Using data to drive better business decisions

From cinemas to retail, here’s how any business can use data insights to serve customers, improve flows and predict success, all without losing the human touch.

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Leveraging data for business decision-making has famously powered the rise of Netflix, YouTube, Amazon and Spotify. Yet data-driven decision-making is not just for these digital giants. Any business — whether a cinema, a museum, a music label or a retailer — can use data analytics to know their customers better, create new value, and boost their competitiveness and performance.

This article summarizes research by IESE professors that highlights the myriad ways that data can be used in diverse business settings. And as managers increasingly use artificial intelligence (AI) to guide their decision-making, we also discuss the legal and ethical questions that raises.

1. Using data to know your customer better

Know your customer. This business basic has been turbocharged by digital streamers like Netflix, which is able to track its customers’ every move, not just what they watch but their searches, pauses, replays and abandonment patterns, and then deliver highly personalized content recommendations. This shifts the business model from top-down (“we make it, you consume it”) to customer-centered (“we analyze what you consume, then deliver more of it”), efficiently matching supply to actual consumer demand.

Historically, physically based businesses, like cinemas, have not been able to compete with that model. But as IESE strategy professor Ricard Gil suggests in "Technological change and managerial challenges in the movie theater industry," that situation is changing. Writing in a special issue of the *Journal of Cultural Economics*, Gil and his co-authors show how even the traditional cinema can come up with customer-focused strategies like Netflix does using data analytics.

Installing Dolby and THX sound, and expanding their range of entertainment to include simulcast concerts, opera or sporting events, are actions that cinemas have taken over the years to enhance the customer experience. But these are actions taken to try to staunch the hemorrhaging of customers, hoping to lure them back with something they can't get at home. As Gil notes, much more can be done to serve customers by analyzing transaction and usage patterns. Loyalty cards, also used by retailers and supermarkets, are good tools for this.

Gil and his co-authors studied more than 39,000 individual loyalty-card holders for a movie theater that belonged to a large cinema chain. Besides personal information (birthdate, gender), the loyalty program could track ticket purchases and concession sales. Aggregating this data yielded key customer insights, which managers could then use to tailor their offer, such as:

- Highlighting adjacent seat options when purchasing online tickets, given that managers could see the exact multiples in which tickets were purchased.
- Offering "complete evening bundles" with customers' preferred concession items included with their ticket purchase, and by knowing which items enjoyed greater demand, the cinema could improve the quality of those particular refreshments.
- In subscriber newsletters, sending information tailored to each moviegoer's genre preferences, with special offers on the days when that customer showed a greater propensity to purchase.

Using detailed transactional-level data to better understand the nature of demand is not that much different from what Amazon and Netflix do, but instead of serving up "the next film to watch" (the *what*, as happens on streaming platforms), cinema managers can use their consumer datasets to improve the *how* (the quality of the experience) and *when* (preferred showing times).

Crucially, if a major competitor is doing this, then your business will suffer if you aren't similarly taking advantage of the data opportunities right under your nose.

Data-driven tips:

Collect data on online transactions and customer demographics.
Segment by behaviors: Who buys? What do they buy? When? With whom?
Design new value propositions: tailored offers, bundles, targeted communications.

2. Using data to regulate flows, layouts and capacity issues

The second way that data can be leveraged is to address capacity utilization issues. It's not just about detecting consumer needs and then tailoring your offer accordingly. Rather, it's about solving a problem common to many service-oriented businesses: underutilized capacity, controlling the ebb and flow of usage to regulate costs, consumption and uptake, making it less volatile and more even.

Continuing with Gil's study of movie theaters, we see cinemas offering cheap days of the week to encourage uptake when attendance tends to be low. Again, big data provides opportunities for forecasting attendance and scheduling screenings more effectively. This doesn't depend on loyalty-card schemes. Simply by measuring existing utilization patterns — how many people are in a certain room, at which times and on which days — managers can strategize ways to improve capacity utilization rates.

Gil found the introduction of VIP screening rooms — charging a higher price for enhanced seating, along with food and beverages delivered to your seat — boosted average capacity utilization by as much as 20% over regular screens, and they could offer special deals during times of underutilization (outside of weekends, peak times or holiday periods) to make up for shortfalls or lulls.

A similar data analysis was done by IESE operations professor Victor Martinez de Albeniz, Ali Aouad and Abhishek Deshmane (IESE PhD) in experiments they carried out in the Van Gogh Museum in Amsterdam. Using the museum's multimedia guide to track movements, they gathered data on how visitors moved around the artworks, from the moment they entered the museum until they exited, and then used data modeling to predict the paths that visitors followed with 63% accuracy. With such data, they could use the guide to improve traffic flows and reduce congestion by redirecting or nudging visitors toward lesser visited areas of the museum.

In other research, Martinez de Albeniz, Felipe Caro and Borja Apaolaza studied online searches on a retailer's website to help decide where best to position certain items in the store to boost sales.

The traditional wisdom is that people pop into a store for one item, but get distracted by other items and end up making unplanned purchases while shopping. However, some stores, like home improvement, are distinct from grocery stores: picking up gum on your way to buy milk is not the same as going into a home improvement store because you need laminate flooring — you're very unlikely to impulse-buy drill bits.

Instead of measuring foot traffic, tracking how and when customers moved around the store, the researchers used the most popular searches on the store website and positioned those searched-for items near the front of the store, rather than opting for an impulse-buy layout like grocery stores do when they stock gum at checkouts. Their data modeling suggested that relocating a popularly searched-for item, like laminate flooring, to less than 50 meters from the front door could significantly boost sales in that category.

"It's time to stop doing things by gut feeling and start making decisions guided by data analytics," states Martinez de Albeniz. He recommends having trained professionals dedicated to the systematic analysis of company data, as illustrated by these studies, to optimize layout design, capacity utilization and user experiences.

Data-driven tips:

Measure capacity and utilization patterns.
Use movement/behavioral analytics to detect congestion, dwell times, under-visited zones.
Align layout and service design with actual patterns.

3. Using data to predict success factors

A third way data can be used is as a predictive tool, whether to predict which song or movie will be a hit, or which clothing item to produce and how much to charge for it, as happens in the fashion industry.

Martinez de Albeniz and Deshmane explored data-driven decision-making in the music industry in two separate lines of research.

In “Play it again, Sam? Reference-point formation and product differentiation in the music industry,” they examined how audiences (consumers) compared new offerings against past products, peers and market leaders, rather than evaluating them in isolation. Using these frames of reference, managers could use data modeling to optimize the design and marketing of new offerings, striking the right balance between novelty (which plays well with tastemakers and critics) and familiarity (the commercial pop hits favored by radio stations). Predictive data analytics can locate these sweet spots, helping managers to calibrate their labeling, timing and positioning according to different strategic intentions.

Meanwhile, in “Come together, right now,” they developed a model that crunched data on the economic, social and cultural capital of different recording artists to predict which combination of singers would pay off in a hypothetical match-up with Shakira. They predicted a Shakira-Eros Ramazzotti duet would be most successful.

“As more industries embrace AI, we see our data-driven tool as empowering for artists, helping them to be more strategic in choosing collaborators with the right complementarities,” they state.

Using AI-driven data modeling to predict hits is also employed in the movie industry. Gil cites the analytics company, Cinelytic, “which uses information on scripts and star attachments to predict the financial prospects of proposed films. In casting, AI is used to screen and analyze thousands of actor profiles to recommend suitable candidates for a part, based on information such as past roles, on-screen presence and audience appeal.”

And it’s not just in the music and movie industries that such tools are being used; they turn up in the fashion industry as well. IESE operations professor Anna Saez de Tejada Cuenca has studied the use of algorithm-based decision support systems (DSS) for helping retailers determine markdowns. The algorithm makes price recommendations, so that the human managers can adopt them to achieve the best returns for clearance sales.

A word to the wise: having the data is one thing, using it is another

Of course, data recommendations are only helpful if managers actually use them. In a study involving Zara, Saez de Tejada Cuenca and her co-author, Felipe Caro, discovered that managers were overriding the DSS recommendations, owing to their own ingrained biases and a lack of understanding about the different criteria the system was using to make its

pricing predictions. Consequently, managers ended up with less revenue than if they had followed what the system had said to begin with.

This indicates the importance of education and training in how algorithm-based decision support systems work, so that managers understand which metrics are being used to formulate the prediction, thereby building more trust in the recommendation once managers are assured of its salience to the decision at hand.

It also helps if the data dashboards are simple. As the Zara study found, managers' cognitive capacity is limited, so when too many data choices are presented simultaneously, managers are more likely to deviate from the recommendation if they feel overwhelmed.

Simplifying data choices for the sake of predicting better outcomes in the fashion industry is the focus of other research by IESE's Mirel Yavuz. She is currently developing an optimization algorithm to present managers with two feasible choices, A or B, and based on their answer, the algorithm will generate another alternative to challenge their chosen one. In this way, managers are guided through various alternatives until they arrive at their optimal choice — for example, landing on the most sustainable option for producing a cotton T-shirt.

"What's good about it is that this method is tailored to each decision maker," Yavuz explains. "The alternatives are not predetermined but are generated based on the manager's answers, learning the preferences of the decision maker as they go, until they arrive at the best decision for them in that particular decision-making problem. And it's not just learning people's preferences; it's surfacing some biases they might have." Thus, the genuine trade-offs that need to be made when trying to pursue sustainability in the fashion industry are made clearer by the decision-making algorithm.

Data-driven tips:

Draw on historical, peer and market-reference data to forecast new uptake.
Provide simple dashboards and clear recommendations, so managers trust them.
Train decision-makers to interpret model output, biases and when to override.

Looking ahead, ensure data decision-making remains a human endeavor

Finally, it is worth acknowledging how the predictive power of data to guide managerial decision-making is growing increasingly complex — and controversial — owing to the accelerating adoption of AI.

Take the movie industry: AI can do sentiment analyses of positive and negative movie reviews, helping to predict the impact of box-office releases on subsequent home entertainment sales. By mining audience data, AI tools can generate ever more personalized content, enabling filmmakers to customize storylines, scenes and even visuals to the point that, in the not-too-distant future, the hero's face and lip movements could be digitally altered according to country and language.

"This AI-and-data revolution promises more informed decisions that could reduce the number of flops, and finely tune content to audience desires. A content producer in 2035 might well wonder how anyone ever managed without an AI assistant or an analytics dashboard to gauge audience sentiment. From a consumer's standpoint, the menu of cultural content will become more immersive, interactive and personalized," writes Gil.

"Yet, alongside the excitement lies caution," he warns. There are already cases of actors being digitally reproduced after they are dead, or even creating a fully digital actor from scratch — which sparked outrage in October 2025 for crossing the line.

While acknowledging the benefits of AI as a decision-making tool, Gil insists, "We must ensure human creativity and originality do not get lost in a sea of algorithmic optimization."

This echoes a point made by IESE business ethics professor Antonino Vaccaro in his book, *Humanism and Artificial Intelligence* — humanistic ethics must define the limits between what decision-making *can* be automated and what *ought* to remain under human judgment and control.

There are already lawsuits over copyright, authorship and property rights, which managers must be mindful of before indiscriminately feeding training data into an AI tool without consent or compensation.

And as with many other professions, the more that AI assistants are used to help managers make decisions, the fewer jobs there may be for traditional decision-makers (though the true

extent of job displacement as a result of AI remains an open question).

Then, there is the question over customizing content based purely on data that may have prejudices and other biases baked in. If the data tells you most audiences want action flicks starring white American alpha males, would content creators stop producing female-led dramas, niche genres or heroes from other ethnic groups, cultures and countries?

However the future unfolds, one thing is clear: algorithms are the new powerbrokers and gatekeepers in managerial decision-making today.

As Gil sums up: “The managers of tomorrow will be part artist, part data scientist, and their success will lie in human wisdom guiding algorithmic power. AI tools can help but they are no substitute for the human heart that beats at the center of what remains a profoundly human endeavor.”

Bringing it all together: a manager’s checklist

- **Define the problem:** what are you trying to influence (customer behavior? capacity usage? new product success?).
- **Capture the right data:** transactions, behaviors, demographics, layouts.
- **Build models and dashboards:** segment customers, forecast flows, predict success.
- **Translate insight into action:** tailor offers, optimize scheduling/layout, position new products.
- **Train people for roles:** data scientists, analysts, business translators.
- **Monitor outcomes and iterate:** measure what you did, refine models, adjust strategy.
- **Ensure ethical guardrails and human oversight:** maintain accountability, transparency, fairness.

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MORE INFO:

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"Play it again, Sam? Reference-point formation and product differentiation in the music industry" by Abhishek Deshmane and Victor Martinez de Albeniz. *Management Science* (2025). With commentary by Sergio Azzolari Montoldi.

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