FICTION, was born on October 19, 1972 in Bochum, studied literature in Tübingen and Oxford before graduating with a degree in theater studies in Paris and a masters degree in European Literature in Oxford. After his studies, he worked as a dramaturge, author and director. In September 2010, Benjamin Benedict was hired by teamWorx as a full-time producer. Since then, he has produced films such as the award-winning film HOMEVIDEO, the TV events DER TURM (The Tower), DER FALL JAKOB VON METZLER, and UNSERE MÜTTER, UNSERE VÄTER (Generation War) which has been awarded the International Emmy 2014 in the category mini-series among many other national and international awards. Other productions that Benedict has been involved in DER MINISTER, the docudrama DER RÜCKTRITT as well as the award-winning television movies BORNHOLMER STRASSE (Open the Wall) and NACKT UNTER WÖLFEN (Naked among Wolves). Another mini-series Benedict is involved in is KU'DAMM 56, the sequel, KU'DAMM 59, is already in preparation. His latest projects are LANDGERICHT – GESCHICHTE EINER FAMILIE (Redemption Road), which was broadcasted in January, THE SAME SKY about an East Berlin Casanova agent as well as adaptations of ALLMEN UND DAS GEHEIMNIS DER LIBELLEN and ALLMEN UND DAS GEHEIMNIS DES ROSA DIAMANTEN by famous author Martin Suter. The series CHARITÉ about the most famous hospital in the world during the 19th century was broadcasted in March this year. With a market share of 25,5%, CHARITÉ reached the most successful primetime series launch on Das Erste in over 25 years. In February last year the senate of Film University Babelsberg Konrad Wolf announced Benjamin Benedict's appointment to honorary professorship in "film and television production".

# How Data Science can become Creativity's New Best Friend



**Colin Brown**  
Slated

The global film industry is still looking for a model for lower budget filmmaking that is reliably profitable. Without such a model, emergent powerhouses such as China invariably turn to Hollywood franchisable juggernauts as the only effective economic template for their own rising filmmaking ambitions. But you can only re-heat movie formulae so long before ticket-buyers lose their appetites and crave something fresher or spicier. Already we are seeing audiences look elsewhere for their distractions, to longer form television shows and shorter form social media posts, taking some of the most creative names in filmmaking along with them. With theatrical admissions flat-lining in mature markets, cinema needs to find its mojo again as a thrill machine. Data science can play a pivotal supporting role in this quest - but only if the right questions start being asked of their algorithms.

At its quixotic heart, cinema is a business of anomalies. Film history suggests that audiences flock to see outliers - those singular sensations that break the mould and introduce us to fresh faces, new voices, exotic worlds, plot reversals and deconstructed myths. If such outliers share anything in common, it is the element of surprise. But Hollywood, just like banks, really don't like surprises which is why the studios would rather replicate yesterday's success stories than take their own leaps into the storytelling unknown. Instead of manufacturing our desire for something startling, the studio instinct is to reverse engineer the already proven.

The result is an increasingly conservative, risk-averse entertainment ecosystem that puts its trust in who and what has worked before. Data-driven analysis is playing an inevitable role in that box-ticking replication process. Statistical correlations are sought that tie box office performance to any number of measurable variables including script elements, production budgets, marketing spends, social media responses, awards and critical reviews. This has all been done in the hope of predicting tomorrow's success – or at least justifying today's executive decisions.

Is there a formula for predicting movie success? Depending the scientific field, the answers to that century-old question have run the gamut from the skeptical and the neurological, to the mathematical and the computational. Whatever the approach, outliers tend to be excluded from such equations since – by definition – they fall outside the realms of probability. But knowing that outliers are the sustaining lifeblood of the movie business, perhaps it's time we harnessed academic and industry research in an antithetical direction. Instead of second-guessing what audiences will want to watch in a few years time – an exercise in futility given all the



## How Data Science can become Creativity's New Best Friend

uncontrollable variables – why not train our algorithms and empirical observations instead on the factors, forces and triggers that get original movies made in the first place. Let's identify the correlated conditions and behavioral patterns under which creativity is allowed to prosper.

This is controlled chaos in the way that venture capital understands when evaluating the next breakthrough ideas and world-changing concepts. Acknowledging that the odds are stacked against those precious few 'unicorns', VCs and their surrounding ecosystem of angel investors deploy a very different set of risk-assessment tools than the movie industry. Instead of constantly hedging against the high likelihood of failure, VCs are optimized for those rare occurrences of success. They put their faith in the chemistry of their startup teams and trust that the law of large numbers will eventually pay off given the right number of chances and a prudent commitment of money. Back the right combinations of entrepreneurs – or artists – enough times and the returns on investment will be predictably positive. But we have to prove that high risk/high reward model works for film as well as it appears to have done for Silicon Valley.

Any discussion linking science with movies invariably invokes MONEYBALL. That book, subtitled "The Art of Winning An Unfair Game", chronicled the story of how the Oakland A's baseball team assembled a winning team of bargain-basement players by exploiting meaningful indicators of success that had been overlooked by their big-spending rivals. Today, all sports teams now comb through reams of data with a view to developing similarly undervalued performers—in the same way that film studio scouts keep tabs on rising stars and promising auteurs. But in their preoccupation with individuals, have both the sports and film establishments blinded themselves to what really makes teams tick—namely, teamwork itself? If you are seeking that one X-factor that can materially upset the odds then start with the chemistry that bonds creativity and industry. Combine humility, hard work, excellence and fact-based learning, inject a little panache and some soul, and what you have is a team concoction for turning a precarious succession of victories and setbacks into one continuous cycle of improvement.

There is no better demonstration of what can be over-achieved through teamwork than what happened last season in Britain. Leicester City Football Club, a journeymen team so unfancied that bookmakers made them 5000–1 rank outsiders to win the English Premier League at the start of the season, ended up doing just that and hoisting the country's biggest trophy. Bookies may have lost more than \$70 million as a result; Leicester may have gained around \$200 million. And the club did so by striking an exquisite balance between inspiration and perspiration over the course of nine steadfast months. In the eyes of their manager, this was a selfless squad that played with 26 brains but just one heart. By way of contrast, none of England's glamor teams, each with their expensive academies of future starlets, lived up to their pre-packaged reputations and celebrity status with any degree of consistency.

Sports history is full of singular achievements that defied expectations at the time: Buster Douglas' knock-out of a previously invincible Mike Tyson in 1990; John Daly's 1991 PGA Cham-



## How Data Science can become Creativity's New Best Friend

pionship victory in a golfing tournament for which he was ninth reserve to play; Boris Becker's career-heralding win at Wimbledon 1985 as an unseeded 17-year-old who was supposed to be studying for college exams. But Leicester's is a sustained triumph of the collective in a sport dominated by wealthy giants that have, to quote *The Guardian*, been too busy of late "overlooking the human-scale virtues of team-building and spirit in favor of an assemblage of stars." Manchester City, for example, paid more for one player this season than Leicester did on its entire squad these past few years. As that same newspaper went on to note: "In this equation Leicester are like some low-cost, bare-bones start-up, cleaning up in the space between the bloated corporate giants—a footballing Napster quietly shutting down the record labels."

Now that Leicester are champions, this most unlikely of underdog stories is being fast-tracked as a movie treatment. Predictably too, given the club's lack of instant name recognition, Hollywood will feel the need to tell that feel-good story with the help of their own stars. It was the same with the Oakland A's, whose Hollywood moment hinged on Brad Pitt as both lead actor and producer of *MONEYBALL* in order to compensate for a story with limited global appeal. The notion that you need big name charisma in order to tell a story about no-name successes is an irony that needs confronting with science. Shouldn't there be a systematic way for filmmakers to express themselves as impassioned teams with a unifying vision built upon the strength of their chosen story rather than as fabricated vessels for simply selling stars and pre-existing concepts at cinema's turnstiles?

This is a question that the online film marketplace SLATED, where I work as a consultant, has attempted to answer as scientifically as possible, applying performance data and some straightforward statistical analysis to assess the industrial strength of any submitted project in relation to current market dynamics. By "scoring" screenplays and the filmmaking teams behind those creative visions, Slated is trying to introduce a new currency for evaluating the viability of projects.

In coming up with those scores, Slated synthesizes the internalized weighting systems that the film industry already deploy—but makes sure those weights are applied consistently throughout. As with all standardized testing, the resulting score is not an absolute predictor of success. But it serves as a useful baseline for evaluating projects across a playing field tilted in conflicting directions by outliers, circumstantial evidence, irrational behavior and other variables not least of which is personal taste.

Slated is by no means the only data-cruncher in the film business, but its calculations are based on some crucial assumptions that set those numbers apart. Chief among them is the well-founded belief that films are more than just the product of their creative elements, namely their writer, director and cast. The elements that surround that trifecta of creative talent—led by producers, sales agents and distributors—also play a decisive role in turning great ideas into successful ones. It's their combined chemistry that matters in the marketplace, which is why all



## How Data Science can become Creativity's New Best Friend

such elements are measured in proportion to one another

Deciding the right mix of all these creative and industrial ingredients involves some serious cooking experimentation—but the results so far suggest Slated has hit upon a recipe that correlates beautifully with the actual performance of theatrical films these past five years.

As mentioned earlier, the film industry is full of inconsistencies and shifting variables. And nowhere is this inconstancy more apparent than in the way that scripts, those essential blueprints of the filmmaking process, are appraised. Slated has two solutions to what is still a haphazard journey by which screenplays make their way to the top of the industry's towering piles of weekend reading material. The first is to ensure that every processed script is read by three different humans. The second is that their evaluations are done according to the exact same set of proven criteria and processed using the same data-driven analysis. Three brains, one heart - an accidental echo, as it happens, of the hypothesis put forward by Matthias Seifert and Allègre L. Hadida in their 2013 Harvard Business School paper "3 Humans + 1 Computer = Best Prediction".

There is real-world confirmation that such a hybrid approach works. Weeks before its release, Slated predicted that the film *WHIPLASH* would be profitable based purely on its screenplay, budget and creative elements. Slated's projected worldwide revenue for the film was just over \$17 million. This is some distance short of its actual global box office total of nearly \$49 million – but considerably better than the industry itself which basically said "no" to the \$3.3 million proposition that featured a first time feature director and two leads who had never carried a movie before. "We did an analysis of what the sales numbers would look like based on the packageable elements which led us to conclude that we were scorching two-thirds of our investment," noted Gary Michael Walters, the CEO of the production and sales company, Bold Films. Nonetheless, Bold agreed to take the risk and in doing so launched the career of Damien Chazelle, the director whose next film, the daringly original musical *LA LA LAND*, is among the heavy favourites to win the Best Picture Oscar next year. So much for the industry's greenlighting methods.

It is worth stressing—knowing how film creatives tend to recoil at the very thought of quantifying artistry—that the goal here is not to pin an absolute end-value on any script. After all, we all know that the same screenplay will fit one company's production agenda so much better than another's. Rather, the goal is to act simply as the industry's most reliable first line of defense as it battles through a volumetric barrage of submissions. Even if the odds of finding a jewel are no worse than 100–1 you still need a rigorous filtration system for sifting through those one hundred scripts in order to get at the likeliest ten. Without that filter, the tendency has been to rely excessively on material already vetted by inner circles of contacts—one of the industry's many solicitation barriers that stand in the way of unearthing fresh filmmaking voices.



## How Data Science can become Creativity's New Best Friend

This is the real movie adaptation of Leicester City's miracle: a low-cost team-orientated success cleaning up in that space between the Hollywood giants. And lest you dismiss this as a freak once-in-five-thousand-year occurrence then take a look towards Germany's Bundesliga where another soccer underdog, RB Leipzig, is currently top of the league after twelve unbeaten games. Despite having a wealthy benefactor in Austria's Red Bull, Leipzig's success owes as much to a shrewd scouting network that has made a well-knit team of some of Europe's brightest young stars as it does with outspending rivals. At the start of the season, newly promoted RB Leipzig were considered a 500/1 outside bet to win the Bundesliga. Now, after performing their own wonders of applied togetherness, they are a 10-1 bet.

Clearly, it's time to re-write the script for success. It's not about formulaic filmmaking; it's about coming up with the right formula for investing in films that are anything but formulaic.

Based in Brooklyn, **Colin Brown** is the author of the widely circulated *filmonomics* blog about cinema economics. An adjunct professor at New York University, he teaches both film and business students there about the future of the film business and advises NYU's Cinema Research Institute and its Production Lab. Colin is the editorial director for the online marketplace Slated, a managing partner in the pan-Arab independent film distribution company, MAD Solutions (organizers of the Berlinale's Arab Cinema Center) and president of Isold, the new Green Film Fund being launched out of Iceland. An award-winning business journalist by background, Colin was the longtime Editor-in-Chief of *Screen International* and Contributing Editor to *CNBC Business*. As a former film critic, Colin has been invited on numerous film festival juries including that of the Sundance Film Festival - where he helped judge the world cinema dramatic competition in 2009.

# Reaching the Cinema Power Users With Movie Taste Based Audience Targeting



**David Croyé**  
JustWatch

Just 25 years ago, around 75% of cinema tickets in Germany were sold to customers that were under 30 years old. Last year, this number was down to 41%. The movie and cinema industry has been steadily losing the younger generations – and that is not all.

The entertainment world is rapidly changing for consumer and distributor. Most revenue relevant consumers have already shifted spending the larger share of their media time on digital – and distributors and marketers are looking at a very fast-moving, fragmented international market. Reaching their target customers is getting ever more complex.

The main idea of JustWatch is to use data and technology to help the movie industry overcome this enormous challenge.

Other industries like gaming, apps or e-commerce are already using these methods heavily to compete for the same users' valuable leisure time as well as their disposable income – and they are winning more and more of both.

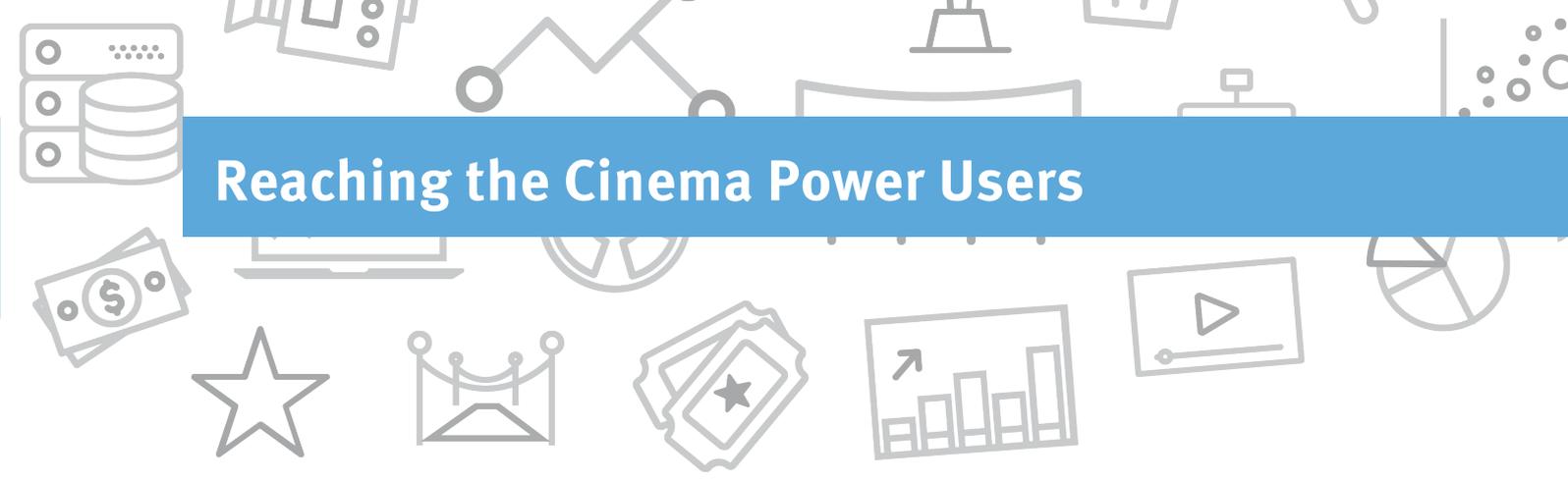
The good news is that the revenue of the movie industry is still growing. There has never been a better time or higher demand for great quality content and different ways of watching it. The bad news is that the industry has a lot of outdated experience and best practices that are no longer relevant, and is therefore moving very slowly compared to the competition. The industry doesn't see the problems as urgent enough yet to start moving faster.

If the industry doesn't want to go down the same road as news media, the music industry, or examples like Blockbuster vs. Netflix, or Nokia vs. Apple, we have to embrace the new possibilities that data and technology offer to stay ahead of the curve and not become "suddenly" obsolete.

The JustWatch mission is to connect movie and TV show fans with their favorite content worldwide. In order to achieve this, we had to understand the industry's preconceived beliefs and "business as usual", and learn more about changing consumer behaviour.

We broke it down into three main questions:

1. How many and which people are actually responsible for most of the revenue right now?
2. How did the consumer media time spent develop and how do consumers inform themselves about new movies and where to watch them?



## Reaching the Cinema Power Users

3. Where and how can we reach the target customer in the best way and keep learning about changing patterns and ways to start growing again?

After a few years of talking to movie fans, distributors and marketers, collecting and analyzing tons of data about advertising campaigns and benchmarks, we were able to simplify our answers down as follows:

1. The market follows a strong power user distribution where only 10-20% of the consumers are responsible for 80-90% of the revenue. In Germany we are actually only looking at 4-6 million people who are consistently buying most of the tickets for all major movies. However, marketing is still mainly driven by the biggest possible reach and a “spray and pray” tactic left over from the past 30 years.
2. TV already reached its peak as the main platform to reach the most relevant consumers a few years ago. Furthermore, almost all demographics are already spending most of their media time in the digital world. The majority of people already inform themselves about almost anything on their mobile devices.
3. 2017 will be the first year where the digital advertising spend surpasses linear TV globally. Whether you like it or not, between 70-85% (depending on sources) of all digital advertising budgets are going through the two big platforms Google (YouTube) and Facebook. With their daily reach of over 95% of most of the German population, they ARE the new TV advertising. Yet advertising mechanics are the complete opposite of everything that came before. Users are in control of who can reach them and in which way. Annoying ads bought in bulk will soon be a thing of the past. Today it’s all about recommending individually relevant content - with the right data in real time for every single user.

Over the last years, JustWatch has built the technology and collected the most relevant data profiles in the whole industry. We know which movies and TV shows people like to watch and purchase in nearly all important box office markets.

JustWatch is running digital video campaigns for major Hollywood studios, mini majors and independent distributors – on scale and worldwide. JustWatch is already beating the market benchmarks of YouTube and Facebook ads of all media agencies and in-house teams on View Through Rates and Cost per View by far.

However, this was only the beginning – and JustWatch has already transitioned to running and optimizing campaigns based on concrete cinema intent measured by the integrated market research in every campaign.

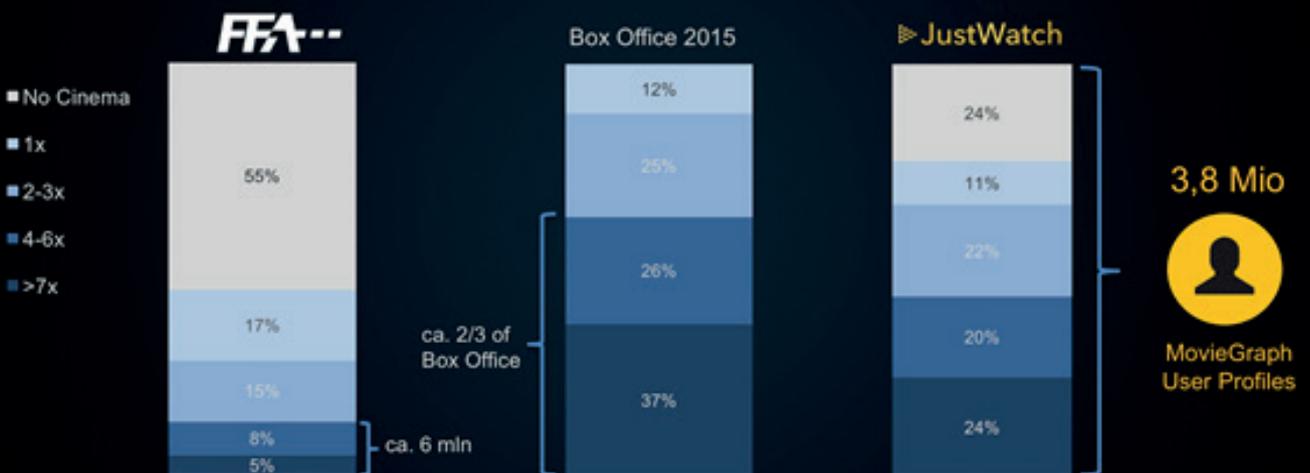
Together with our clients, we are constantly learning more about new methods and ways to reach the right consumers most efficiently. The next goal on our roadmap is to find out what ultimately drives box office and home entertainment revenues.

# Reaching the Cinema Power Users

JustWatch collects anonymized data about **purchase behavior** and **movie taste** of movie and TV show fans worldwide



The focus of JustWatch is to collect **MovieGraph profiles** from around **4-6m** power users in Germany



Sources: FFA Study 2016 – Cinema goes (GfK Panel): N = 25.000, n = 1.514;  
JustWatch Panel: N = 1.8m, n = 3.602; ; statistical significant sample from all JustWatch Users in Germany

JustWatch

# Reaching the Cinema Power Users

How is the media usage of the **revenue critical target audience** developing in Germany?

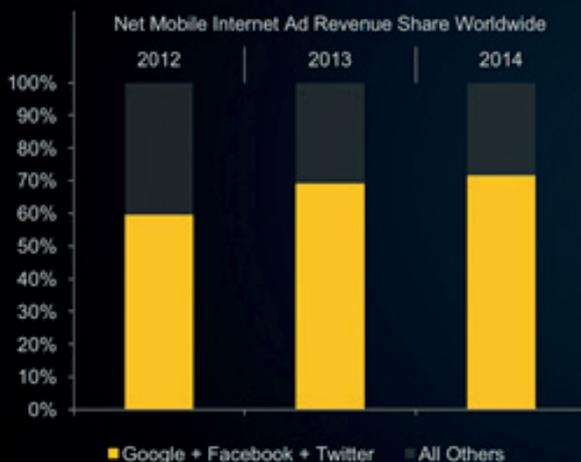


- The revenue relevant target audience is overall already spending more time on digital devices and the shift is still accelerating in all demographics.
- The biggest growth to digital is currently happening in the age groups 50+.

Quellen: ARD/ZDF Onlinestudien 1997-2015, FFA Kino Studie 2014

JustWatch

Where can you **reach** those **target groups** the most **efficient** with digital video ad campaigns?



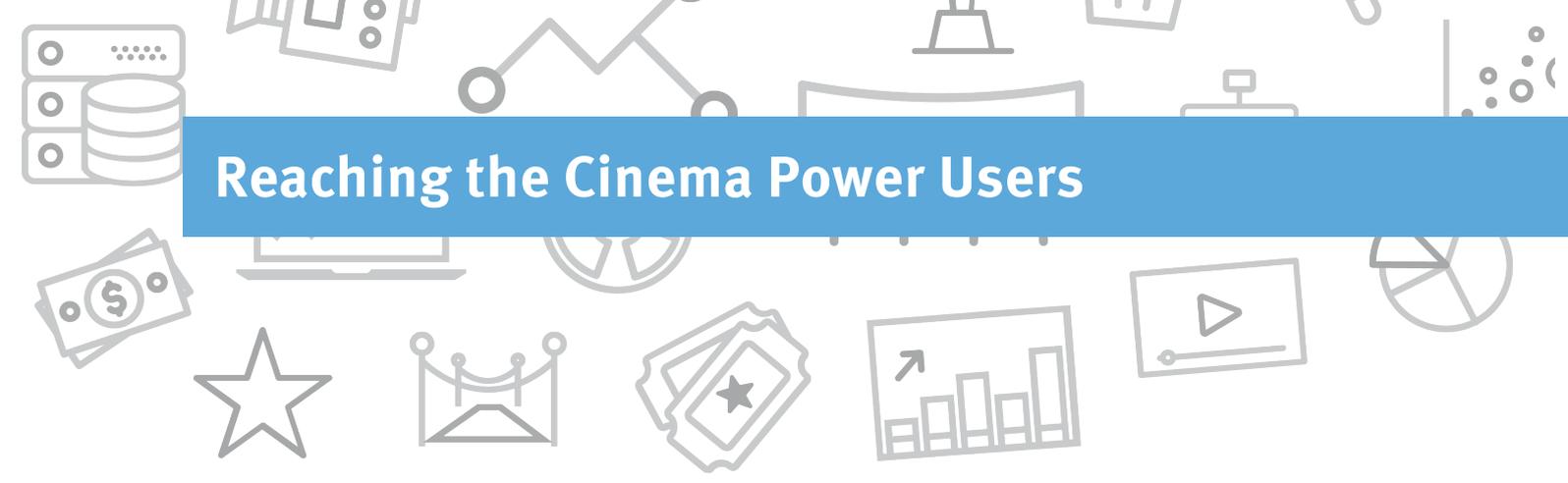
>70% of the worldwide digital ad spend is already on Facebook, Google and Twitter and growing.

Morgan Stanley analysed, that 85 cent of each incremental advertising dollar in 2016 is going to Google and Facebook.

This means, the goal is mostly to use data effectively on the Google and Facebook infrastructure and reach and try to minimize waste coverage.

Sources: Emarketer, Morgan Stanley

JustWatch



## Reaching the Cinema Power Users

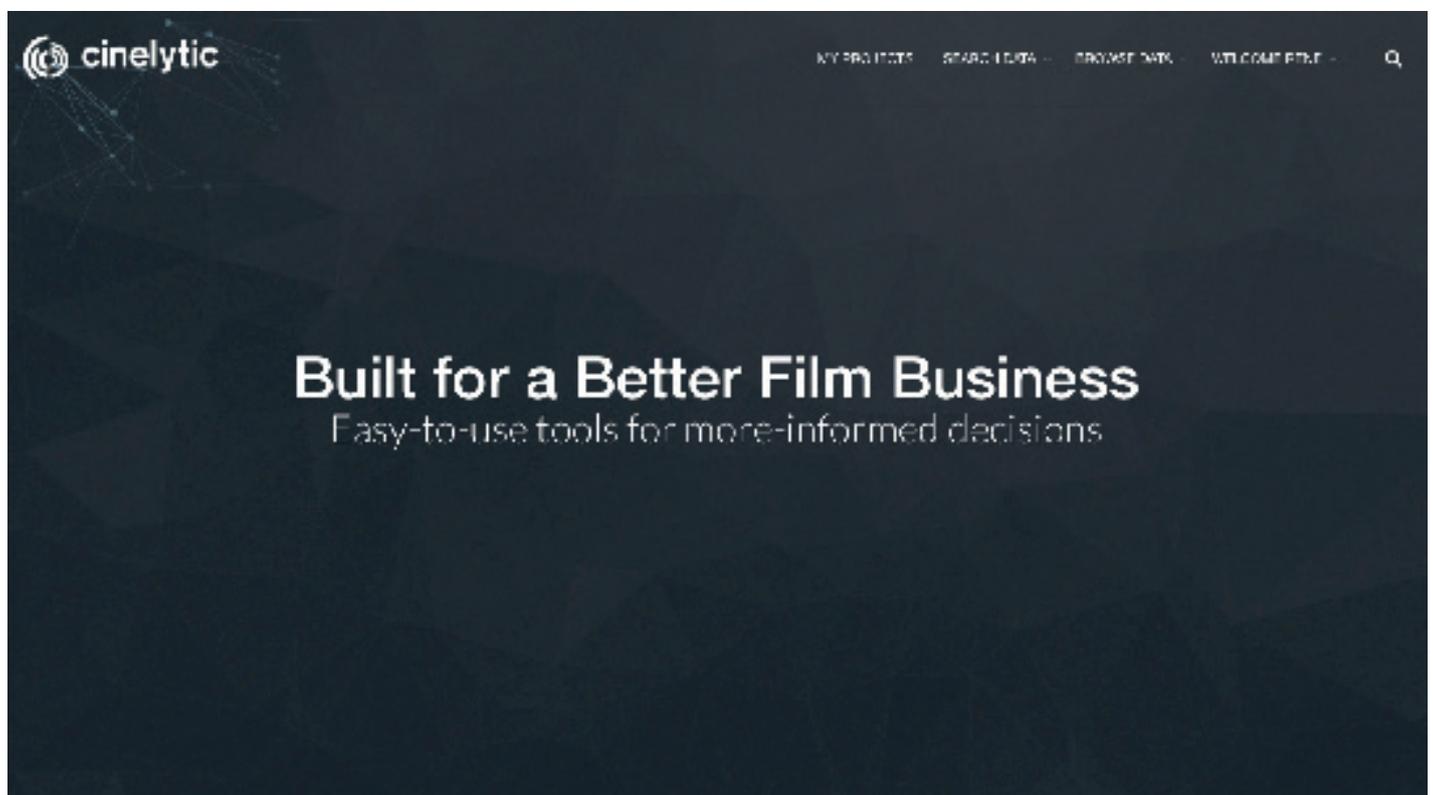
**David Croyé** is one of the founders and CEO of JustWatch a new kind of international adtech and data company solely focused on the movie industry. JustWatch has exclusive first party data about movie taste and purchase behavior of movie fans around the world and minimizes waste coverage for digital video advertising campaigns on scale. Before founding JustWatch David was more than five years CMO at Bonial, the leading location-based advertising platform for offline retail which grew to more than 330 employees today. In this position he built up the online marketing team from 0 to 50 employees within five years, with a focus on data driven marketing and automation. He helped to internationalize the service (to France, Spain, Russia, Brazil and US), achieved more than 500 million annual visits on the websites and apps of the group and was responsible for a budget of more than €10m.

# Better Film Business Through Data-Driven Decision Support Tools



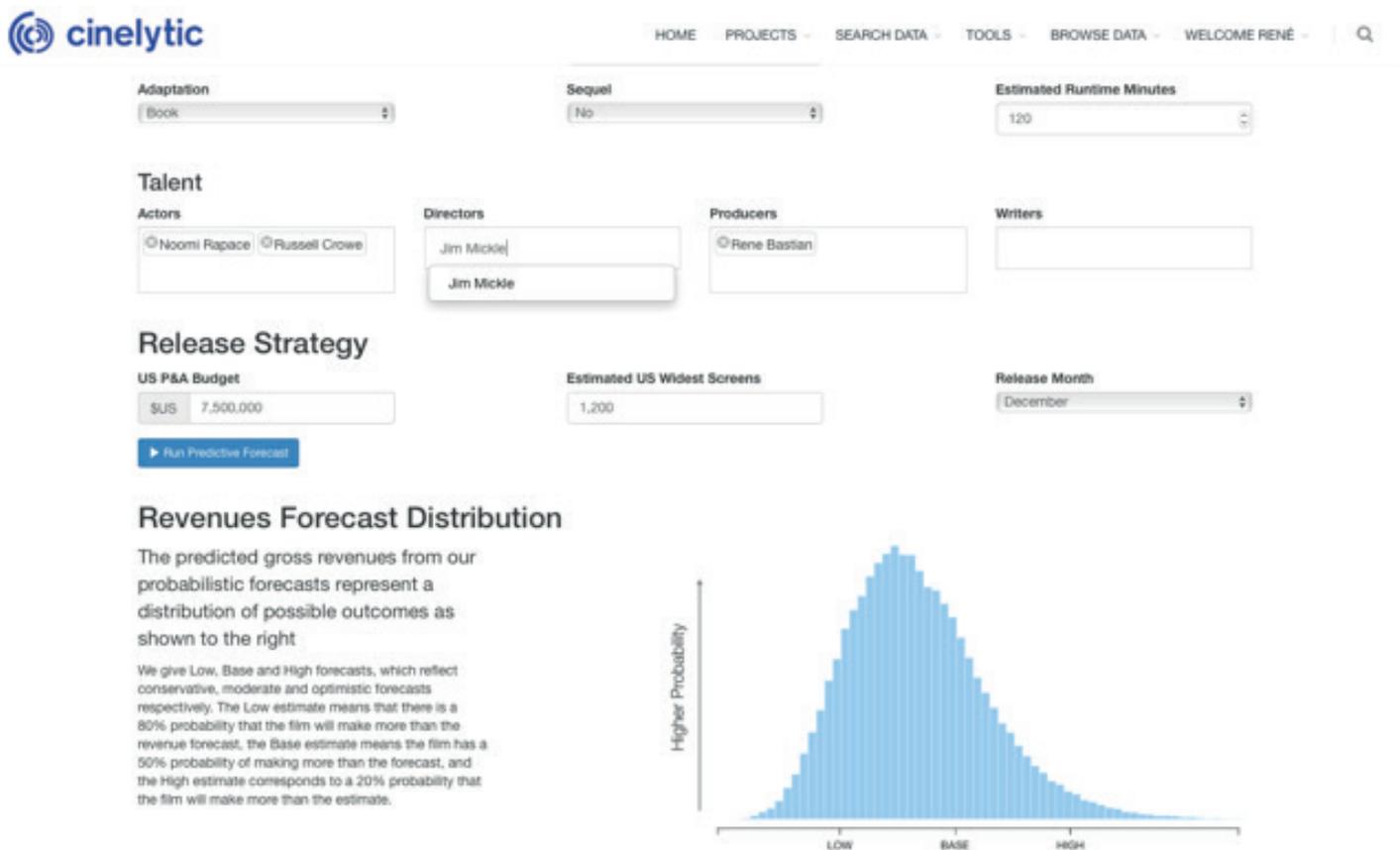
**René Bastian**  
Cinelytic

Films are capital-intensive to produce and to distribute and their ultimate commercial success is very hard to predict. Still, the film industry is one of the few multi-billion dollar industries, which in this day and age still does not systematically use data and analytics in its decision-making. Cinelytic is an online service, which is offering the global film industry a system of easy-to-use workflow and decision support tools based on film business data. It is our mission to improve transparency and to introduce standards of valuation into the film space to improve efficiency and to better mitigate risk. The site is currently in closed beta testing by some 50 leading film companies and we are on track to launch it to the general public in Q3 of 2017.



# Better Film Business Through Data-Driven Decision Support Tools

Cinelytic was founded by veteran producers René Bastian and Tobias Queisser, as well as by Dev Sen, a NASA rocket scientist, who specializes in probabilistic risk assessment. Dev is heading up Cinelytic's technology development applying risk management techniques pioneered at NASA, while Tobias and René use their international production experience to ensure that our product carefully addresses the needs of film producers, financiers, distributors and sales agents. Having worked with producing partners from around the world, they have an acute understanding of how our technology can improve workflow and decision-making throughout a film's journey from development and financing to production and exploitation. Our primary focus is to balance the critical importance of creative instinct on the part of the filmmakers with market data and analytical decision support.



For example, when a film is financed, funding is provided against the perceived value of a “package,” which is comprised of the combined values of screenplay, director and cast. These three values on which multi-million dollar decisions are based, however, are very subjective, highly volatile and vary greatly from country to country, while there has been no objective way



## Better Film Business Through Data-Driven Decision Support Tools



to measure them. As a result, film-package valuation is largely based on gut reaction. Cinelytic is now offering simple to use tools to assess the value of the talent components of a film package from an economic performance, as well as from a popularity point of view to arrive at more objective package valuations.

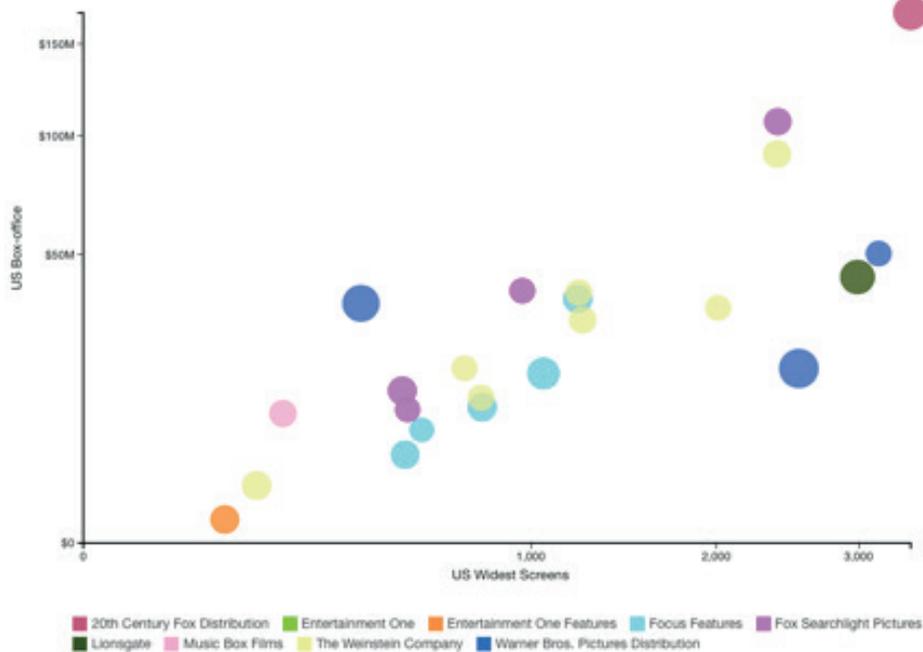
Today film producers and financiers are seeking the help of foreign sales agents to assist in the assessment of a film's value before it is made. Sales agents provide sales projections, which is the universally acknowledged price setting mechanism for a film at the development stage. This practice of third party valuation of a film's price is unique to the film space and it is flawed, as the sales agent benefits from the ultimate production of the film, which introduces a bias into the valuation process, as there is an incentive to be optimistic. Now Cinelytic is offering tools to better predict film performance based on comparables, as well as on predictive analytics. Soon, we will launch products, which offer insights into the methods of how distributors assess the minimum guarantees they are willing to pay by territory. This will give sellers the means to run their own numbers, when they take their projects to market to have checks and balances.

Even when a film is sold successfully producers, financiers and sales agents have very little transparency and therefore understanding about how their films perform down the value chain. It is largely accepted in film-business culture that distribution cost and revenues are not reported accurately or at all. This leaves film industry professionals to make multi-million dollar decision in a vacuum. Without a very good understanding of their product's ultimate performance filmmakers are unable to fully understand their own market and draw conclusions for future projects. Cinelytic is aggregating film business data from a variety of sources ranging from Gracenote, Variety and The Movie Database to Texcipro, Wikipedia, Twitter and Facebook. We are making these data available in a centralized and organized way and have created simple to use decision support tools, which provide actionable conclusions based on these data.

# Better Film Business Through Data-Driven Decision Support Tools



HOME PROJECTS SEARCH DATA TOOLS BROWSE DATA WELCOME RENE Q



Once Cinelytic is launched it will provide all available film and talent performance data through the entire value chain globally and down to the individual end consumer, so that film-financing, producing, marketing and distributing will happen in a much more calculated, efficient and profitable way.

# Better Film Business Through Data-Driven Decision Support Tools



	2019	2020	2021
Total Sales Fees	-5,000,000	-5,000,000	-5,000,000
Interest on Cash Flow	-1,100,000	-1,100,000	-1,100,000
Total Payable Accounts Payable	5,000,000	5,000,000	5,000,000
Total Additions - Costs	-5,100,000	-5,100,000	-5,100,000
US Domestic Outright	\$11,000,000	\$12,000,000	\$12,000,000
International Outright	\$1,000,000	\$1,000,000	\$1,000,000
Total Outright / General Rights	\$12,000,000	\$13,000,000	\$13,000,000
Contributions to Bankruptcy and Other Expenses	50	50	50
Revenue to Investability	\$6,899,950	\$7,899,900	\$7,900,000
Respective Equity	\$0,100,000	\$0,100,000	\$0,100,000
Investor Premium (20%)	\$1,000,000	\$1,000,000	\$1,000,000
Revenue for Refinancing & Interest	\$10,000,000	\$11,000,000	\$11,000,000
Payable to Money	\$500,000	\$500,000	\$500,000
Amount Invested	\$0,000,000	\$1,000,000	\$1,000,000
Profit Available for Taxation	50	\$1,000,000	\$1,000,000
Back-end Equity Investors	75%	50	\$4,750,000
Total Revenue / Residuals	100%	50	\$1,000,000
Producer Participation	25%	50	\$1,000,000
Investor Participation	10%	50	\$1,000,000
Writer Participation	10%	50	\$1,000,000
Star Participation	25%	50	\$1,000,000
Double Investor Return (ROI)	10.0%	48.4%	60.7%

It is our strong conviction that all film industry participants will benefit from a more transparent and therefore efficient market and consider ourselves as part of a movement toward greater openness in our industry, which is overdue.

**René Bastian** is an accomplished film producer and entrepreneur. He is the founder and president of Belladonna Productions, a leading independent production house based in New York. His career as a producer spans 20 years and his films have been honored at the Sundance, Berlin, Cannes, Venice and Toronto Film Festivals; and have won a Golden Globe and received several Academy Award nominations. His experience in film production and finance inspired him to launch Cinelytic, a film business platform, which provides film professionals with data-driven decision support tools and analytics to promote greater efficiency, transparency, standardization and risk management in the global film industry.



## Better Film Business Through Data-Driven Decision Support Tools

**Cinelytic** is a New York-based company developing an online analytics and data platform, which will provide the film industry with easy-to-use decision support tools. Cinelytic is led by a team consisting of veteran film industry executives, and technologists led by a NASA rocket scientist. Applying innovative risk management techniques pioneered at NASA to the film industry, our platform integrates proprietary, predictive analytics technology with data-driven decision-making aides, as well as statistical information, financial analysis, news and trends. Our analytic tools and algorithms employ state-of-the-art machine learning and artificial intelligence to provide producers, investors, distributors, sales-agents and banks with workflow improvements and comprehensive insights into the dynamics and econometrics of the film industry in a form not currently available elsewhere. Our mission at Cinelytic is to become the standard in decision-support, workflow and risk assessment tools for the film industry. By supporting better decision-making, we will help to reduce financial risk, improve profitability, stabilize capital flow and improve efficiency in the global film-finance, film-production and film-distribution markets. Cinelytic has a patent pending to protect our technology (Serial No. 14/645,207).

# Digital – A Paradigm Shift in Film Scheduling in Cinemas



**Claudiu Tanasescu**  
Cinema Intelligence

With the digital revolution that started back in 2005-2008, the world of cinema has changed dramatically. Everything from movie creation, distribution, display, tracking and engaging with the moviegoers has changed beyond any recognition.

The introduction of VPF (Virtual Print Fees) deals back in 2008 has helped shared the burden of the initial financial investment in digital projectors. Without VPF many exhibitors would have not been able to make the switch and as a direct consequence to that, the industry would have not been able to change.

In the presentation, the author, Claudiu Tanasescu, CEO of Cinema Intelligence challenges the fact that VPF have been both a helper but also claims a brake in helping the industry transition to the new era of digitalization.

The author focuses significantly on the business of scheduling movies in a multiplex. The company has developed sophisticated forecasting and scheduling algorithms that optimize daily schedules to maximize admits and revenue.

The advance of data and big data in the cinema world represents a huge opportunity to leverage the data and enhance the forecasting and scheduling algorithms.

The author shows the breadth and scope of such data points that can be leveraged and utilized in sophisticated algorithms and drive business value for the cinema exhibitors.

**Claudiu Tanasescu** is the CEO and founder of Share Dimension, the parent company of Cinema Intelligence. Claudiu started the company 10 years ago, originally building tailor-made business applications for the financial industry. Since 2010, his focus has been the cinema industry and Cinema Intelligence, a collection of business intelligence solutions for cinema exhibitors designed to optimize forecasting, and the planning and scheduling of movies and events proven to increase revenue. Prior to starting Share Dimension, for more than 15 years, Claudiu was a technical and IT leader at multinationals Philips and Sustainalytics.



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