Dental Chair Performance Dashboard

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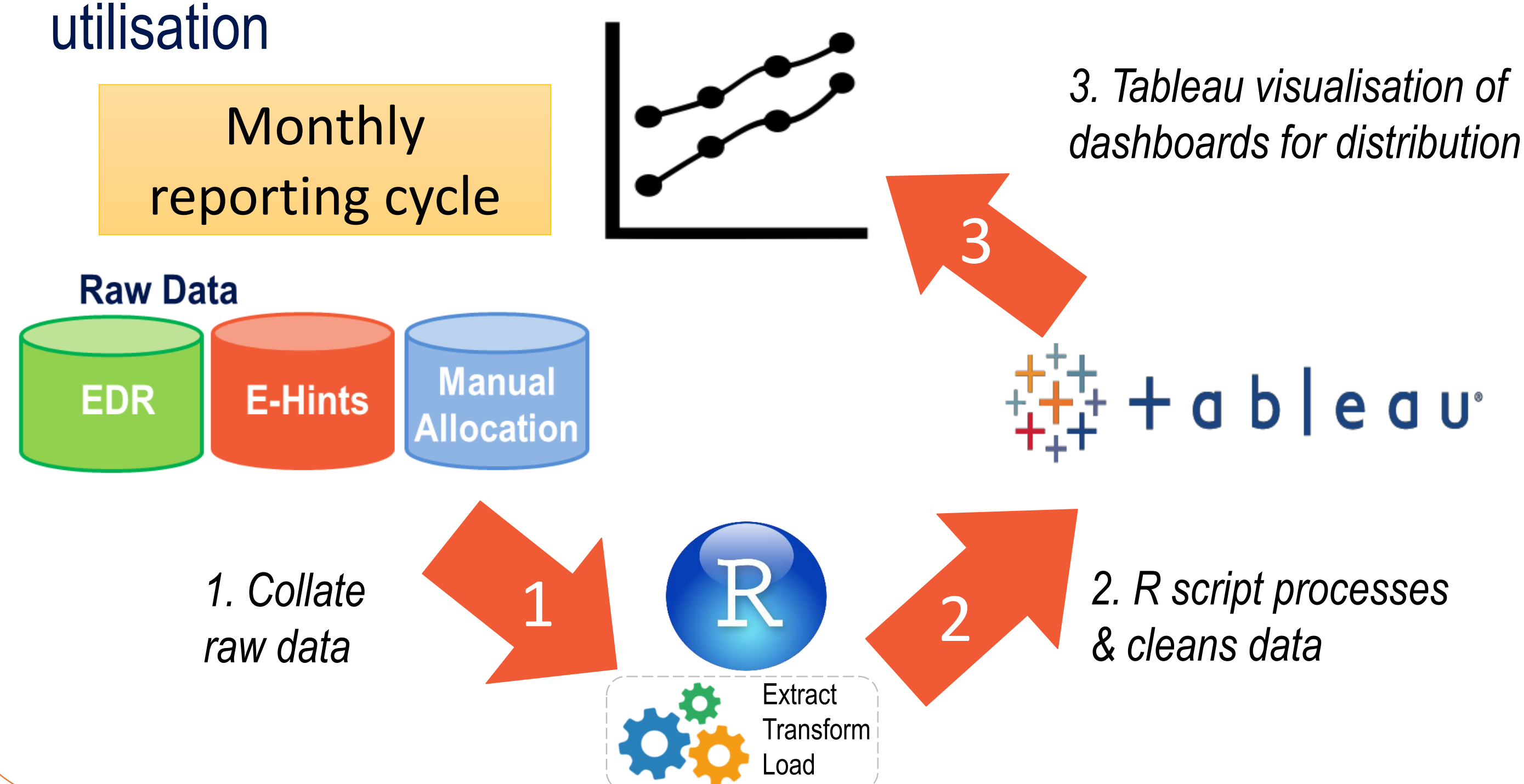
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Background

At the National Dental Centre Singapore (NDCS), despite a wealth of data stored across various systems, there was a dearth of analyses pertaining to dental chairs' performance. This information has long been requested by the Centre's management to guide decision-making, but it was previously difficult to obtain due to the challenges in manually generating such analyses. Due to these complexities, it was also often challenging to provide consistent & reproducible indicators so that performance can be reliably measured.

Aims

To develop a Business Intelligence (BI) tool on dental chair performance so as to facilitate data-driven decision-making, leading to improved performance & operational efficiency of dental chairs at NDCS

Methodology

❖ Engaged with NDCS management to identify KPIs relevant to the Centre & departments
❖ Finalised KPIs, developed data processing methodology & automated data cleaning into R code
❖ Direct clean data into Tableau to visualise KPIs
❖ Distribute dashboards to Management
❖ From information presented in the dashboards, management can then engage in meaningful data-driven discussions with departments so as to optimise and improve dental chair utilisation

Monthly reporting cycle

Raw Data
EDR   E-Hints   Manual Allocation

1. Collate raw data
R — Extract Transform Load
2. R script processes & cleans data
+ableau
3. Tableau visualisation of dashboards for distribution
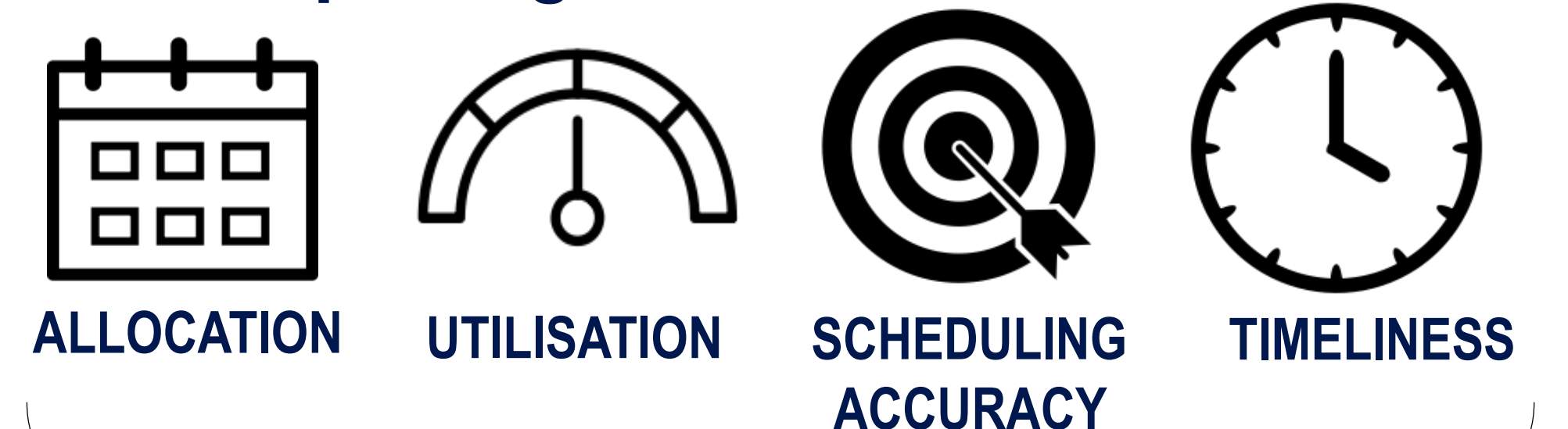
Benefits

With the new dental chair dashboards…

✅ Provides a quick overview of dental chair performance
✅ Improves ground awareness and sensitivity to the data
✅ Enables better management of resources
✅ Allows for nimble reaction to changes
✅ User-friendly and intuitive
✅ Faster data generation resulting in time-savings for staff
✅ Ensures reproducible and comparable charts

Results

Dashboard KPIs and Reporting Levels

4 pillars

ALLOCATION   UTILISATION   SCHEDULING ACCURACY   TIMELINESS

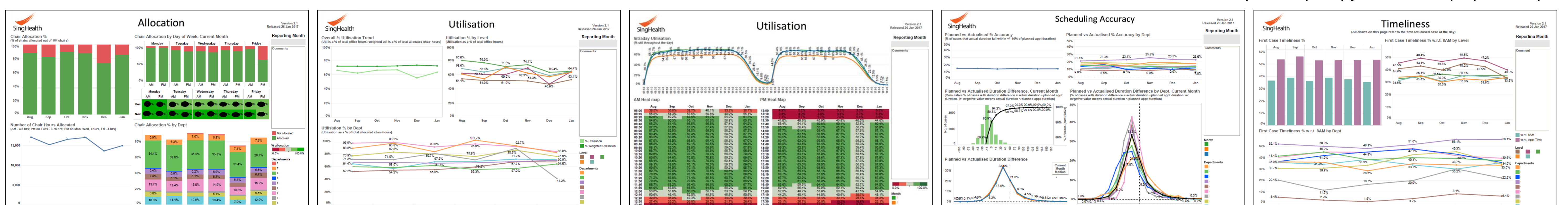|	
Centre	17 indicators in 1 report
Department	10 indicators in 9 reports

Different set of indicators customised for Centre Management, as well as for department heads

Dashboards

note: dashboard mockup – data purely for illustrative purposes only

Conclusion

Making sense of the wealth of healthcare data can be a tedious and complex process, and yet it is an essential first step in guiding and informing policy-making. Without ferreting out & putting together the information residing in these varied systems and databases, it would be hard to practice evidenced-based decision-making.

Dashboards empower stakeholders with useful & succinct knowledge, as demonstrated by the successful development of the Dental Chair Performance Dashboard. These dashboards will increasingly be used to engage with departments in NDCS' improvement journey.