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User Behaviour Analytics for Personalised Reporting in Enterprise Business Intelligence

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Abstract

Organisations are spending a lot of money on analytics platforms, but business intelligence tooling adoption is still painfully low. Empirical data indicate that despite the growth in the use of analytics in most organisations, in practice, only about one third of employees engage with analytics and business intelligence tools. Simultaneously, conventional dashboards tend to be cognitively loaded and require high data literacy, which restricts their influence on daily decision practice. This conceptual essay discusses how user behaviour analytics can be applied to create automated personalised reports that are more aligned to the tasks, roles, and decision contexts of organisational users, and which meet high privacy and governance standards. Based on a narrative review of scholarly and practitioner literature on dashboards, behavioural analytics, and compliance frameworks, the article suggests a reference architecture that links behavioural telemetry with personalisation levers including widget ordering, narrative text, and alert policies. It then places this architecture in the context of privacy and risk frameworks such as the General Data Protection Regulation, the California Consumer Privacy Act, the ISO and IEC privacy information management standards, and the National Institute of Standards and Technology Artificial Intelligence Risk Management Framework. The essay ends by stating that informed personalisation based on behaviour can enhance perceived relevance, time to insight, and trust in analytics, but only when it is integrated into explicit governance structures and open organisational communication.

Keywords: User Behaviour Analytics, Personalised Reporting, Business Intelligence (BI), Data-Driven Decision Making, Dashboard Personalisation, Behavioural Telemetry, Enterprise Analytics

Introduction

Big organisations work in data saturated worlds, but most decision makers continue to use spreadsheets, fixed slide decks, and informal discussions. According to an IBM analysis, which refers to Gartner survey data, it is stated that although the use of analytics and business intelligence has grown in most of the surveyed organisations, only an average of twenty nine per cent of employees use such tools (Attanapola & Iyer, 2025). Conventional dashboards offer integrated perspectives of essential indicators, yet they take time, focus, and prior understanding of what to seek.

It is against this backdrop that user behaviour analytics and automated personalisation hold more adaptive decision support. It is possible to use behavioural indicators like click paths, dwell time, and repeated queries to determine what information various users actually require at specific points in their work (Hassan et al., 2013). Nevertheless, this promise poses profound questions of privacy, consent, governance, and the possibility of over personalisation to reduce the informational horizon of organisational actors. This paper is placed as a conceptual, practice oriented essay. It aims to integrate available evidence and frameworks into a consistent architecture of behaviour informed reporting in enterprise analytics, and to reveal the governance conditions under which it can be responsibly deployed.

Approach and Scope

The argument is based on a narrative review as opposed to a formal systematic review. The academic and practitioner sources were located by means of specific searches of the literature on analytics dashboards, decision making, user behaviour analytics, and privacy and governance frameworks published between 2010 and 2025, with a specific focus on empirical assessments of dashboards and official recommendations on privacy and risk management. The most important sources are experimental research on dashboard visualisation and decision quality, design research on integrated performance dashboards, conceptual research on behaviour informed digital adoption dashboards, vendor research on business intelligence adoption, and primary literature on major privacy and risk frameworks. This methodological position is suitable to a conceptual essay that aims to describe design patterns and governance principles instead of estimating effect sizes. The value added is the incorporation of strands of evidence into a reference architecture and a collection of normative design commitments to practitioners and researchers.

Conceptual Foundations

Dashboards, decision practice, and cognitive load

Experimental studies indicate that dashboard visual design affects the accuracy and the speed of managerial decisions, and some layouts are more conducive to faster and more accurate decisions than others. Research on integrated Power BI dashboards highlights the need to match visual encodings with decision tasks instead of displaying all available metrics in a single dense interface (Akter and Kudapa, 2024; Goncalves et al., 2023). More recent research on contrastive learning and key performance indicator dashboards suggests that attention span and cognitive load should be considered as fundamental design constraints, rather than as an afterthought. Collectively, this literature indicates that generic dashboards tend to bombard users with unfiltered charts and filters, which results in superficial scanning instead of in-depth analysis. When all users are given the same complicated interface, adoption is likely to be concentrated among analysts and power users, whereas operational staff will simply avoid the tools (Attanapola & Iyer, 2025).

User behaviour analytics

The term user behaviour analytics is often described as the gathering and processing of digital records of user behaviour with the aim of identifying patterns, preferences, and anomalies (Microsoft, 2025). This is page views, filter selections, search queries, export actions, and alert acknowledgements in analytics platforms. Behavioural data, in contrast to the static profile data, is a reflection of what users actually do with tools over time.

Practitioner descriptions of digital adoption platforms demonstrate how behavioural data can be converted into narrative, role specific dashboards that indicate engagement, task success, and points of friction (UMATechnology, 2025). In one of the reported cases in a large financial institution, behaviour informed dashboards during onboarding decreased the time of completion and enhanced satisfaction among new employees.

Personalisation as socio technical intervention

Personalisation is often discussed as a strictly technical ability, but in organisational contexts it is also a socio technical intervention. Behaviour informed interfaces are not just ranked content, they define what users consider salient problems and actions that are plausible. The transition between fixed dashboards and dynamic decision support, as IBM authors claim in their analysis of business intelligence adoption, is not only about new algorithms but also about new expectations regarding who can access insight and how fast (Attanapola & Iyer, 2025). Personalisation in this perspective should be considered as a design option that spreads attention, authority and responsibility throughout the organisation. Explicit principles that can be explained, contested and audited should therefore guide behaviour based reporting.

Personalisation and Organisational Decision Making

Informed personalisation Behaviour can affect decision practice in at least three ways. First, it can lower search costs and cognitive load by surfacing a smaller number of contextually relevant indicators, especially to users who are not analytics experts. The experimental evidence on dashboards suggests that more aligned visual structures can enhance the accuracy and the speed of decisions, particularly when time pressure is present (Hjelle et al., 2024).

Second, temporal fit between information delivery and work rhythms can be enhanced by personalisation. Digital adoption research explains how role specific dashboards can assist trainers, managers, and designers to concentrate on the segments of behavioural telemetry that are most directly connected to their duties, resulting in more timely interventions.

Third, personalisation may facilitate strategic alignment by focusing on indicators that capture organisational priorities in specific roles. As an example, frontline staff may view task completion and error rates, whereas executives view trends in value, risk, and compliance. The trick in both instances is to not fall into the trap of pure optimisation to engage and instead to concentrate on decision relevance and organisational learning.

Reference Architecture for Behaviour Informed Reporting

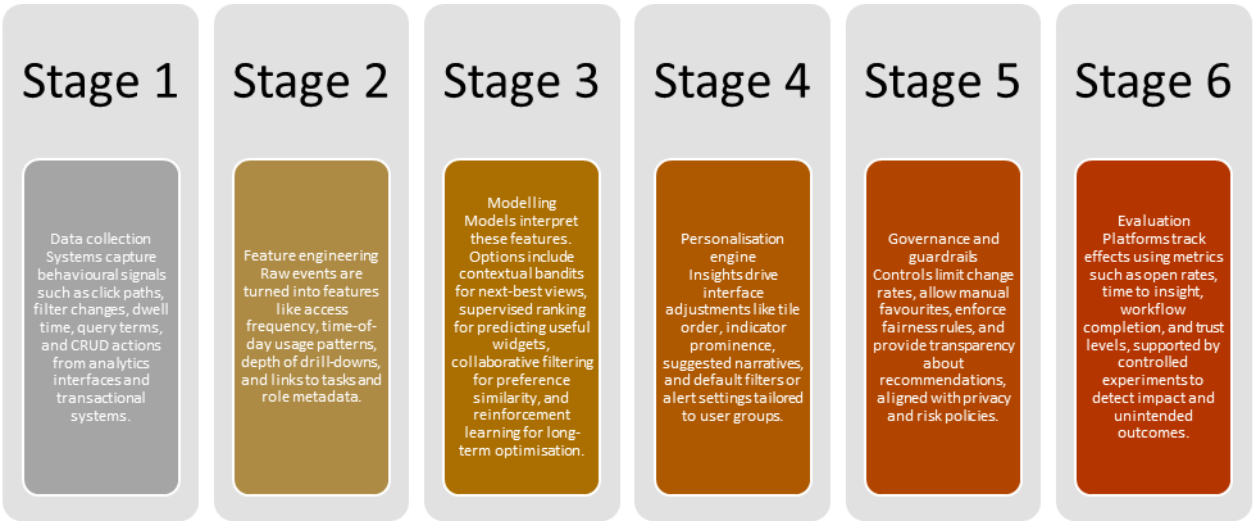

Figure 2: Reference Architecture

Applications and Illustrative Cases

Emergent tools in enterprise analytics are becoming more and more conversational interfaces with adaptive visualisations. IBM authors explain how the shift to personalised decision companions, which display various views to different roles and learn through histories of interaction, is made. In this regard, behaviour analytics can be used to decide what questions are displayed as suggested prompts, what indicators are displayed in concise summaries, and what alerts are hidden to prevent fatigue.

A second example is digital adoption platforms. UMA Technology reports on the integration of behavioural data of onboarding journeys in a large financial organisation into role specific dashboards of executives, managers, and trainers. The dashboards emphasized completion times, friction points, and engagement levels, which allowed specific interventions to decrease onboarding time and enhance satisfaction. There is a common pattern in these applications. Behaviour analytics is not a goal in itself but a tool of informing the presentation of information in a manner that is role, task, and context sensitive, but is still based on common underlying data and common governance frameworks.

Compliance, Governance, and Ethical Risk

Privacy by design, data minimisation, and purpose limitation

Behavioural telemetry frequently contains events that appear innocuous, but when aggregated, can provide sensitive work and performance patterns. The European data protection law stipulates that personal data must be processed in a lawful, fair, and transparent manner, with defined and legitimate purposes, and in a manner that is sufficient, relevant, and limited to the purposes (Intersoft Consulting, 2016). The United Kingdom Information Commissioners Office also explains that data minimisation means that organisations must gather the minimum amount of personal data necessary to fulfil a given purpose, and that organisations should periodically review their retention (ICO, 2025).

To have behaviour informed reporting, this would mean that there is explicit documentation of what behavioural signals are being gathered, what analytic and personalisation purposes, and on what legal grounds. Sensitive events may be aggregated or perturbed and role based views must be based on the minimum information needed to make the decisions at that level.

Consent, opt out, and data subject rights

In laws like the California Consumer Privacy Act, people have the right to learn what personal data is gathered, to

request its deletion, to refuse some processing, including sale or sharing, and to restrict the use of sensitive personal data (Bonta, 2018). Informed reporting systems based on behaviour should thus offer transparent privacy notices and easy ways to exercise these rights, such as the option to turn off personalisation without losing access to core reports.

Legitimate interest and contractual necessity may be used as legal grounds in some types of telemetry required to run analytics services in many organisational settings. However, respectful practice involves more than legal adherence. Employees must be told that behaviour is recorded, how it will be used to enhance their tools, and what safeguards exist against performance micromanagement.

Risk frameworks and organisational accountability

Behaviour informed personalisation overlaps with wider issues of algorithmic risk and governance. The ISO and IEC Privacy Information Management System standard ISO and IEC 27701 outlines the requirements of the creation and enhancement of structured privacy management systems, which are closely related to the information security standard ISO and IEC 27001 (ISO, 2025). It focuses on accountability, documentation, and continuous improvement, which are directly applicable when behavioural data is fed into automated personalisation.

The National Institute of Standards and Technology Artificial Intelligence Risk Management Framework defines governance, mapping, measurement, and management capabilities to deal with AI risks and defines the features of trustworthy AI, such as privacy enhancement, explainability, and accountability (Tabassi, 2023). Such enterprise risk management processes should include behaviour informed reporting solutions based on machine learning models to provide recommendations or rankings, and explicitly evaluate the possible harms of such solutions, including unfair profiling, opaque performance monitoring, or overconfidence in automated suggestions.

Component	Main risk	Key frameworks	Example safeguards
Data collection and telemetry	Excessive or opaque tracking of behaviour	GDPR, CCPA, ISO IEC 27701, NIST Govern	Clear notices, purpose limitation, minimal logging
Feature engineering	Behaviour profiles that re identify people	GDPR minimisation, CCPA de identification	Aggregation, pseudonymisation, strict retention limits
Modelling and training	Unfair profiling and opaque inferences	GDPR fairness, DPIA, NIST Measure Manage	Impact assessments, bias checks, model documentation
Personalisation engine	Over personalisation and hidden evaluation	GDPR by design, CCPA rights	Always show key KPIs, explain recommendations, opt outs
Governance and guardrails	No clear accountability for personalisation	GDPR accountability, ISO IEC 27701, NIST	Roles and policies, cross functional oversight, audits
Evaluation and monitoring	Undetected harm or erosion of trust	GDPR review duty, ISO IEC 27001, NIST	Metrics for trust and fairness, periodic review, fixes

Conclusion

User behaviour analytics provides the means to go beyond generic dashboards to more personalised, context aware reporting in enterprise analytics. The reviewed evidence indicates that well-crafted dashboards can enhance the quality and speed of decisions and that behavioural insights can enhance relevance and engagement when considered carefully in interface design. Meanwhile, the issues of adoption, privacy requirements, and algorithmic risks demand that personalisation be approached as a regulated ability, as opposed to a technical attribute.

The proposed conceptual architecture in this essay relates behavioural telemetry, modelling, personalisation levers, and governance guardrails in one pipeline, backed by well-established privacy and risk frameworks. Future empirical research can experiment with particular combinations of behavioural characteristics and personalisation strategies, investigate their impact on organisational decision making and equity, and improve measures of trust and satisfaction. To practitioners, the most important implication is that behaviour informed reporting must be sought alongside clear transparency, consent, and accountability promises, so that personalisation is used to enhance organisational learning and not to further increase the existing asymmetries of information and power.

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