

Towards Design and Development of Interactive Visualisation for Organisational Analytics

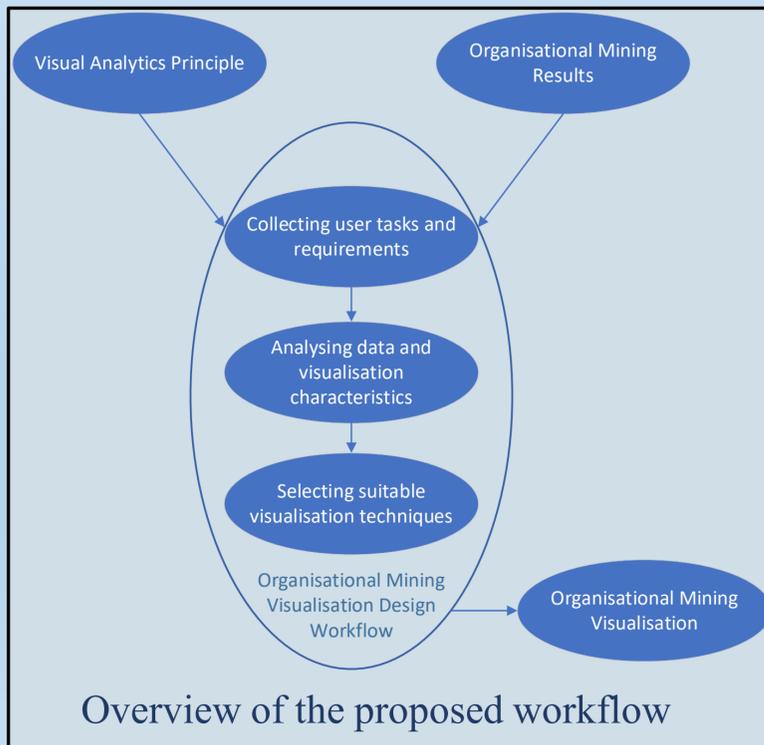


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INTRODUCTION

- Data visualisation plays an important role for communicating the findings from process mining.
- Although some visual analytics capabilities have been developed for process mining, there is a lack of attention to organisational perspective.
- We aim to address how to visualise organisational analytics findings as informed by existing visual analytics design principles.



METHODS

We propose an organisational analytics visualisation design workflow. The design workflow can be used to select appropriate visualisation techniques to generate organisational mining visualisation by combining visual analytics principles with requirements to support visualisation of organisational analytics results.

The proposed design workflow includes three main phases, 1) collecting user tasks and requirements, 2) analysing data and visualisation characteristics, and 3) selecting suitable visualisation techniques.

RESULTS

Following the organisational mining visualisation design workflow, several visualisation tools were selected which support a comprehensive set of required visualisation techniques (e.g., bar chart, heat map and node-link graph).

We use organisational mining prototype OrgMiner-Arya as an example to compare three visualisation tools (matplotlib, D3.js and Vega-Lite) and analyse their differences from the aspects of tool capabilities, back-end architectures and usage limitations.

	D3.js	Vega-Lite	matplotlib
Capability	<ul style="list-style-type: none"> • Low level library • Visualisation Kernel 	<ul style="list-style-type: none"> • High level language • Visualisation syntax 	<ul style="list-style-type: none"> • High level library • Visualisation API
Back-end Architecture	<ul style="list-style-type: none"> • Written in JavaScript • Stored in HTML or JS file 	<ul style="list-style-type: none"> • Written in JSON • Stored in JSON or HTML file 	<ul style="list-style-type: none"> • Written in Python API • Stored in Python file
Usage Limitation	<ul style="list-style-type: none"> • Require considerable coding effort 	<ul style="list-style-type: none"> • Only suitable for standalone charts 	<ul style="list-style-type: none"> • Not flexible for complex data

CONCLUSION

The proposed design workflow presents some preliminary work for development of interactive visualisation for organisational analytics. We will focus on interactive and evaluation perspectives of organisational analytics visualisation in the next stage.

KEY REFERENCES

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