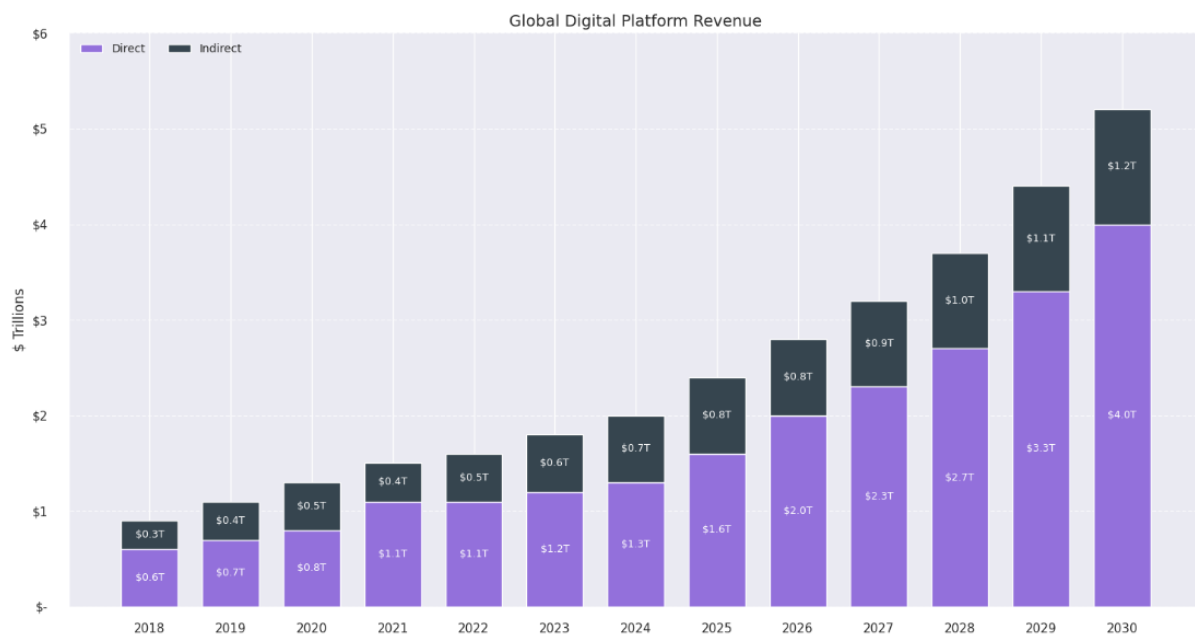# How to interpret stacked bar chart over time for bivariate analysis

A. Understanding the Components of a Stacked Bar Chart Over Time:

- **Horizontal Axis (X-axis):** Represents "Year," showing the progression of time from 2018 to 2030.

- **Vertical Axis (Y-axis):** Represents the "Global Digital Platform Revenue" in Trillions of dollars ($T), ranging from $0 to $6T.

- **Stacked Bars:** For each "Year" on the x-axis, there is a single bar stacked with two colored segments:

    - **Purple Segment:** Represents "Direct" global digital platform revenue for that year.

    - **Dark Gray Segment:** Represents "Indirect" global digital platform revenue for that year, stacked on top of the direct revenue.

    - The total height of each bar represents the total "Global Digital Platform Revenue" (Direct + Indirect) for that specific year.

- **Labels:** Values are shown within or near each segment of the bars, indicating the revenue amount for "Direct" (purple) and "Indirect" (dark gray) in Trillions of dollars for each year.

- **Legend:** The legend at the top-left clarifies which color corresponds to "Direct" and "Indirect" revenue.

B. Interpreting the Global Digital Platform Revenue Over Time:

By examining the stacked bars for each year, we can understand the total global digital platform revenue and the contribution of direct and indirect revenue:

- **Total Revenue Trend:** The total height of the stacked bars shows a clear and significant upward trend in global digital platform revenue from 2018 to 2030. The revenue is projected to grow substantially over this period.
- **Direct Revenue (Purple):** Forms the larger portion of the total revenue in all years and exhibits a consistent and substantial growth trend over time.
- **Indirect Revenue (Dark Gray):** Represents a smaller but also growing portion of the total revenue. The growth of indirect revenue appears to be significant, and its proportion relative to direct revenue seems to increase slightly in the later years.
- **Contribution of Components:** The stacked nature of the chart allows us to see how direct and indirect revenue contribute to the overall total in each year. Direct revenue is consistently the primary driver, but indirect revenue becomes a more substantial contributor towards the end of the forecast period.

C. Stacked bar charts over time are particularly useful when you want to:

- **Show the total magnitude of a numerical variable (total revenue) over time and simultaneously illustrate the contribution of different components (direct and indirect revenue) to that total.**
- **Visualize how the composition of a total changes over time.** We can see how the relative proportions of direct and indirect revenue evolve from 2018 to 2030.
- **Compare the absolute contribution of different components to the total over time.** We can track the growth in both direct and indirect revenue in Trillions of dollars.
- **Identify which components are the largest contributors to the total and how their dominance changes over time.** Direct revenue is

consistently larger, but the increasing size of the indirect revenue segment is also noticeable.

- **Present a clear and relatively easy-to-understand view of how different parts make up a whole as it changes over a period.**

Considerations:

- **Comparing the exact size of the "Indirect" revenue (the top segment) across different years can be slightly harder because its baseline changes with the height of the "Direct" revenue segment.** However, the labels help in this regard.
- **If there were many more revenue streams (more segments), the chart could become cluttered and difficult to interpret.**

In summary, the stacked bar chart over time effectively visualizes the growth of global digital platform revenue and clearly shows the contributions of direct and indirect revenue to this total over a thirteen-year period, highlighting both the overall trend and the changing composition of the revenue streams.