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SUSTAINABLE FUTURE.

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ICAO Big Data Dashboards

Objective

- Background on the Aviation Competitiveness Working Group (ACWG)
- Overview The report on the progress of ACWG to the ATC and the outcomes
- Overview of the different datasets and sources to arrive at metrics and indicators

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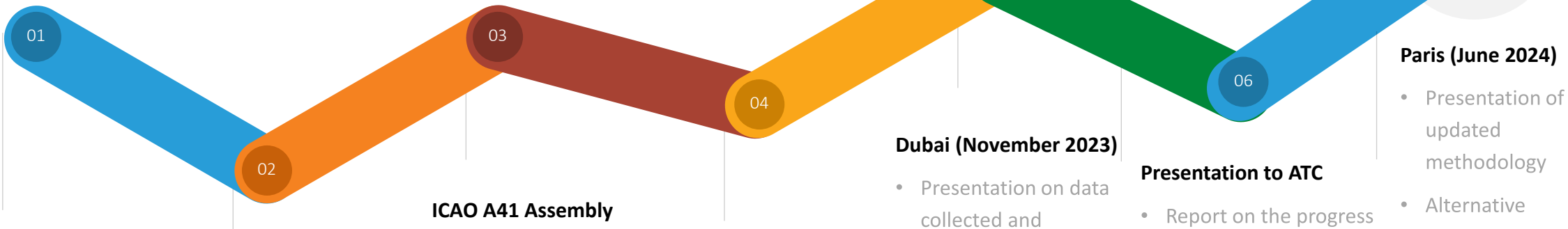
Background



Established in ADAP3 (June 2021)

- recommended to establish the Aviation Competitiveness Index Working Group (ACWG)

ACWG online and in person meetings (October 2021-April 2023)

- Terms of reference
- Definition of Competitiveness
- Definition of pillars
- Proposal of indicators

ICAO A41 Assembly (September 2022)

- Resolution A41-27, Appendix E, section II
- Requested the council to Develop a standard methodology for ACWG

ADAP4 (Sep 2023)

- Report on the progress of ACWG
- Secretariat Methodology presentation
- Planning of next in person meeting

Dubai (November 2023)

- Presentation on data collected and implementation of PCA methodology by Secretariat
- Presentation of preliminary results
- Feedback and recommendations of the ACWG

Presentation to ATC

- Report on the progress of ACWG to Air Transport Commission
- Guidance on Aggregation and regional definitions for dissemination of results

Paris (June 2024)

- Presentation of updated methodology
- Alternative Methodology comparison
- Discussion on refinement of Methodology and Indicators

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Report on Development of the Index to ATC

Overview:

The Secretariat presented a report to the Air Transport Committee (ATC) through a working paper that detailed the advancements of the ACWG in finalizing metrics, data collection, and methodology development. This report also sought the ATC's decision regarding the level of detail at which state rankings will be shared.

Discussions:

- The Committee commended the Secretariat and the Aviation Competitiveness Index Working Group (ACWG) for their detailed report (AT-WP/2231), highlighting its critical role in advancing aviation competitiveness in Member States.
- The Committee reviewed the metrics, encouraging the Secretariat and ACWG to enhance metrics related to liberalization, travel risk, and environmental indicators such as CORSIA participation or age of fleet.
- Addition of new metrics such as airport punctuality and sustainable aviation fuels based on availability of data was suggested, alongside extensive discussions on the granularity of data in each pillar and how it relates to overall aviation activity.
- The dissemination of the Global Aviation Competitiveness Index was discussed extensively by the Committee. The Committee agreed to disseminate the results by ICAO statistical regions as presented in Appendix E. While the results can be disseminated at a regional level, Members believed the dissemination of the results at a State level can be considered after due review by the ACWG and the Aviation Data Analysis Panel (ADAP).

Conclusions:

- Noted the progress achieved by ACWG and ADAP
- Recommended that the ICAO Statistical regional grouping be used to disseminate the rankings and scores of States
- requested the Secretariat continue working with the ACWG and ADAP to complete the technical aspects of the global aviation competitiveness index development by the fourth quarter of 2024, considering the comments and concerns expressed by the ATC
- Requested that an informal briefing be held and a progress report on the work with ACWG and ADAP be presented at a later session

Definition of competitiveness in aviation Agreed by the Aviation Competitiveness Working Group

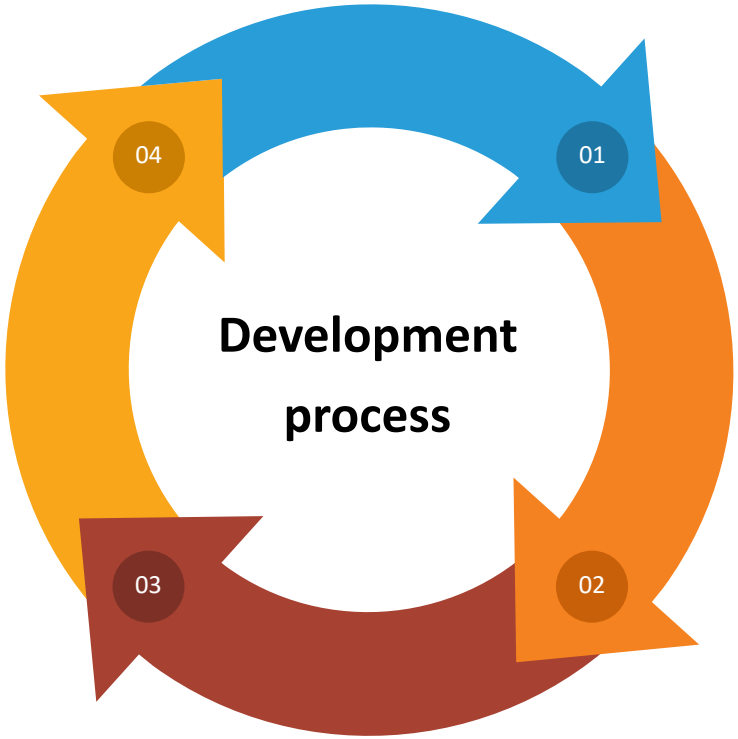
Competitiveness in aviation is the framework under which a country's economic, aero-political, financial, and regulatory structures and policies interact to allow market forces and the competition* they produce to maximize market output, economic efficiencies, and productivity.

*Competition is a scenario where different commercial firms are in fair and equal opportune contention to obtain resources (capital, labor, technology) -- that are limited only by individual firm-level variations in assets, strategy, price, product, promotion and place -- and causes them to develop new or more products, services, and technologies which give consumers greater selection and better products. The greater the selection of products and goods and services in a market (and therefore the greater the competition in the product market), the lower the prices are for such products compared to what prices would be if there were no competition.

Aviation Competitiveness Index development process

Uncertainty and sensitivity analysis

Sensitivity of the index to all factors contributing to the score such as variable selection, standardization and weighting scheme will be assessed at this stage.



Definition of pillars and indicator selection

Pillars to be considered for the index are defined and relevant metrics and indicators identified

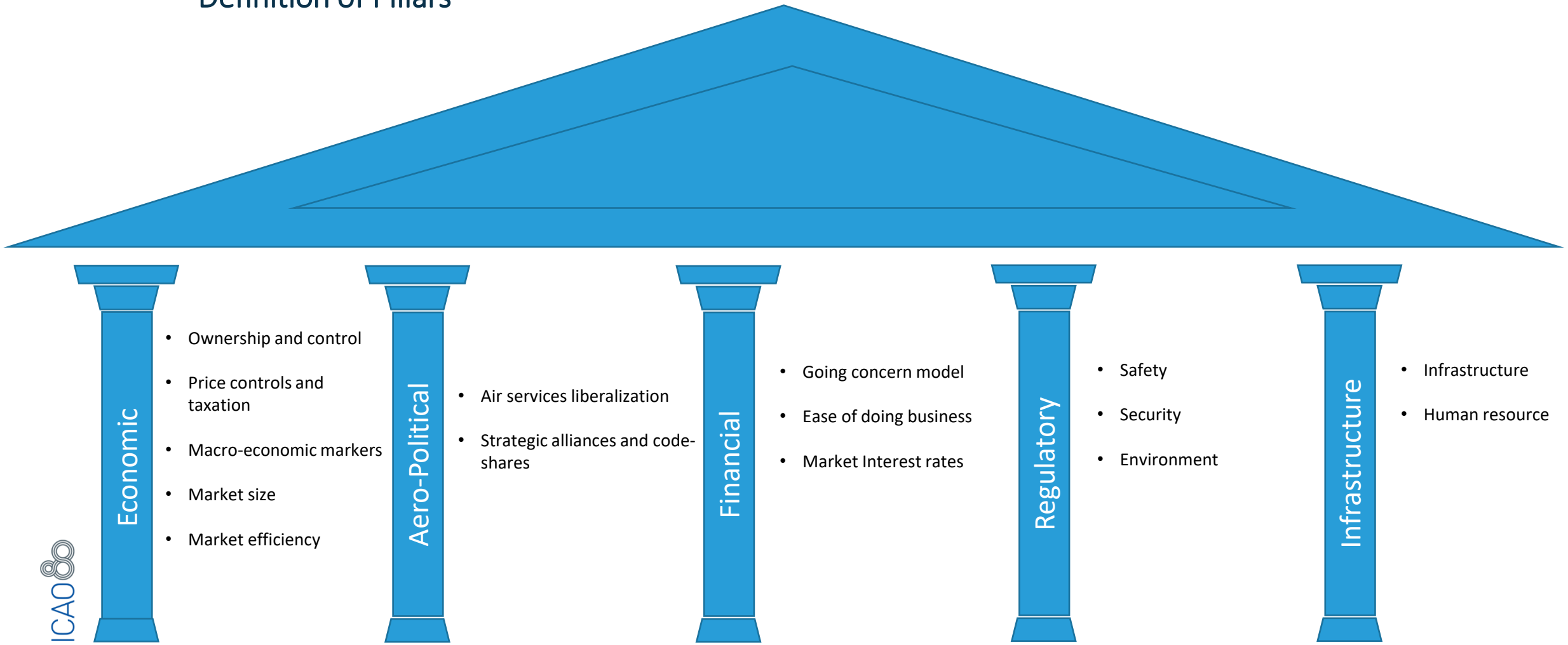
Development of Index using PCA

Aviation Competitiveness index is calculated using principal component analysis .

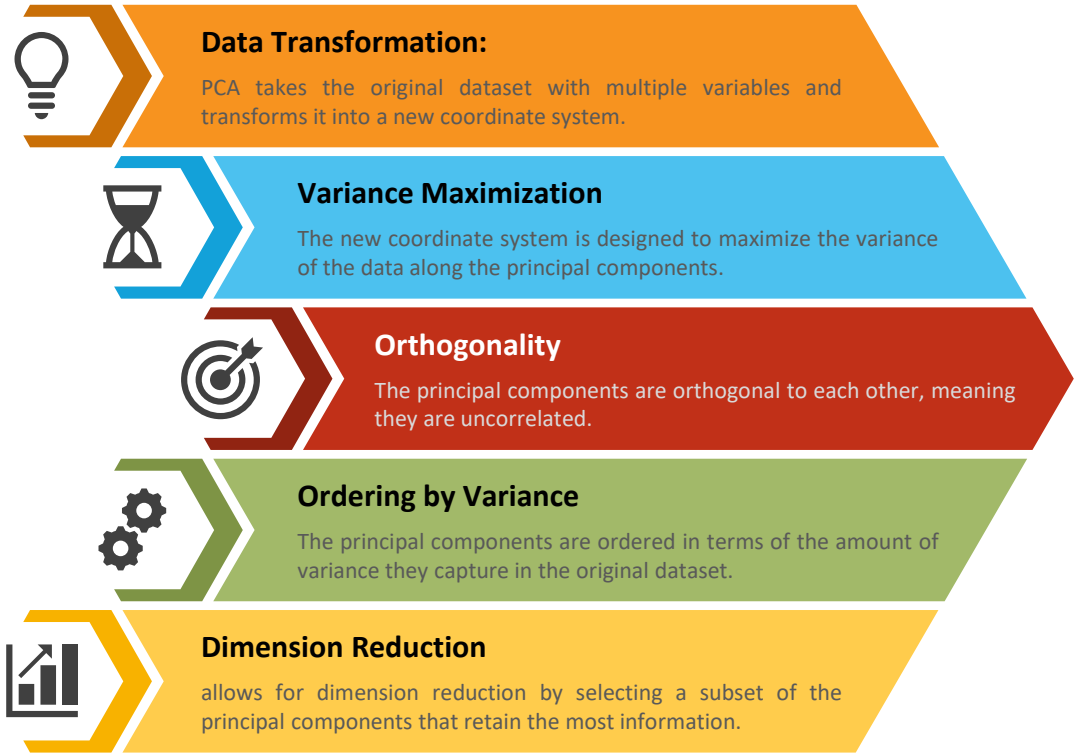
Data availability, imputations and normalizations

Data availability accessed and necessary data treatments performed

Definition of Pillars



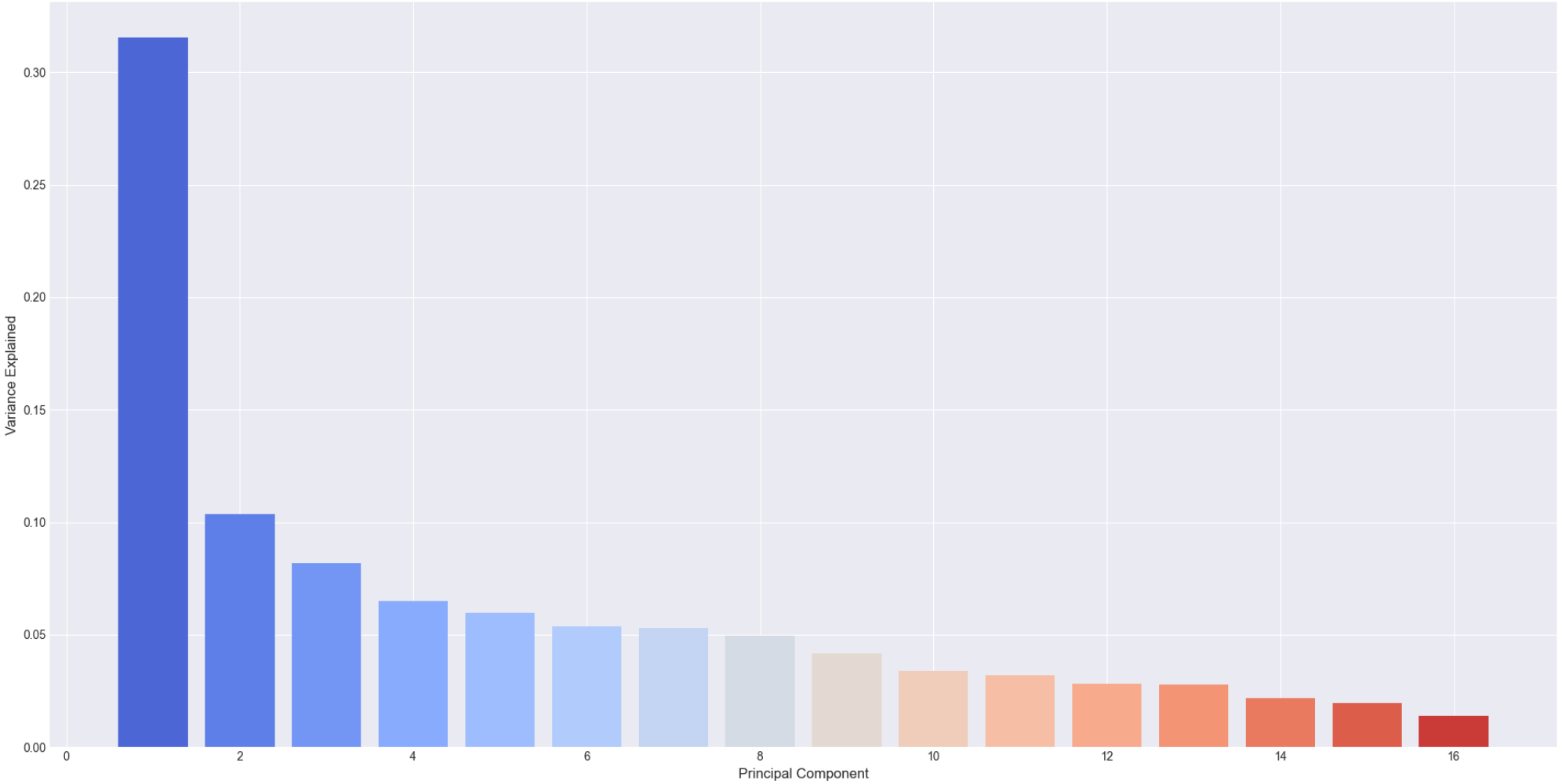
Principal Component Analysis (PCA)



What is PCA?

- PCA is a statistical technique used to reduce the dimensionality of a dataset while retaining its most important features.
- It transforms a set of correlated variables into a new set of uncorrelated variables
- PCA's approach to data reduction is to create one or more index variables from a larger set of measured variables. It does this using a linear combination (basically a weighted average) of a set of variables. The created index variables are called principal components.
- These components capture the maximum amount of variance present in the original dataset.

Variance explained by Principal Components



Thank You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Cairo
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