Percentage Change in Prices

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I. Introduction

The Singapore public-housing market has undergone pronounced shifts from 2020 to 2024, driven by demographic trends such as population ageing, household "rightsizing," and policy changes like the rollout of the 2-Room Flexi Scheme. Our project builds on a Straits Times graphic (STRAITS TIMES GRAPHICS, 2025) that maps the **percentage change in HDB resale prices by flat type** over this period. Figure 1 illustrates the percentage change in resale prices by flat type—from 2020 to 2024—using data sourced from Data.gov.sg and Orangetee & Tie Research & Analytics. By comparing growth across 1-room through Multi-generation flats, this visualization highlights which segments have seen the strongest appreciation. We can build on this static snapshot by adding interactive filters, time-based x-axis and integrating transaction prices to deepen our insights into housing-type–specific trends.

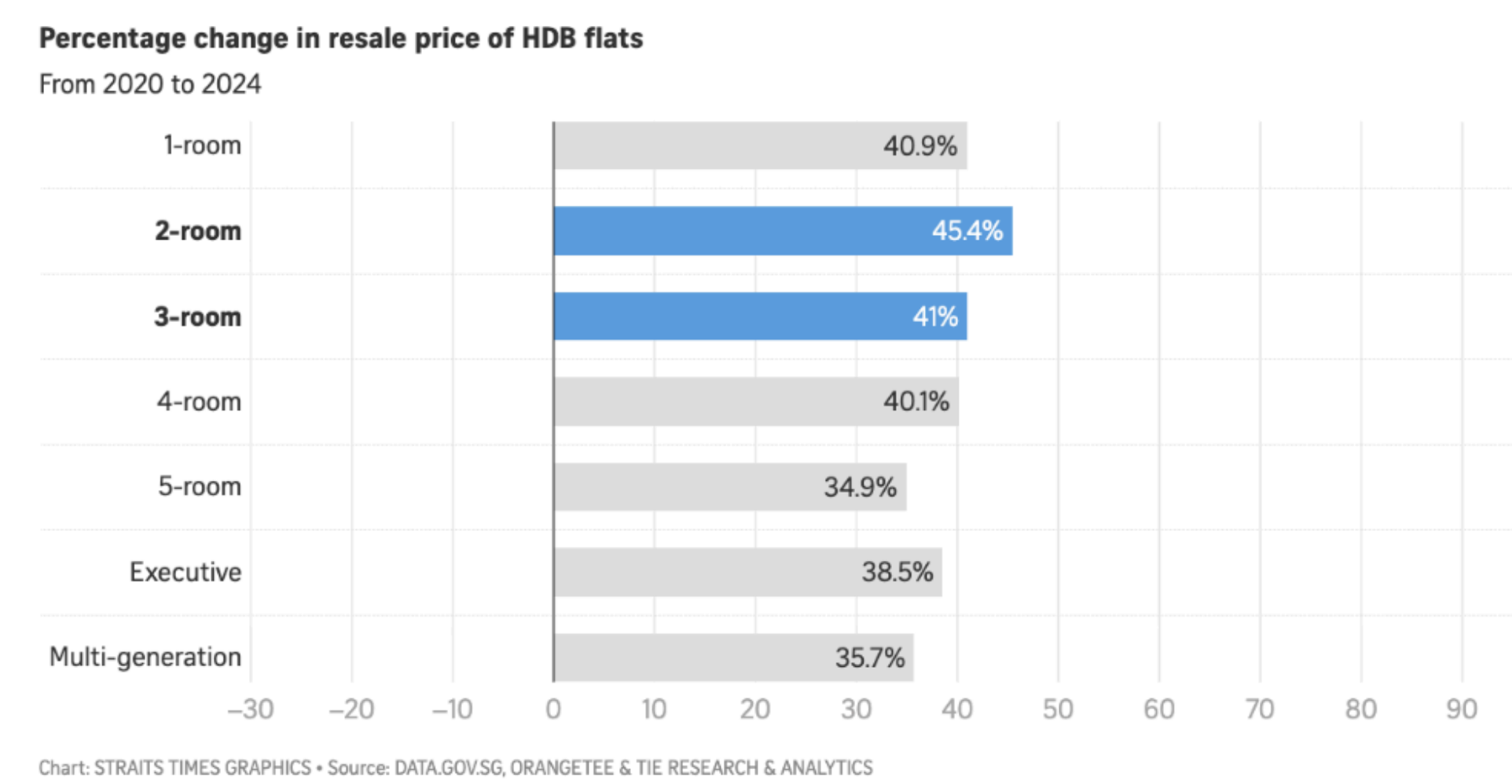## II. Original Visualisation

Figure 1: Original Visualization

- **Flat types:** Seven categories from 1-room up to Multi-generation
- **Horizontal bars:** Length proportional to percent change; 2-room (45.4 %) and 3-room (41 %) highlighted in blue as the highest-growth segments
- **Baseline marker:** Vertical zero line to distinguish growth from decline (although all segments appreciated)
- **Annotations:** Exact percentages labelled at bar ends for quick value retrieval
- **Color scheme:** Grey for most categories, blue for top two to draw attention
- **Source & Credits:**
  - Data.gov.sg for raw data
  - Orangetee & Tie Research & Analytics for analysis
  - Straits Times for visualization design

III. Critical Assessment of the Original Visualization

1. **Unordered Categories**
   Flat types appear in an arbitrary sequence, forcing readers to search for the top and bottom performers rather than seeing them at a glance.

2. **Uniform Grey Bars**
   Except for two blue bars, all categories share the same grey, making it hard to discern above- vs. below-average growth.

3. **Lack of Volume Context**
   Percentage changes can be misleading when based on very few transactions (e.g. 1-Room). No indication of deal counts appears.

4. **Clipped & Inconsistent Labels**
   Some annotations overlap the mean-line or the frame, and small-change bars carry labels that are too close to the axis cut-off.

5. **Static, Print-Focused**
   No interactive features to reveal exact values, drill into regional breakdowns, or display uncertainty around medians.

i. Weaknesses

1. **Lack of Temporal Granularity**
   This chart only shows the aggregate 2020–2024 change. You can't see when prices accelerated or cooled.

2. **Legend Dependency for Value Lookup**
   While exact percentages are labelled on the bars, the use of blue vs. grey to "highlight" the top two segments has no accompanying legend or call-out explaining *why* those two are special.

3. **Cluttered Axes and Distracting Gridlines**
   The vertical gridlines are fairly prominent and, together with the zero-line baseline, compete visually with the bars themselves.

4. **Accessibility Concerns**
   The grey vs. blue contrast may be hard to distinguish for viewers with deuteranopia/protanopia. (No alternative texture or pattern is provided.)

5. **Monotonous Color Schemes**
   Aside from the two blue bars, all other categories use nearly identical greys, which makes it hard to pick out any mid-ranked categories if you weren't reading the labels.

6. **Inefficient Legend Placement and Size**
   There is no legend for interpreting the colour-highlighting rule, and the source credits at the bottom bear a similar style weight to the chart itself, drawing attention away from the data.

IV. Suggested Improvements

1. **Temporal Clarity**
   Plotting x axis with years grants temporal granularity and insights to specific year.

2. **Endpoint Annotations**
   At 2024, each line is labeled with its percent increase (e.g., "+47.8 %" for 3-Room), eliminating the need for a separate legend lookup.

3. **Clean Axes & Gridlinese**
   The y-axis uses compact currency labels; gridlines are subtly drawn to guide the eye without clutter.

4. **Accessible Colors**
   The enhanced plot is a multi-line chart of **Median HDB Resale Price by Flat Type (2020–2024)**. Each of the seven lines uses a distinct CUD color: 1-Room (Sky Blue), 2-Room (Vermilion), 3-Room (Bluish Green), 4-Room (Reddish Purple), 5-Room (Orange), Executive (Yellow), Multi-Generation (Blue)

5. **Variety Colors**
   Added a variety of color palettes to increase readability and improve visual appeal.

6. **Improved Legend**
   Positioned below, with enlarged line swatches and flat-type names, making it easy to match colors to categories at a glance.

V. Implementation for the Bar Graph

i. Data Sources

Weekly counts of HDB resale transactions were obtained from the Singapore Government's open data portal (data.gov.sg). The dataset includes transaction dates, town, flat type, floor area, and resale price. Validation figures were sourced from a Straits Times news article covering the same topic.

ii. Software

tidyverse package was used for data manipulation and cleaning. lubridate package was used for handling date-time features. janitor package was used for initial data cleaning. plotly package was used for building the interactive web-based visualization.
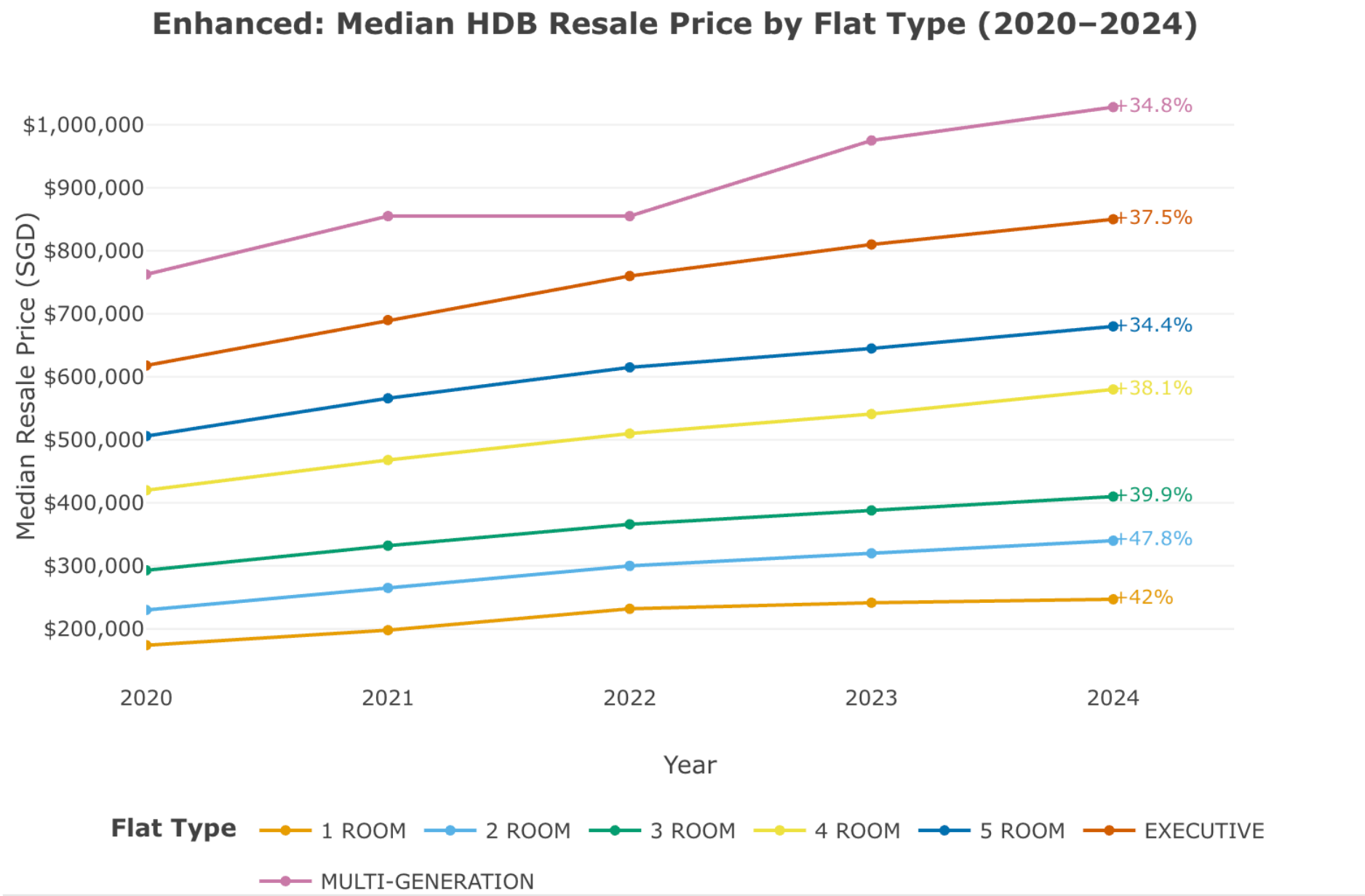
VI. Improved visualisation

Figure 2: Improved Visualization

VII. Conclusion

The enhanced multi-line chart reveals that while Multi-generation flats command the highest absolute resale values—surpassing S$1 000 000 by 2024—it is the compact 2-room units that appreciated the fastest (+47.8%), followed by 1-room (+42%) and 3-room flats (+39.9%). All flat types exhibited steady year-on-year growth, but percentage gains taper as unit size increases. These clear, accessible trends underscore robust demand for smaller, more affordable flats and equip policymakers and market participants with targeted insights into Singapore's evolving HDB resale landscape.

VIII. References

- STRAITS TIMES GRAPHICS. (2025, May 20). Older buyers, smaller households among factors driving demand for smaller flats [Bar chart]. The Straits Times.
- DataGov.SG. (n.d.). HDB Resale Flat Prices [Data set]. https://data.gov.sg/dataset/hdb-resale-flat-prices
- Okabe, M., & Ito, K. (2008). Color Universal Design (CUD): How to make figures and presenta- tions that are friendly to Colorblind people. https://jfly.uni-koeln.de/color/