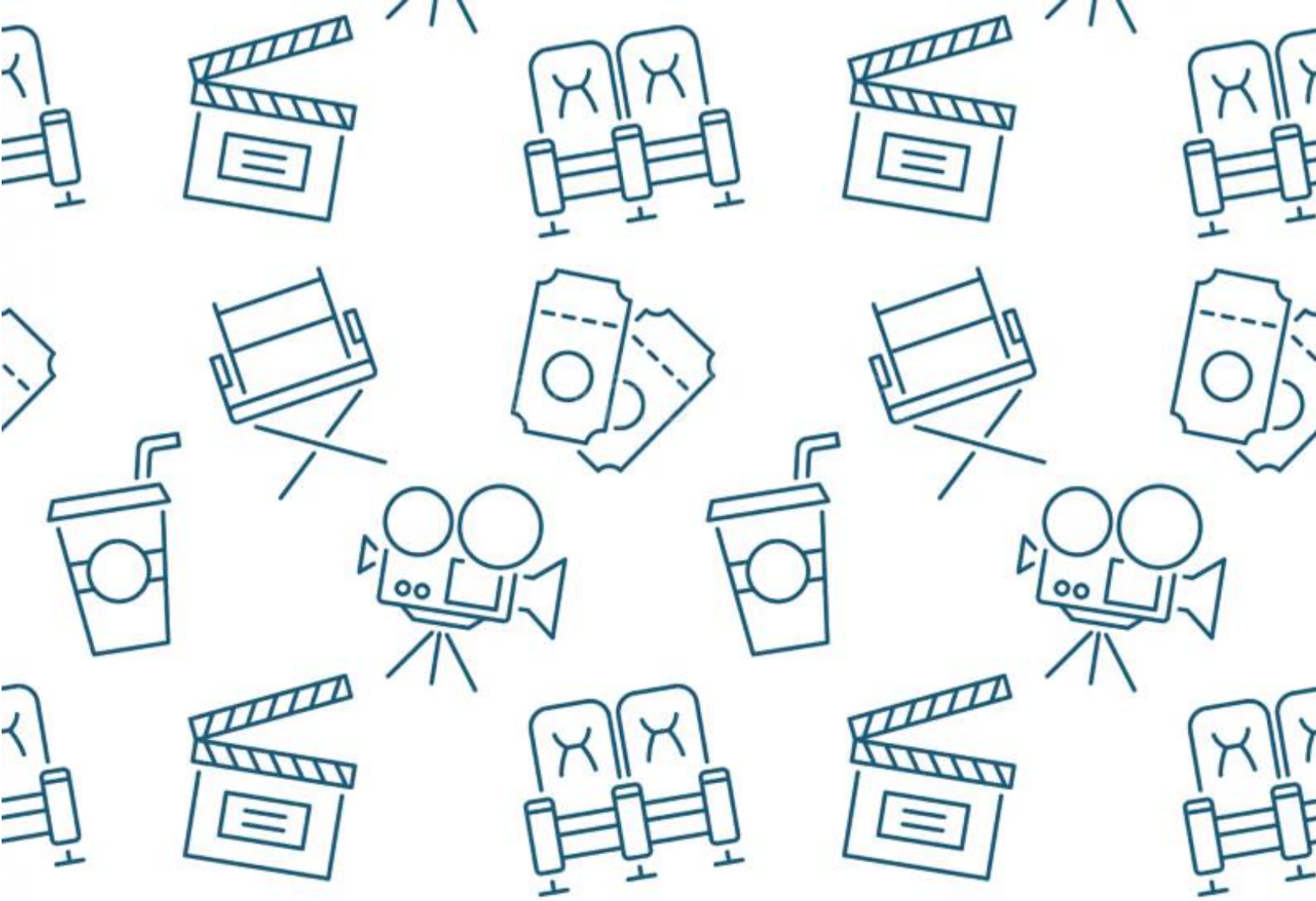

Data Analysis & Visualization of Norwegian TV Series

Visual Analytics

August 2025

Case

Your group works for a major TV broadcaster in Norway that has a long history of TV series production. After many years in the business, the executives are wondering.

Part A: Report to the Executive Committee

Q1. What makes a Norwegian TV series successful?

To define what makes a successful Norwegian TV series, we focused on two main indicators: viewer satisfaction (measured via IMDb ratings) and audience reach (IMDb vote count). The first dashboard combines these perspectives through two complementary views:

- Figure 1 : Average IMDb Rating by Genre
- Figure 2 : IMDb Votes vs Ratings by Genre

Each view reveals different aspects of success while also reflecting limitations in the dataset.

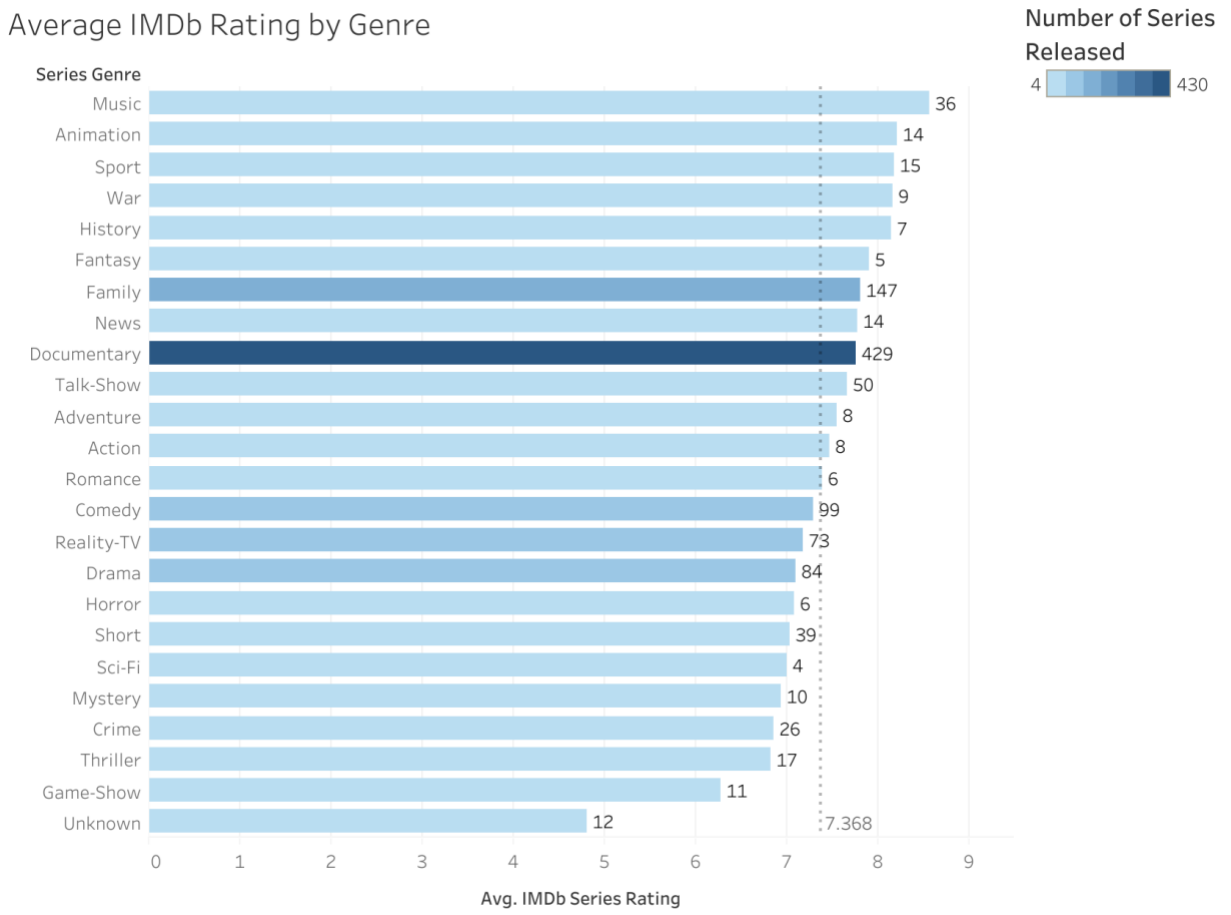

Figure 1 : Average IMDb Rating by Genre

Figure 1 shows the average IMDb rating across genres. The number to the right of each bar and the color intensity reflect how many series belong to each genre.

Several genres stand out for their high average ratings, including Music, Animation, Sport, War and History. However, many of these high-rated genres have a small sample size, often fewer than 15 series, making their averages less reliable for broad conclusions. Documentary is by far the most represented genre in the dataset, with 430 of 742 (≈58%) total series, but its average rating remains near the overall mean, indicating that volume does not guarantee higher viewer satisfaction. More mainstream genres such as Comedy, Drama, and Reality-TV attract large volumes of series but achieve only average ratings. At the opposite end, Game-Show and Unknown genres rank low in both quality and production volume.

From this chart, we see that some high-rated genres lack the volume needed to generalize their success, while high-volume genres don't always achieve standout ratings. A successful genre in terms of ratings often isn't the one dominating in production numbers.

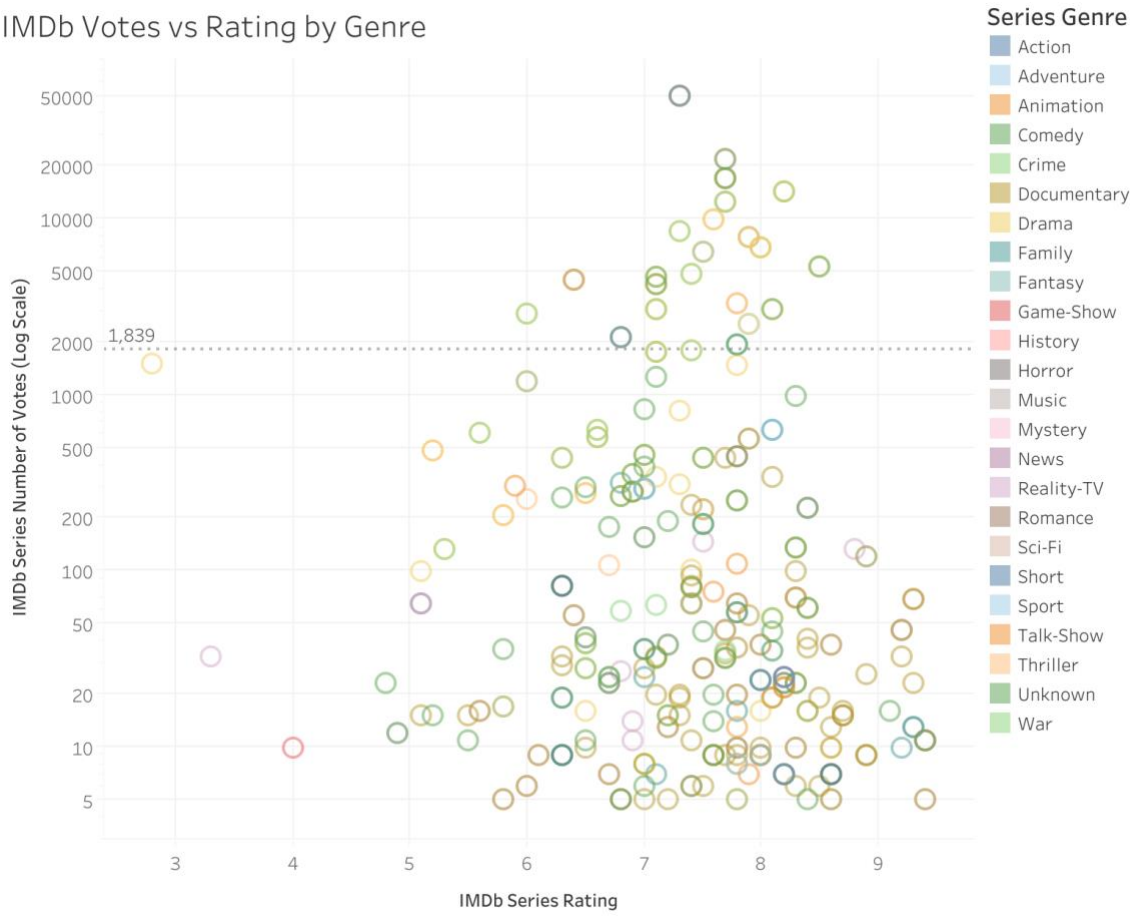

Figure 2 : IMDb Votes vs Ratings by Genre

Figure 2 compares each series' IMDb rating with its number of votes, offering a two-dimensional view of success, audience satisfaction versus audience size. Each dot represents a single series and is color-coded by genre. The optimal zone for a series is in the upper-right corner, high ratings and high votes, indicating both quality and popularity. Conversely, the upper-left zone suggests well-rated but unpopular series, while the lower half of the graph reflects low popularity and potential uncertainty about audience reception.

Most series are found in the lower-middle part, showing average ratings and limited audience engagement. Only a small number of series appear in the upper-right corner, which could be seen as the most successful overall. No strong correlation is visible between rating and vote count. Some series with high ratings have few votes, while others with large vote counts have only average ratings. This suggests that popularity and quality are not necessarily aligned.

Conclusion

Success in Norwegian TV series is not defined by a single metric. Our analysis shows that high IMDb ratings, audience reach often don't align. Genres with the highest ratings have very few series, limiting confidence in those results. Popular genres attract viewers but don't necessarily stand out in terms of quality or awards.

In short, successful series are those that combine both good ratings and audience engagement. There is no perfect formula, however, shows that achieve both strong ratings and widely watched, regardless of genre, tend to stand out as strong examples of success.

Q2. What types of TV shows should we invest in the future?

To identify promising directions for future investment, we examined three key aspects: which genres receive the most industry recognition (via award-winning ratios), how these award-winning trends have shifted over time, and which genres have experienced recent growth in production volume. The dashboard presents these perspectives through three complementary views:

- Figure 3 :Award-Winning Series Ratio by Genre
- Figure 4: Awarded Series Over Time - Top Genres
- Figure 5: Top Genres Over Time by Series Count

Together, these views provide insight into both current success patterns and longer-term audience interest.

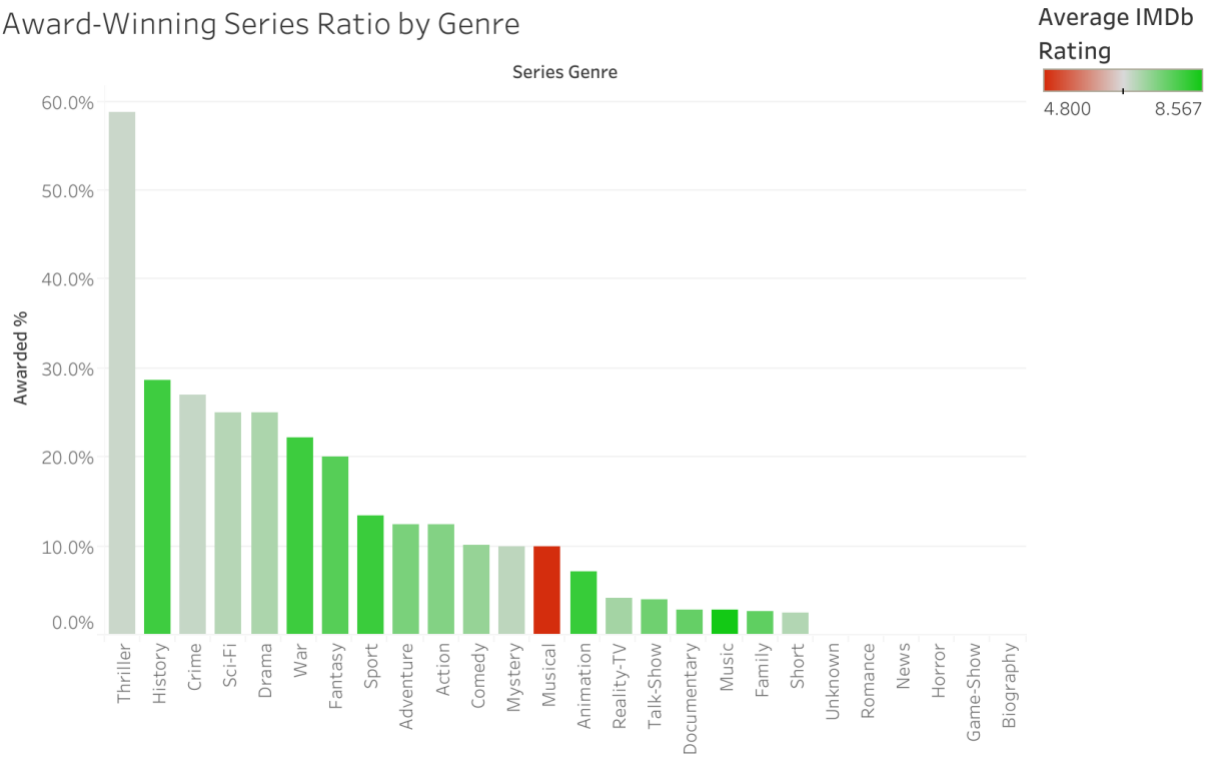

Figure 3 :Award-Winning Series Ratio by Genre

Figure 3 shows the proportion of awarded series within each genre, offering a view into industry recognition. Each bar represents the percentage of series in that genre that have received at least one award. The color of the bars reflects the average IMDb rating of each genre.

Thriller stands out, with nearly 60% of its series receiving awards. History, Crime and Drama, all of which have over 25% award-winning ratios. Many of these genres also have strong IMDb averages, indicating alignment between viewer satisfaction and critical recognition. Genres such as Reality-TV, Talk-Show, Documentary and Music show both low award ratios and low ratings, indicating limited success potential.

This chart reinforces the idea that success is multidimensional. Some genres perform well across both viewer and industry measures, while others struggle to gain recognition on either front.

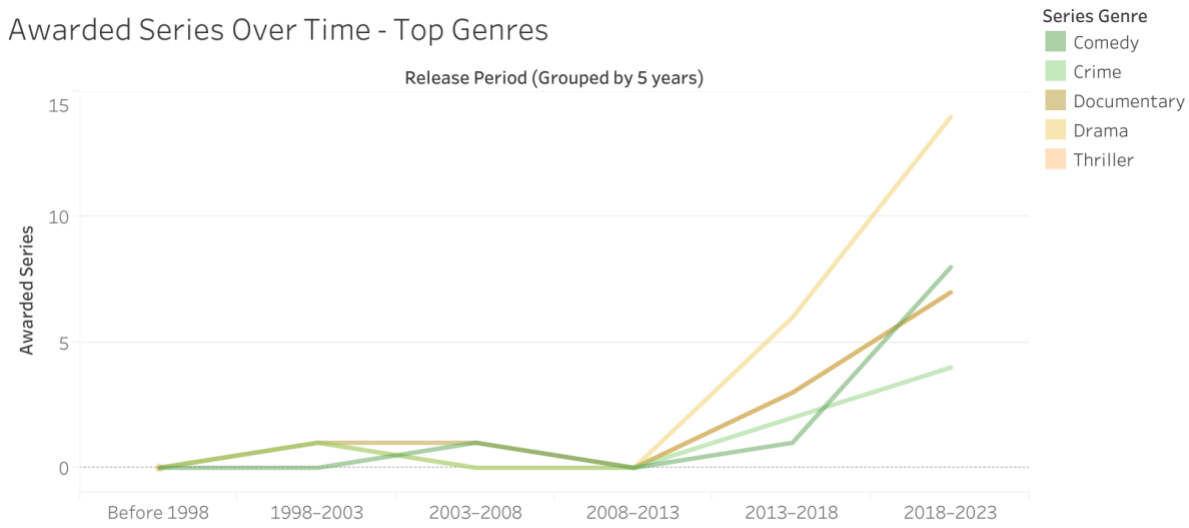

Figure 4: Awarded Series Over Time - Top Genres

Figure 4 tracks the number of award-winning series over time for selected high-performing genres. It helps identify which genres have gained recognition in recent years.

Drama shows a sharp rise after 2008 and dominates the most recent period (2018–2023), suggesting strong and growing critical appeal. Documentary, Crime, and Comedy also display upward trends, especially in the last two release periods. Thriller series received many awards in the past but have shown only limited growth in recent years.

These trends suggest that Drama continues to deliver award-winning content over time, while genres like Documentary and Crime are becoming more relevant and competitive. For future investments, focusing on these rising genres could increase the chances of critical success.

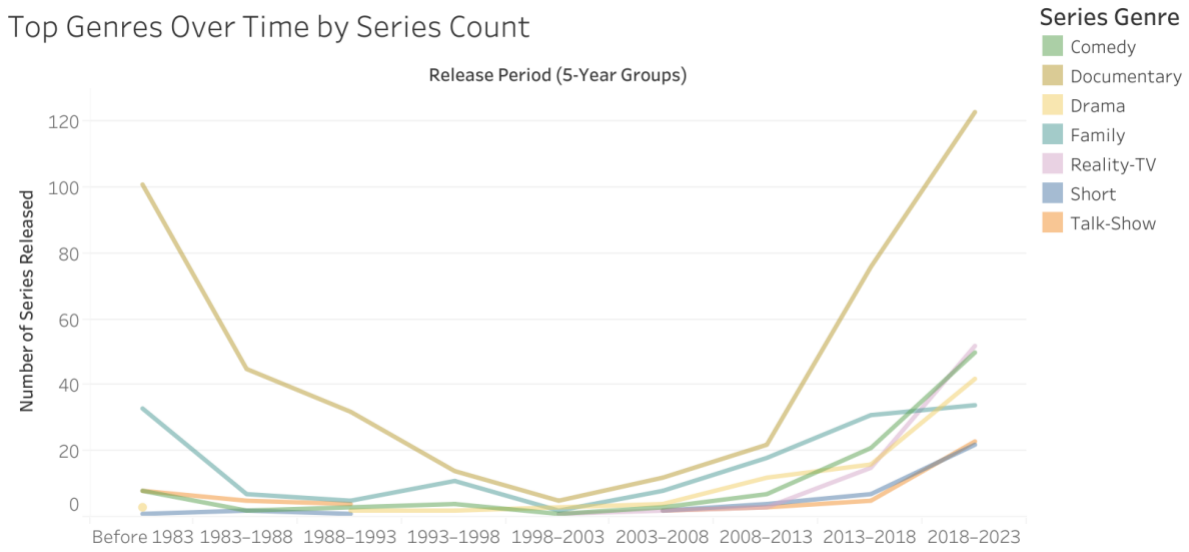

Figure 5: Top Genres Over Time by Series Count

Figure 5 tracks how production volume has evolved over time for key genres. Documentary stands out with a strong increase, especially after 2008, now leading all genres in terms of production. Drama, Reality-TV, and Comedy also show steady growth in recent years.

This indicates shifting audience demand and market focus. While high volume doesn't always mean high quality, these genres are clearly attracting production resources and possibly audience attention. The growing production of Drama and Comedy aligns with their award-winning growth as well, further supporting their potential for future investment.

Conclusion

Genres like Drama, Crime, and Documentary show strong signs of future potential. Drama leads both in awards and production growth, suggesting broad appeal and critical success. Crime is also gaining popularity in both recognition and volume. Documentary, while weaker in awards and ratings, has grown rapidly in production, signaling audience demand. Despite a rise in production, genres like Reality-TV and Talk-Show show low performance in terms of ratings and awards. While they may appeal to specific audiences, they are unlikely to deliver notable success.

Overall, future investments should favor genres that combine rising audience interest, critical recognition, and a growing production base, most notably Drama and Crime.

Part B: Report to the Data Analytics team

Q3. What were the design principles and practices that you used to design your dashboard and how did you apply them?

To address this question, the dashboard design process followed recognized best practices from [1, 2]. Both emphasize that effective dashboards must be clear, accurate, and purpose-driven, with every design choice aligned to the audience's needs and the analytical objectives. Kirk's Five Layers of Data Visualization Framework provided the structural foundation [1], while Knaflic's narrative-driven principles ensured the visuals communicated insights in context [2]. These frameworks guided decisions across all stages, from data preparation to chart selection, color application, annotation, and composition. The following sections explain how these principles were applied in practice.

Section 1: Dataset & Data Preparation

The dataset contained information on television series, including fields such as *title*, *category*, *language*, *runtime, IMDb ratings, vote counts, genres, crew members* and *award records*.

Before designing the dashboards, we reviewed each field to assess its reliability, completeness and relevance to our analysis goals, an approach consistent with Kirk's emphasis on ensuring data quality before visual design [1].

Several data quality issues were identified during the initial review of the dataset. First, there was a language bias, as most series were in Norwegian, while other languages were barely represented,

limiting the possibility of meaningful cross-language comparisons. Second, many runtime values were either unrealistically short or excessively long, with no consistent pattern, making the field unusable for serious analysis. While the dataset includes information about people involved in each series, such as director, writer, and actor, it was not structured in a way that allowed for meaningful aggregation. Fields such as "color" and "title type", showed no correlation with ratings or votes and were excluded as irrelevant. Finally, some metrics, including rating count and the number of people involved, showed little variation and did not offer additional insight beyond the IMDb rating, so they were also excluded.

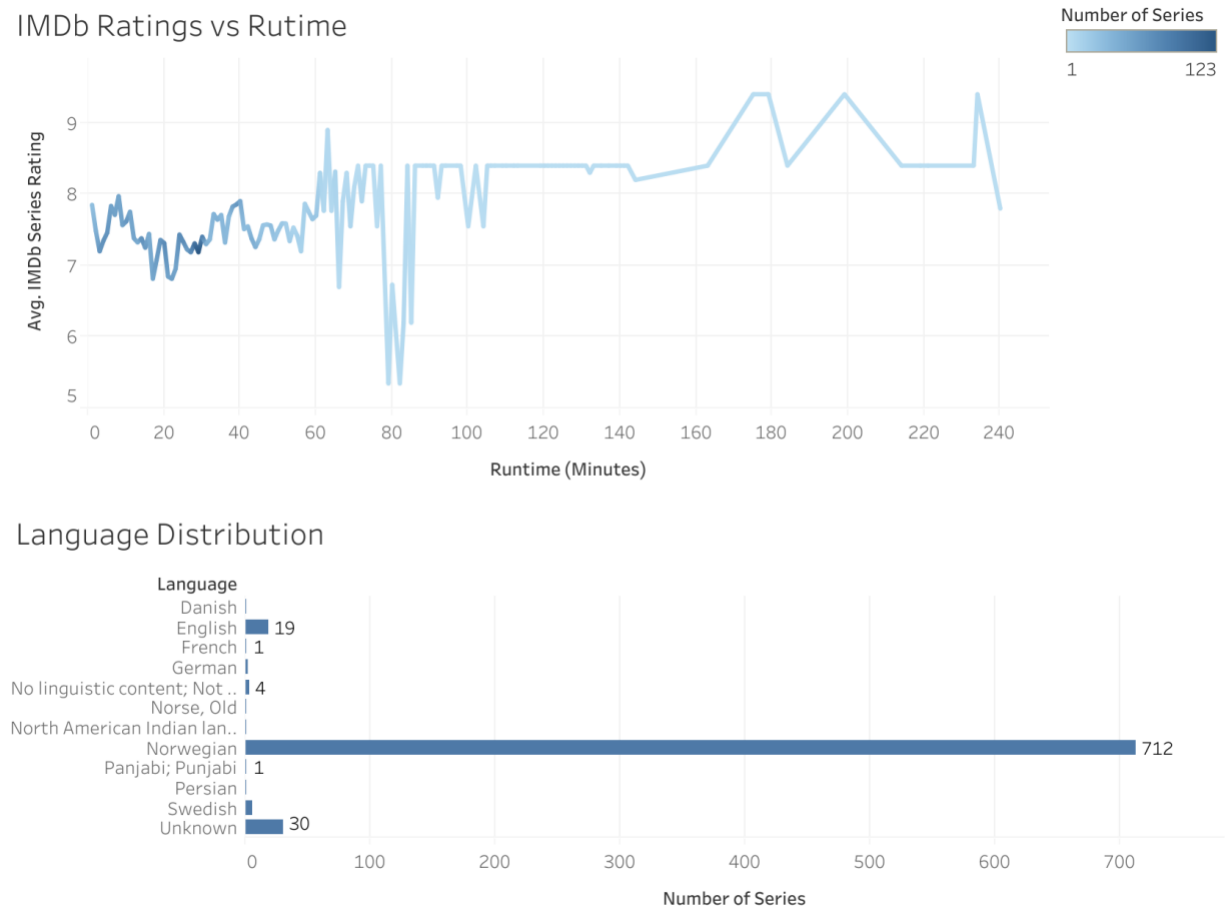

Figure 6: Examples of Uninformative Metrics

For example, analyzing whether runtime plays an important role in customer satisfaction (IMDb Ratings) shows no meaningful trend, while examining language distribution mainly reflects the dataset's imbalance toward Norwegian, as seen in Figure 6.

The preparation process in Tableau addressed these issues systematically. Irrelevant or unreliable fields were filtered out, and categorical data was cleaned to ensure consistent spelling and grouping. Calculated fields were created for derived metrics, including the "award-winning ratio per genre" and "broader release-year groupings", in line with Knaflic's recommendation to transform raw data into

decision-ready metrics [2]. This grouping improved clarity in time-based visualizations, enabling us to identify overarching trends without being distracted by year-to-year fluctuations. Finally, missing values in key fields, such as rating, votes, or genre, were handled by excluding those records from the analysis.

Section 2: Design choices using the 5 layers of Data Visualization Framework of Andy Kirk

The **data representation** stage applies chart types that match the analytical intent of each view, with marks and attributes selected for clarity, accuracy, and accessibility [1, 2]. Categorical comparisons, such as average IMDb ratings and award-winning ratios by genre, use horizontal bar charts, where bar length enables precise value comparison and a consistent color scheme reinforces category recognition. In the ratings chart, color intensity represents the number of series per genre, while in the awards chart, bar length shows the award-winning ratio and color hue indicates the average rating, choices that make the relationship between metrics clear and comparable. Relational patterns between votes and ratings appear in a scatter plot, where reduced mark size and transparency improve readability in dense clusters. Additionally, a logarithmic scale on votes increases the visibility of lower-value series without distorting comparisons. Temporal trends for both award-winning series and total production counts are visualized with multi-series line charts, using consistent genre colors across views, logical ordering of release periods, and captions that clarify axis meanings and color encoding. All views avoid misleading scales, maintain proportional encodings and follow best-practice visual communication principles.

Interactive features in Tableau enhance exploration while ensuring that static insights remain clear and trustworthy [1, 2]. Genre filters allow users to focus on specific categories across all charts, instantly updating bar, scatter, and line views without altering scales or encodings. Tooltips displayed precise values, such as exact IMDb ratings, vote counts, number of series and award-winning ratios, so detailed information is accessible without adding visual clutter. Legends act as interactive selectors, enabling users to highlight chosen genres while dimming others for easier comparison. Color encoding remains consistent across all views to support recognition. Interactivity is deliberately moderate to avoid feature overload, ensuring that core findings are immediately visible while still allowing deeper user-driven exploration.

Annotation elements at both the project and chart level provide clarity, guide interpretation, and support transparency [2]. At the project level, a consistent hierarchy is maintained between the dashboard title, chart titles, and axis titles. Captions clarify encodings, for example Color intensity shows number of series in the ratings chart. Legends were explicitly titled Series Genre and match fixed genre color assignments across all charts. Axis labels are descriptive, use logical intervals, and note when a logarithmic scale is applied. Value labels appear selectively in bar charts, while scatter and line charts rely on tooltips to provide detail without clutter. A clear sans-serif font, with size and weight variations for headings and labels, ensures readability across the dashboard.

Color choices follow Andy Kirk's principles of legibility, editorial salience and functional harmony [1]. Genres are assigned a fixed nominal palette applied consistently across all charts to reduce

cognitive load. Saturation and lightness vary only when meaningful: color intensity indicates series count in the ratings chart, while color hue in the awards chart represents average rating alongside bar length. Scatter plot marks are semi-transparent to reduce overplotting, while line charts use consistent genre colors over time to reinforce recognition. Editorial salience is achieved by muting non-selected categories to grey during filtering, allowing the focus category to stand out without distraction. Functional harmony is maintained through uniform legend design, neutral axis colors, and consistent backgrounds. All colors have sufficient contrast for accessibility, ensuring encodings remain clear for all viewers.

The dashboard **composition** balances clarity, hierarchy, and accessibility [1]. In both dashboards, categorical comparisons (bar charts) are positioned at the top to provide an immediate overview of key metrics, followed by relational or temporal analyses in the middle to explore patterns in greater detail, and ending with long-term temporal trends at the bottom to show changes over time. Titles, captions, and legends are placed close to their respective charts for ease of interpretation, while grid alignment, equal margins, and white space separate sections without disrupting the logical progression. At the chart level, bar charts are sorted by value to prioritize interpretability, line charts follow chronological release periods, and chart orientations preserve label legibility. A shared filtering system updates all views simultaneously, maintaining both visual and analytical consistency across each dashboard.

Section 3: Evolution of the design

The design evolved iteratively, starting with exploratory charts to understand the dataset's structure and key relationships between variables [1]. Initial outputs were functional but lacked consistent color schemes, meaningful sorting and clear annotation.

Refinements focused on applying visual best practices: a fixed genre palette for color consistency, bar charts were sorted by value rather than alphabetically, the scatter plot marks were reduced in size with 50% transparency to mitigate overplotting, and a logarithmic scale was applied to vote counts to improve visibility of smaller-value series without distorting comparisons. Line charts were updated with clear release period labelling and consistent genre colors, ensuring temporal patterns were easier to follow.

The final stage integrated compositional harmony and interactivity, following Kirk's framework for coherent dashboard design [1] and Knaflic's principle of combining explanatory and exploratory features [2]. Charts were arranged to follow the analytical narrative, categorical comparisons at the top, relational analysis in the centre, and temporal trends at the bottom, with balanced spacing and aligned elements to ensure a clean and unified layout. Genre filters, interactive legends and descriptive captions ensured the dashboard was both explanatory and exploratory, allowing users to extract insights while retaining the flexibility to focus on specific genres or metrics.

Section 4: Reflection on dashboard development process

The dashboard development process was iterative, moving from initial exploratory visualizations toward a refined, coherent final design [1]. Early drafts were exploratory, revealing the dataset's

strengths, such as clear rating and award metrics, and limitations, including genre imbalance and outliers in vote counts. These informed the choice of chart types, encodings, and filter options.

Applying Andy Kirk's Five Layers framework [1] ensured design decisions were deliberate: assigning a fixed genre color palette for consistency across all views, sorting bar charts by value to improve readability, reducing mark size and adding 50% transparency in the scatter plot to address overplotting, and applying a logarithmic scale to vote counts to make smaller values visible without distorting comparisons. Line charts were updated with clear release-period labels and consistent genre colors to strengthen pattern recognition over time. Knaflic's narrative-driven approach [2] ensured that annotations, captions and composition served the audience's needs while maintaining a clear analytical storyline.

The main challenges included maintaining genre color consistency across dashboards, avoiding clutter while still showing enough context, and balancing clarity in the static narrative with flexibility for interactive exploration. Solutions such as concise captions, clearly titled legends, and genre filters ensured that the dashboards could deliver high-level insights quickly while also supporting deeper, user-driven analysis.

Overall, the process highlighted the importance of step-by-step improvements and deliberate application of visual best practices. By ensuring each change improved clarity, made comparisons easier, and kept the data easy to interpret, the final dashboards achieved a balance between being explanatory for immediate takeaways and exploratory for detailed investigation.

References

[1] A. Kirk, Data Visualisation: A Handbook for Data Driven Design, London: Sage Publications Ltd, 2016.

[2] C. Nussbaumer Knaflic, Storytelling with Data: A Data Visualization Guide for Business Professionals, New Jersey: John Wiley & Sons, 2015.