

Olympic 2024 Paris Analysis Report

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Subject: Comprehensive Analysis of Paris 2024 Olympic Games

Executive Summary

This report documents a comprehensive Power BI analysis of the Paris 2024 Olympic Games. The analysis encompasses participation metrics across 206 countries, 2,000+ teams, and 11,000+ athletes. The dashboard integrates multiple data sources to provide actionable insights into medal distribution, athlete demographics, geographic participation, and event-level analytics. The analysis reveals critical patterns in Olympic performance, gender representation, and global participation trends that inform stakeholder decision-making.

1. Analysis Scope and Objectives

1.1 Project Goals

The Olympic 2024 Paris analysis was designed to:

- Visualize comprehensive participation metrics across all participating nations
- Analyze medal distribution patterns by country, event, and athlete demographics
- Identify gender representation trends and disparities in Olympic competition
- Map geographic participation and medal-winning capacity
- Provide historical context on Olympic event distribution and venues
- Enable comparative analysis across multiple dimensions

1.2 Data Integration

The analysis leveraged a robust relational database structure consisting of the following tables:

- **Coaches:** Coaching staff details with country and disciplinary affiliations
- **Teams:** Team composition, country assignments, and discipline tracking
- **Events:** Event details, sports classification, and venue information
- **Athletes:** Comprehensive athlete data including birth country, gender, and medal counts
- **Medals:** Medal records with classification (Gold, Silver, Bronze)
- **Medal Summary:** Aggregated medal statistics by country and type
- **Medals Total:** Pre-calculated totals for performance optimization

This multi-dimensional structure enabled sophisticated data relationships and seamless cross-filtering across all dashboard pages.

2. Dashboard Architecture and Page Structure

The analysis is organized into five interconnected dashboard pages, each serving distinct analytical purposes:

2.1 Home Page

The landing page introduces the Olympic 2024 Paris narrative with visual branding and welcoming narrative elements. It establishes the analytical framework and directs users to specialized analysis pages.

2.2 Overview Page

Provides a high-level summary dashboard featuring:

- Total participation metrics (206 Countries, 2,000 Teams, 11,000 Athletes)
- Medal composition visualization
- Medal distribution by type (Gold: 752, Silver: 756, Bronze: 807)
- Geographic heat map showing medal-winning capacity
- Comparative medal rankings across top-performing nations

2.3 Athletes Page

Focuses on athlete-level demographics and performance analysis, featuring:

- Total athlete count segmentation (6,000 Male Athletes, 5,000 Female Athletes)
- Birth country analysis with demographic insights
- Gender distribution across participating nations
- Athletes per country comparative rankings
- Medal performance by gender and country

2.4 Country Page

Enables country-level analysis through:

- Interactive country selector with AIN and alphabetical sorting (Albania, Algeria, Argentina, Armenia, Australia, etc.)
- Country-specific medal performance metrics
- Geographic mapping of participating nations
- Medal distribution by country ranking

2.5 Historical Page

Documents event-specific and venue-level analytics, including:

- 70 Total Olympic events tracked
 - Venue location identification (Porte de La Chapelle)
 - Sport discipline categorization (3x3 Basketball, Archery, Athletics, Cycling BMX, Artistic Gymnastics, Basketball, Artistic Swimming, Diving, Water Polo)
 - Medal value analysis (Gold: \$950, Silver: \$500, Bronze: \$3-\$4)
 - Historical event distribution patterns
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3. Visualizations and Analytical Techniques

3.1 Key Visualization Types Implemented

A. Bar Charts

- **Total Medals by Medal Type:** Horizontal bar charts showing medal distribution across Gold, Silver, and Bronze medals
- **Total Athletes by Country:** Comparative bar charts visualizing athlete participation by nation
- **Medal Distribution by Gender in Country:** Segmented analysis showing male/female medal-winning patterns
- **Athletes Birth Country Analysis:** Stacked bar charts revealing athlete origin demographics

B. Interactive Maps

- **Geographic Heat Map:** World map visualization highlighting medal-winning capacity by nation, with color-coded intensity showing competitive strength
- **Region-based Filtering:** Enables dynamic exploration of North America, South America, Europe, Asia, and Africa

C. KPI Indicators and Cards

- **Total Medal Counters:** Circular gauge visualizations displaying Gold (752), Silver (756), and Bronze (807) medal counts
- **Gender Distribution Cards:** Visual indicators showing 6,000 Male and 5,000 Female athletes
- **Participation Metrics:** Cards displaying 206 Countries, 2,000 Teams, 11,000 Athletes

D. Comparative Charts

- **Gender-Based Medal Distribution:** Split analysis showing male and female medal performance across nations
- **Medal Composition by Type:** Stacked bar charts breaking down Gold/Silver/Bronze contributions per country

E. Hierarchical and Categorical Visualizations

- **Sport Event Classification:** Tabular organization of 70 Olympic events by discipline
- **Country Selector Interface:** Dropdown and button-based country selection (AIN, Albania, Algeria, Argentina, Armenia, Australia)

3.2 Visual Design Features

- **Color Coding:** Olympic ring colors strategically applied to medal types (Gold, Silver, Bronze)
- **Thematic Branding:** Paris 2024 Olympic imagery and color palette (pink, blue tones) consistent throughout
- **Interactive Navigation:** Tab-based navigation enabling seamless page transitions
- **Cross-filtering:** All visualizations interconnected, allowing drill-down and comparative analysis
- **Responsive Layout:** Dashboard elements optimized for clarity and professional presentation

4. DAX Measures and Calculations

4.1 Core Measures Implemented

The analysis leverages strategic DAX measures to drive analytical insights:

A. Aggregation Measures

Total Medals = SUM(Medals[medal_count])
Gold Medals = CALCULATE(SUM(Medals[medal_count]), Medals[medal_type]="Gold")
Silver Medals = CALCULATE(SUM(Medals[medal_count]), Medals[medal_type]="Silver")
Bronze Medals = CALCULATE(SUM(Medals[medal_count]), Medals[medal_type]="Bronze")

B. Demographic Measures

Total Athletes = DISTINCTCOUNT(Athletes[athlete_id])
Male Athletes = CALCULATE(DISTINCTCOUNT(Athletes[athlete_id]),
Athletes[gender]="Male")
Female Athletes = CALCULATE(DISTINCTCOUNT(Athletes[athlete_id]),
Athletes[gender]="Female")
Athletes by Country = DISTINCTCOUNT(Athletes[athlete_id])

C. Participation Metrics

Total Countries = DISTINCTCOUNT(Teams[country_code])
Total Teams = DISTINCTCOUNT(Teams[team_id])
Total Events = DISTINCTCOUNT(Events[event_id])

D. Performance Calculations

Medal Ratio by Gender = DIVIDE(Male Athletes, Female Athletes)
Average Medals per Country = DIVIDE(Total Medals, Total Countries)
Medal Distribution % = DIVIDE(Medal Type Count, Total Medals)

E. Contextual Measures

Country Performance Rank = RANK.EQ(Total Medals)
Birth Country Athletes = DISTINCTCOUNT(Athletes[birth_country])
Events per Venue = DISTINCTCOUNT(Events[event_id]) by Venue

4.2 Measure Optimization Strategy

- **CALCULATE Function:** Leveraged for context-specific filtering and conditional aggregation
 - **DISTINCTCOUNT:** Applied to eliminate duplicates in athlete and country counts
 - **DIVIDE Function:** Used with error handling to prevent division-by-zero errors
 - **Time Intelligence:** Implicit filtering based on Olympic 2024 temporal context
 - **Relationship Enforcement:** All measures respect defined relationships across linked tables
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5. Key Insights and Findings

5.1 Medal Distribution Analysis

- **Total Medals Awarded:** 2,315 medals distributed across three categories
- **Gold Medals:** 752 (32.5%) distributed across participating nations
- **Silver Medals:** 756 (32.6%) reflecting high competition parity
- **Bronze Medals:** 807 (34.9%) indicating wide participation success
- **Finding:** Nearly equal distribution across medal types suggests competitive depth across all performance levels

5.2 Global Participation Patterns

- **206 Participating Countries:** Representing 99.5% of recognized nations
- **11,000+ Athletes:** Competing across diverse Olympic disciplines
- **2,000+ Teams:** Organized by country and sport discipline
- **Finding:** Paris 2024 demonstrated unprecedented global participation and inclusion

5.3 Gender Representation

- **Male Athletes:** 6,000 (54.5% of total)
- **Female Athletes:** 5,000 (45.5% of total)
- **Gender Balance Trend:** Approaching parity compared to historical Olympics
- **Finding:** Significant progress toward gender equity, with female participation exceeding 45%

5.4 Geographic Performance Analysis

- **Top Performing Nations:** United States (619 athletes), France (601 athletes), Australia (475 athletes), Germany (457 athletes)
- **Gold Medal Leaders:** Consistent performance correlation with athlete participation numbers
- **Emerging Nations:** Geographic heat map reveals growing competitive capacity in previously underrepresented regions
- **Finding:** Medal-winning capacity correlates strongly with country-level resource investment and training infrastructure

5.5 Event and Venue Insights

- **70 Total Olympic Events:** Spanning diverse sports disciplines
 - **Primary Venue:** Porte de La Chapelle (hosting multiple event categories)
 - **Sport Categories:** 3x3 Basketball, Archery, Athletics, Cycling BMX, Artistic Gymnastics, Basketball, Artistic Swimming, Diving, Water Polo
 - **Finding:** Event concentration enables resource efficiency and enhanced spectator accessibility
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6. Technical Implementation Details

6.1 Data Architecture

- **Multi-dimensional Schema:** Star schema with central Medals fact table connected to Coaches, Teams, Athletes, and Events dimensions
- **Relationship Cardinality:** One-to-many relationships enforced between country dimensions and athlete/team records
- **Data Quality:** Validated country codes, consistent athlete identifiers, and standardized medal classifications

6.2 Dashboard Interactivity

- **Slicer Implementation:** Country, sport, and medal type slicers enabling multi-dimensional filtering
- **Cross-Page Navigation:** Tab-based UI allowing seamless transitions between analytical views
- **Drill-Down Capability:** Country-level selection cascades to athlete-level detail views
- **Dynamic Calculations:** All metrics refresh in real-time based on user selections

6.3 Performance Optimization

- **Aggregated Tables:** Pre-calculated Medal Summary and Medals Total tables reduce query overhead
 - **Efficient Relationships:** Leveraged built-in relationship handling for fast cross-filtering
 - **Visual Optimization:** Strategic use of visual-level filters to improve rendering performance
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7. Analytical Workflow and Methodology

7.1 Data Preparation Phase

1. **Source Data Integration:** Consolidated multiple data sources (Coaches, Teams, Athletes, Events, Medals) into unified database
2. **Data Validation:** Verified referential integrity across all relationships
3. **Standardization:** Applied consistent formatting to country codes, athlete names, and event classifications
4. **Aggregation:** Pre-calculated summary tables for frequently accessed metrics

7.2 Analysis Phase

1. **Exploratory Data Analysis:** Initial pattern recognition across medal distribution and participation
2. **Dimensional Analysis:** Segmented data by country, gender, athlete birth country, and event type
3. **Comparative Analysis:** Benchmarked nation-level performance against global averages
4. **Trend Analysis:** Identified gender representation improvements and emerging competitive nations

7.3 Visualization Phase

1. **Dashboard Design:** Organized analytical insights across five thematic pages
 2. **Visual Selection:** Matched visualization types to analytical questions (bar charts for rankings, maps for geography, KPIs for summaries)
 3. **Interactive Enhancement:** Implemented slicers and cross-filtering for user exploration
 4. **Refinement:** Applied branding, color schemes, and responsive layout optimization
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8. Business Applications and Stakeholder Value

8.1 For Olympic Organizing Committees

- **Participation Tracking:** Comprehensive monitoring of country participation and team composition
- **Gender Equity Reporting:** Transparent measurement of progress toward inclusive representation
- **Venue Optimization:** Data-driven insights on event distribution and resource allocation

8.2 For Sports Analysts and Journalists

- **Performance Benchmarking:** Quick comparison of country-level competitive capacity
- **Trend Documentation:** Historical tracking of global participation and medal distribution patterns
- **Geographic Insights:** Identification of emerging Olympic competitors and regional trends

8.3 For Athletes and Teams

- **Competitive Context:** Understanding of medal distribution and competitive landscape
 - **Gender Representation:** Visibility into progress on equity and inclusion initiatives
 - **Country Comparison:** Benchmarking against peer nations in similar development stages
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9. Technical Competencies Demonstrated

9.1 Power BI Skills

- Multi-page dashboard design with integrated navigation
- Complex DAX measure development for dimensional analysis
- Interactive slicer implementation for user-driven filtering
- Geographic visualization using built-in map controls
- Cross-filtering relationship management across multiple tables

9.2 Data Modeling

- Star schema design with fact and dimension tables
- Relationship establishment and cardinality management
- Aggregate table creation for performance optimization
- Data validation and integrity enforcement

9.3 Analytical Methodology

- Exploratory data analysis and pattern recognition
- Dimensional analysis and comparative benchmarking
- Gender equity and demographic trend analysis
- Geographic and hierarchical data exploration

9.4 Business Intelligence

- Stakeholder-focused insight generation
- Visual communication of complex analytical findings
- Interactive dashboard design for user exploration
- Real-world business applications and decision support

10. Conclusion

The Olympic 2024 Paris Power BI analysis represents a comprehensive, professional-grade business intelligence solution. By integrating participation data across 206 countries and 11,000+ athletes, the dashboard provides stakeholders with actionable insights into global Olympic performance, gender representation, and competitive capacity.

The strategic implementation of DAX measures, multi-dimensional visualizations, and interactive filtering capabilities enables dynamic exploration of Olympic data across multiple analytical dimensions. The analysis demonstrates proficiency in data modeling, visualization design, and advanced analytics—core competencies for business analyst and data analyst roles.

Key Achievements:

- ✓ Integrated multi-source data into unified analytical framework
- ✓ Developed 20+ strategic DAX measures for dimensional analysis
- ✓ Created five interconnected dashboard pages with distinct analytical purposes
- ✓ Implemented interactive navigation and cross-filtering capabilities
- ✓ Applied professional visualization design with Olympic branding
- ✓ Generated actionable insights for diverse stakeholder groups

This analysis showcases end-to-end business intelligence capabilities from data modeling through stakeholder communication—demonstrating technical depth and analytical maturity suitable for professional analytics roles.

References

- [1] Paris 2024 Olympic Games - Official Olympic Dataset (2024)
- [2] Power BI Documentation - DAX Functions and Calculation Engine
- [3] Olympic Data Analytics - Participation and Medal Distribution Patterns (2024)