

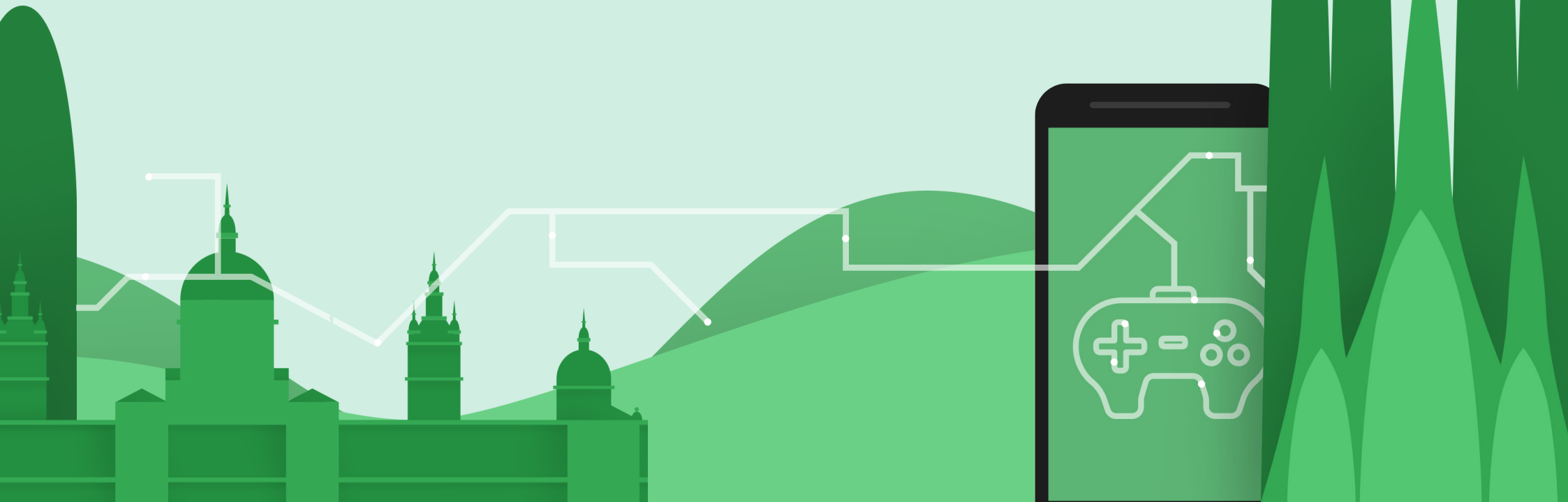


MADAB

by Google

Mobile App Developers' Advisory Board 2016

The art of automation





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Welcome

For this year's Mobile App Developers Advisory Board we chose the Barcelona Museum of Contemporary Art and the home city of the modernist Antoni Gaudí to explore our theme of "the art of automation".

Modern art pushes aside the concepts of the past to create room for experimentation and discovery. In a similar way, that is what our industry is doing right now.

Today, traditional concepts around marketing and advertising are being challenged to create the room for innovation, new formats and techniques to engage with your audiences.

Among these innovations, advances in automation may well be the most important. But in order for automation to be turned into real opportunity, it requires the right input.

That means having the right data, measuring the right things, and having a deep understanding of what is going on within and outside of your app.

With those elements in place, it is possible to understand users beyond their basic psychometric characteristics and deliver personalised, relevant experiences and precise marketing messages.

And thanks to developments in machine learning and artificial intelligence, we can actually deliver these customised experiences at scale.

Seva Leonov
*Head of Global Partnerships,
Mobile Apps & Gaming EMEA, Google*



Jose Maria Garcia
*Director, Apps & Mobile
Innovation, EMEA, Google*



Our focus in this ebook is to explore how we as an industry are leveraging data, insights and automation in addressing some of our biggest business challenges. If you missed our September event – or if you attended but want to catch up – here you can review the exciting highlights from the presentations and discussions. We really hope you enjoy the read and are inspired to take some of the ideas to help your own business flourish.

The future of Search

As principal engineer working on Google Search, Behshad Behzadi shares a glimpse of the future, where “the ultimate assistant” will help you navigate not only the world at large but your own unique context.

To find anything online 15 years ago, you had to think about the right keywords that would appear on the right webpage. Fortunately, we’ve come a long way since then. As the world evolves, we’re continuing to refine search, too.

Google Search used to be just about strings (keywords and words on webpages), and now Google understands things. A major leap forward in our ability to answer, search is powered by the Knowledge Graph, a database of real-world things, people, places and the relationships that connect them. Besides disambiguating, the Knowledge Graph knows how to summarise information about things, answer questions about them, compare and explore. We’ve already accumulated knowledge on 2 billion entities, 54 billion facts, 38,000 types – and it’s still growing.

What’s next? It’s no secret that the world is becoming more and more mobile. People now conduct more searches on phones and tablets than on desktop, and they’re increasingly using speech. In fact, speech is the easiest and sometimes the only way of input for many new devices. In this mobile world, we’re seeing people use natural sentences more than query language (so they’ll say, “Hey what’s the weather like in Barcelona?” instead of “Weather Barcelona”) and find answers to their needs in both web and apps.

In light of these trends, we’re now working to build the ultimate assistant. Integrating search and apps, the ultimate assistant will understand not only the world, but also you and your current context. It will combine speech recognition with what you said before, what you see on screen and where you are.

To make our vision of the future a reality, we recently launched Google Assistant. You can ask it questions and tell it to do things – it’s your own personal Google, always ready to help so you can focus on the things that matter! And this is just the beginning!



Behshad Behzadi
Engineering Director, Google



The Evolution of Google Search

- 2001** • **Spell Check ...**
Instant editing of misspelled queries
- 2002** • **Synonyms ...**
“Understanding” the concept of synonyms
- 2004** • **Google Autocomplete ...**
Making it easier to find the right query to search
- 2007** • **Universal Search ...**
Websites, videos, images, books, news sites and more in one interface
- 2010** • **Google Instant ...**
Answers appear just as you start typing
- 2012** • **The Knowledge Graph ...**
Mapping the real world of things

The power of automation with Google

Four of Google's lead product managers shared insights into the new solutions that can help turbocharge your app business.

Here's what we heard from



Brendon Kraham
Director, Global Apps Advertising Solutions



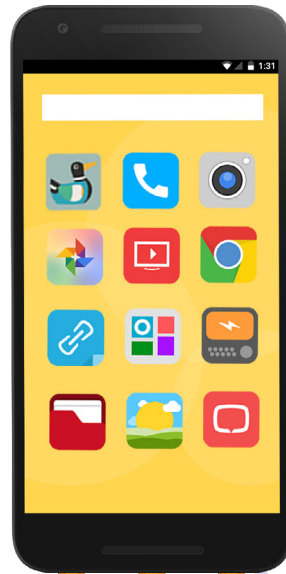
Steve Ganem
Product Manager, Analytics



Josh Cohen
Group Product Manager, DoubleClick



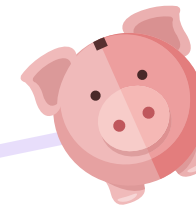
Duke Dukellis
Group Product Manager, AdMob



While some pundits have suggested apps are dead, they're very much alive. In fact, App Annie projects that the app economy will surpass \$100 billion in gross revenue by 2020 with 20% compound annual growth rate over the next five years¹. The root of the misconception likely comes from focusing on download rates. But the growth of the app economy isn't dependent on downloads, it's dependent on revenue – and revenue means usage. In-app usage is climbing, and that will ultimately drive significant growth.

For a clear, holistic picture of success, we need to look beyond downloads at usage metrics, understand each user and deliver relevant experiences to them. In May this year Google launched its Firebase platform aimed to help app developers achieve just that, through more than 15 tightly integrated tools to help you develop your app, grow user engagement and earn more money.

The power of automation with Google



Automation and analytics

At the heart of this new platform is Firebase Analytics, built on the features of Google Analytics but designed specifically for app-first businesses to provide a single source of truth for your app's data as you iterate. Apps generate enormous amounts of information, with people checking their phones more than 150 times a day and some apps generating tens of billions of daily events². Very few tools are capable of capturing, much less processing that much data. That's where Firebase Analytics comes in, with a way to put your data to work for you in an integrated way across your stack. For example, Firebase Analytics provides signals and user context ("Who is using my app", "Where are they in the app?", "What have they done in the app so far?") that you can combine with AdMob, enabling you to act on the information to best monetise each user in each context. Without automation this would be really hard to do, but with its audience-aware approach Firebase does the heavy lifting for you and helps you create more value for your business. .

Automation and app promotion

We're also finding new ways to use automation to fuel app promotion, with an approach that goes beyond basic install metrics. Universal App Campaigns is a one-stop-shop for marketers to tap all the app promotion inventory and formats available at Google, with one campaign and minimal investment in setup. Instead of manoeuvring through millions of different combinations of settings and variables, turning all the knobs and dials, we've built simplicity and power straight into the model. Machine learning algorithms maximise the number of downloads that you can get for your budget at your target cost per install. But it's not just about driving installs, it's also about finding high-quality users who will engage more with your app, so with the latest version of Universal App Campaigns we've taught our machines to optimise for in-app actions. This means all you have to do is work on your KPIs and tell us which in-app actions matter to your business, then let Universal App Campaigns do the hard operative work for you. The benefits for your business are both scale and value.

Automation and monetisation

As far as earning money within your app, we're working hard to extend the tools, capabilities and automation opportunities available to you. App developers are now able to use a full range of monetisation options, from networks and the open auction on one end to direct deals on the other, with a suite of programmatic options in between. Our goal is to empower you to do all of these as seamlessly as possible, while also delivering engaging ad experiences. New formats, such as rewarded video and native ads are obviously a key part of a better user experience, but so is showing the right ad to the right person or, in some cases, not showing an ad at all.

With that in mind, both DoubleClick for Publishers (DFP) and AdMob today offer you a number of ways to create, manage and target specific user segments. In DFP, we offer a built-in DMP for you to integrate segments built on your data or that of third parties to target based on user profiles. And with Admob and Firebase we are taking the concept of a smart platform to a new level, providing intelligent targeting based on out of the box user segmentation. This is just one more example of our focus on automation and actionability, which we hope will help businesses like yours to flourish.

the big themes in apps

Thought-leaders from the largest app developers in EMEA sat down to share their thoughts on the latest trends and market needs impacting our industry.

Knowing your users like never before

Developers would like to be able to benchmark usage of their app against others on the user's device to form a clear understanding of user behaviours, the role that their app plays in the user's phone experience and their share of time spent.

The holy grail of cross-device data

As well as gaining access to device-level data, businesses are keen to extrapolate beyond the app, by connecting with off-line sources and matching data across devices and channels.

Automation, value and ad sales

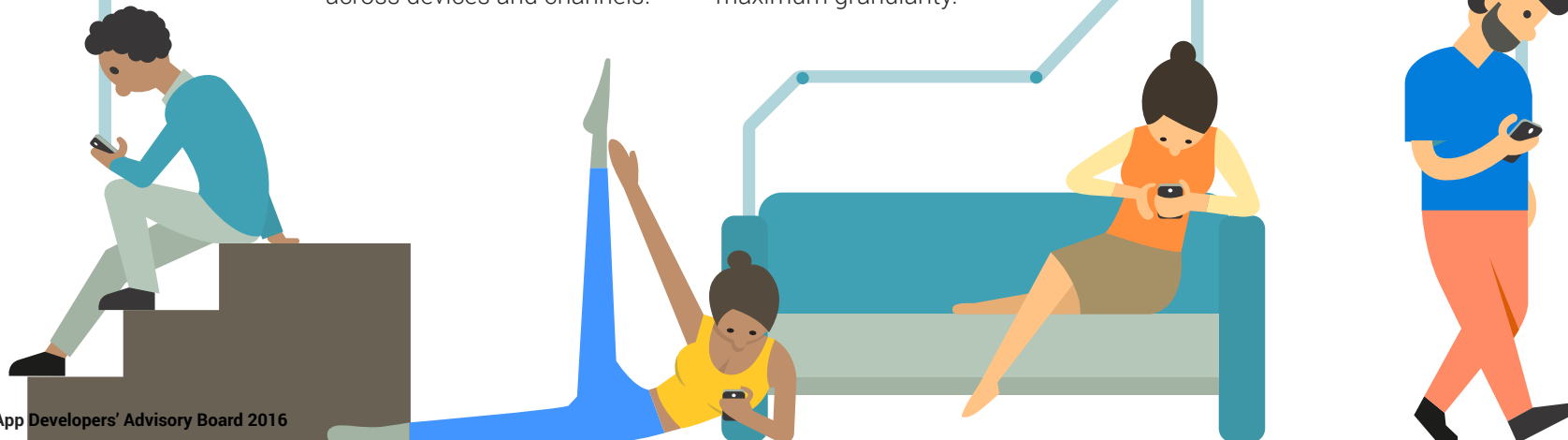
Automation is seen as a mighty tool for streamlining mediation – especially in the ability to deliver relevant marketing messages and to filter out those ads that a user isn't interested in.

The need for more efficiency

When it comes to both ad buying and ad selling, there's a need for speed! App developers using automation prize fast, efficient processes and tools that enable maximum granularity.

In search of the most valuable users

As a way of promoting efficient growth, many app businesses are leveraging data and using automation to predict which users will be the most valuable. There's constant demand for tools and techniques to enable this.



Marketing agility

Erdem İnan reveals how Peak Games' strategy of agile marketing is racking up impressive wins for its portfolio of multiplayer board and puzzle games.

We build games using super-high agility, taking things step by step. So we figure, why should we make our marketing decisions only every quarter or every year? We've adapted our marketing to the way we build games, reacting fast to changing conditions.

We make tough decisions every one to two weeks because we see longer-term marketing plans as ineffective. We found ourselves questioning the usefulness of metrics like lifetime value and cost per install, believing that focusing on these encourages suboptimal spending to "achieve" the targets, a lack of motivation to over-perform as long as the KPIs are met, and an inability to adapt to new metrics and new sources.

We've seen that traditional marketing optimisation based only on limited metrics can lead to inefficient budget spending or missed opportunities. At Peak, we use different strategies and marketing objectives at different phases of product lifecycle, which eventually shape our user acquisition operations. These marketing objectives also change according to product and service improvements, competition in the market, seasonality, geography, financials and trends in game metrics. Our ability to change marketing objectives quickly increases our efficiency and makes us flexible against changing conditions.



Agility in gaming is critical. Marketing is not an exception.

Erdem İnan
Chief Marketing Officer,
Peak Games



Our agility doesn't stop with user acquisition. Post-launch refinements are critical, so we never stop improving our games, even when their metrics outrank competitors. For us, CRM is a part of user acquisition and a part of the product itself. But an exceptional product isn't enough – we're in a service business. So we realised that we needed to develop a CRM tool – Peak CRM – to enable us to take instant actions on custom segments. The tool creates retargeting audiences and generates pop-ups, discounts, notifications and emails. Automating these processes gives us another way to stay agile and sustain our success.

Data in the transition from growth to profitability

Jaume Betrian
Co-Founder and Executive Director, Ofertia



Jaume Betrian, Co-founder and Executive Director of Ofertia, explains how his organisation transformed itself through data democratisation and business intelligence.

Key learning from Ofertia

- Stage your transformation and choose tools carefully
- Democratise data, liberate IT and empower other teams
- Use a single business logic
- Boost skills in business intelligence and data science
- Aim to spend zero time reporting and most of the time analysing
- Big Data is cool but Small Data is necessary too
- You can't automate everything – human creativity always plays a role

Since launching in 2012, we've gone through two life stages. At first, we aimed to drive growth at any cost. This meant focusing on acquiring users – the faster the better – and optimising cost per install. As we matured, our focus shifted to driving profitable growth. Now we optimise for return on investment and prioritise lifetime value.

During the first stage, our approach to data was fragmented. Information was static with lots of separate, one-off requests, while the business was in silos. Each silo used its own separate business logic, leading to inconsistent outputs, errors and limited growth and scalability.

Revolutionising our approach began with business intelligence. We saw a clear need to break down silos and build a central data analytics tool based on unified business logic and 100% alignment between functions. It took a year to integrate our sources and ensure everything was clean and accurate, and we created a new BI team, too. The speed, depth and flexibility of our data skyrocketed. It's now easy to spot errors, extract information and add new sources.

Data also transformed our product development; while previously it was erratic and separated, now we have a methodical process, linking our product visionaries with data scientists and A/B test

managers. This means creative ideas can be tested and improved, while time and errors can be reduced.

Data transformed our user acquisition as well. While previously marketing and IT occupied separate silos, they're now linked by a marketing analyst. Instead of focusing on CPI, the KPIs are aligned with the rest of the organisation. All relevant events are tracked, so it's easy to test every campaign and creative and calculate ROI and LTV.

What's next? We're using data not just for optimisations but also for prediction and automation, which has helped us reduce churn by 20% and increase engagement by 30%. Meanwhile, our business is not static. The needs of our users and our clients are constantly changing. So small data – static datasets – is what we use to identify new strong correlations and new KPIs to improve our algorithm and feed Big Data.

What's next for Google Play

Tamzin Taylor, Google's Strategic Partner Manager for Play Apps & Games in EMEA, reveals the latest developments on the horizon to help your app succeed and your business flourish.

At Google Play, we feel we're at an amazing point where some of the fundamentals of the world of apps are being challenged, signalling a new era in mobile innovation. These evolving elements present opportunities for developers to reach users and build new experiences that go beyond the click, beyond the install and even beyond the phone.

We're seeing a real the evolution in ways of input, as user interaction extends **beyond simply clicking on a button**. With voice control skyrocketing, we've made big advances in natural language processing and conversational UI. An example where we've already put this in action is Google's new platform Allo, which combines messaging with assistant technology. Meanwhile swiping, pinching and scrolling are being superseded by a new wave of gesture control.

We're planning for a future where the human hand is a universal input device for interacting with technology.

For example **Project Soli** is our new sensing technology that uses miniature radar to detect touchless gesture interactions. This creates immense opportunities for mobile app and games developers where the only limit is your imagination.

As well as equipping you with innovations to build better apps, we want to help you distribute your app to a global audience – which is why we're thinking **beyond the install**. We know that the install requirement can be a hurdle for users considering your app for the first time. To solve this we developed Android Instant Apps. This allows native Android apps to run instantly without the need to download, removing friction at login and payment, and making it easier for users to discover, consume and share your content.

In addition to interaction and install, we're also focusing on helping you create completely new immersive app experiences that go **beyond the phone**. We recently announced Daydream, our platform for high-quality mobile virtual reality. With powerful software to produce smooth, responsive visuals, Daydream apps and games are now being built by companies like the *Wall Street Journal*, *HBO*, *Netflix*, and the *NBA*.

So that's how far the world of apps is reaching and where it could go. Add it up, and that's our vision of the future – we can't wait to see what your imagination will make of it!

Tamzin Taylor
Strategic Partner Manager, Play Apps & Games, EMEA, Google



We believe the role of Google Play is to support your imagination and make Android users aware of the amazing new experiences you're creating.

ZeptoLab: the science of fun

Misha Lyalin
CEO, Zeptolab



ZeptoLab games are played on one in five smartphones across the world. Dedicated to “the science of fun”, ZeptoLab relies on a data-driven innovation process. CEO Misha Lyalin explains how it works.

ZeptoLab’s strategy is to create and grow brand-name game franchises based on original gameplay in the free-to-play multiplayer category.

We leave popular genres and the licensing of Hollywood pop culture to others, focusing instead on developing totally new games.

To do that, we invented a unique process we call our “Innovation Engine”, which is designed to produce many ideas. We test those ideas internally at very early stages, identify the ideas that don’t work and quickly kill them. It works like a funnel – we start with 50 to 120 ideas, narrow them down to five soft launches and then end up with one game to release.

During the course of this cyclical process of data collection, analysis and improvement, every new game undergoes iterations as we fine-tune according to key metrics. Development takes up to four months, during which time we submit builds to the test environment every other week. We only proceed when and if the game achieves an average user rating of four out of five. The soft launch stage then lasts up to four months. We’ll execute at least three full iterations, testing on real users and collecting data along the way. We only go to market with a game when it demonstrates a stable acquisition model and hits our benchmarks for LTV, eCPI, retention and average user rating.

As well as using data to drive the development of our products, we also rely on data to then market the game to new users globally. When we launched *King of Thieves*, we focused on organic growth. We developed a proprietary predictive mechanism that helped the game gain 40 million downloads – and it’s still growing.

Our ‘Innovation Engine’ is essentially a factory of start-ups, where each start-up is a game we need to build.



From zero to 5 million in three months

Saikala Sultanova
Head of Growth,
Space Ape Games



Space Ape Games Lead of User Acquisition Saikala Sultanova and her team helped Transformers: Earth Wars reach 5 million downloads in just three months. Here she shares a few of the ingredients that went into Space Ape's secret sauce.

For Transformers: Earth Wars, our challenge was to figure out how to make the most of our ad spend. We started with some basic research: what version of the brand resonates most, Transformers: Generation 1 or the Michael Bay film? Which Transformers characters are most popular?

While the app itself was still in beta, the UA team worked to prepare by balancing the tool stack. We believe that when it comes to optimising ad spend, tools and data automation really do enable your team to succeed. Our approach

connected our ads management dashboard, mobile tracking solution, cost data aggregation tools, and data analysis and visualisation software.

We then had several decisions to make. For testing, we had to decide on a statistically significant sample size that struck a balance between the confidence level and margin of error we were comfortable with. We also had to come up with methodical naming conventions for our campaigns and creative levels, which made it more effective to scale. And we had to choose between front-loaded versus steady investment over time for our paid UA strategy (we went with front-loaded).

Information about Transformers: Generation 1 followers helped our UA team shortlist target countries and platforms to better prioritise ad spend investment going forward. Once launched, the UA team continued using its tools to optimise ad spend for the best possible performance.

As our CEO John Earner says, "We've had 30 million people play our games and have made a few million dollars in revenue. But – we genuinely feel we're just getting started!"



We believe that when it comes to optimising ad spend, tools and data automation really do enable your team to succeed.

From touchscreen to big screen – and back

Ville Heijari
Chief Marketing Officer,
Games, Rovio Entertainment



Rovio CMO Ville Heijari shares how *The Angry Birds Movie* helped the *Angry Birds* brand soar to new heights.


Angry Birds was launched as a paid download game in December 2009, and since then we've put our efforts into growing and diversifying the brand. As part of that strategy, we released our first film – produced and financed entirely by Rovio – in May 2016. Our production budget was \$71 million, while the marketing budget was \$110 million.

To make the most of this marquee event, we also launched *Angry Birds Action!* – a 3D pinball arcade game – to coincide with the movie release. We did a number of global partnerships, including partners such as *H&M*, *McDonald's*, *PEZ*, *Lego* and more. The purpose of the game was to tie in consumer products and in-store experiences with the *Angry Birds Action!* Game, to drive downloads and build movie awareness.

After the opening weekend *The Angry Birds Movie* was number one in 51 countries, and at \$346 million in worldwide box office sales and counting, our first movie has been a success.

On the other hand, while *Angry Birds Action!* worked great as a marketing tool for Rovio and our partners, the game delivered poor financial performance and fewer downloads than we'd hoped.

However, in spite of the underperformance of *Angry Birds Action!*, the real results for our brand were positive. In essence, the movie drove renewed interest in our games. The original *Angry Birds* re-entered the charts near the top, where it still remains, and eight of our other games also experienced a resurgence. Awareness, interest and visibility of the *Angry Birds* brand went up, and that visibility boosted our user acquisition for games and led to a 40% increase in ad eCPM. For us, the experience demonstrated that our brand is more important and resilient than any single product, which is why we'll continue to pursue innovative initiatives to diversify, grow and amplify it.



Everything starts from retention and loyalty. That's the only way to build the brand.

Your data : from creepy to irresistible

Laurie Frick
Data artist



Data artist Laurie Frick explains her work exploring identity, patterns and the power of data.

I've always been really curious about the future. When I was little I couldn't wait to grow up. Somehow I thought if I could see the future, I could figure out who I would become. Time was a fascinating concept for me.

I didn't go into art straight away. I worked for 20 years in the tech world and then went back to school to become an artist. When I started making artwork, I went back to this concept of imagined time: forward, backward, smaller and smaller bits. But I knew from my experience and engineering background that if you really want to understand something you measure it.

That's when I discovered Ben Lipkowitz, who had been tracking every minute of all of his time, colour-coded and categorised. I downloaded his data and started

cutting, gluing, painting and creating art based on his time. It was so beautiful. I decided to measure my own time, so I got an EEG machine and started tracking my sleep. Some fascinating patterns emerged; it became a journey of self-discovery.

The thing that strikes me when I look at these works is that they're like a fingerprint – very unique and specific to each person, a portrait. The patterns are a way to see yourself – your data, using the language of art. Art makes data sticky; art carries emotion; it gets you to look, look longer and see things you wouldn't have noticed otherwise. Humans feed on pattern. Numbers are very abstract concepts, but we understand pattern intuitively.

Data is irresistibly powerful to human understanding. Data abstracted as pattern and played back to you as art – that's a new way to see ourselves.

Research shows that 85% of us are uncomfortable how much data is tracked about us. But what if we can take back our data, reclaim it and use it to know ourselves better?

A stylized illustration of a person's head and shoulders, rendered in a pixelated or grid-like style. The person has dark hair and is wearing glasses. The background is a grid of purple and yellow squares. A purple box with white text is overlaid on the lower part of the illustration.

What an artist does is take the world that you care about and try to explain it to others.

