

An exploration of an evaluation framework for digital storytelling outcomes in the AI age

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Digital and Semantic technologies facilitate the possibility of **automatically generated digital storytelling products**. This is closely related to the construction of data and technical infrastructure with a **human-machine collaborative digital storytelling workflow**.

This poster introduces our design for a workflow and evaluation framework (Figure 1) based on our digital storytelling practice at Shanghai Library since 2021.

The knowledge databases which record narrative elements, described in RDF, provide a crucial basis for creating human-machine collaborative digital stories by automatically **identifying links and storylines**. They make it possible to **create story-themes or plots** that are **machine-identifiable or machine-editable**.

A crucial factor is the design of the algorithms and logic rules, drawing on traditional narrative grammar, story organisation, and narrative structure. Digital storytelling outcomes need to be accessed and experienced by people, so the aim is to present them by adding interaction methods (touch, voice, visual, augmented reality) to construct scenes.

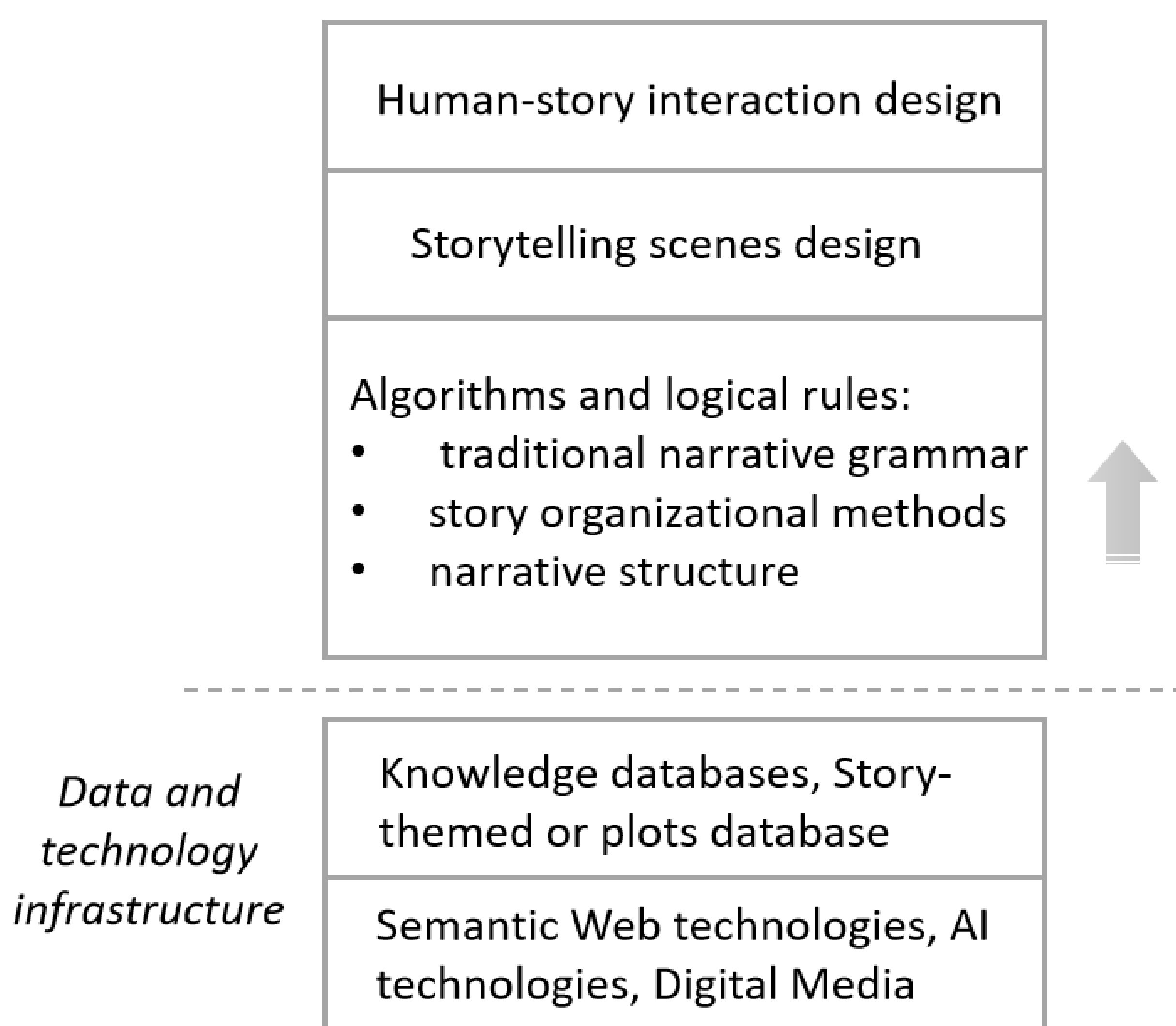


Figure 1: Human-machine collaborative digital storytelling workflow

To be a robust scholarly research method, the reliability, validity, and evaluation of digital storytelling methodology and its outcomes need to be **transparent, standardised, and reproducible** to ensure that they meet academic rigour and scientific method (Figure 2).

This is essential for **effectively evaluating the credibility, advantages, and effectiveness of digital storytelling outcomes**.

We must be able to:

- evaluate whether the technology used in generating the outcomes is **standardised, unified, and reusable**;
- whether the data is managed according to **FAIR principles**;
- verify that the **ethical evaluation** of the technology is appropriate so that the results can be **trusted**.

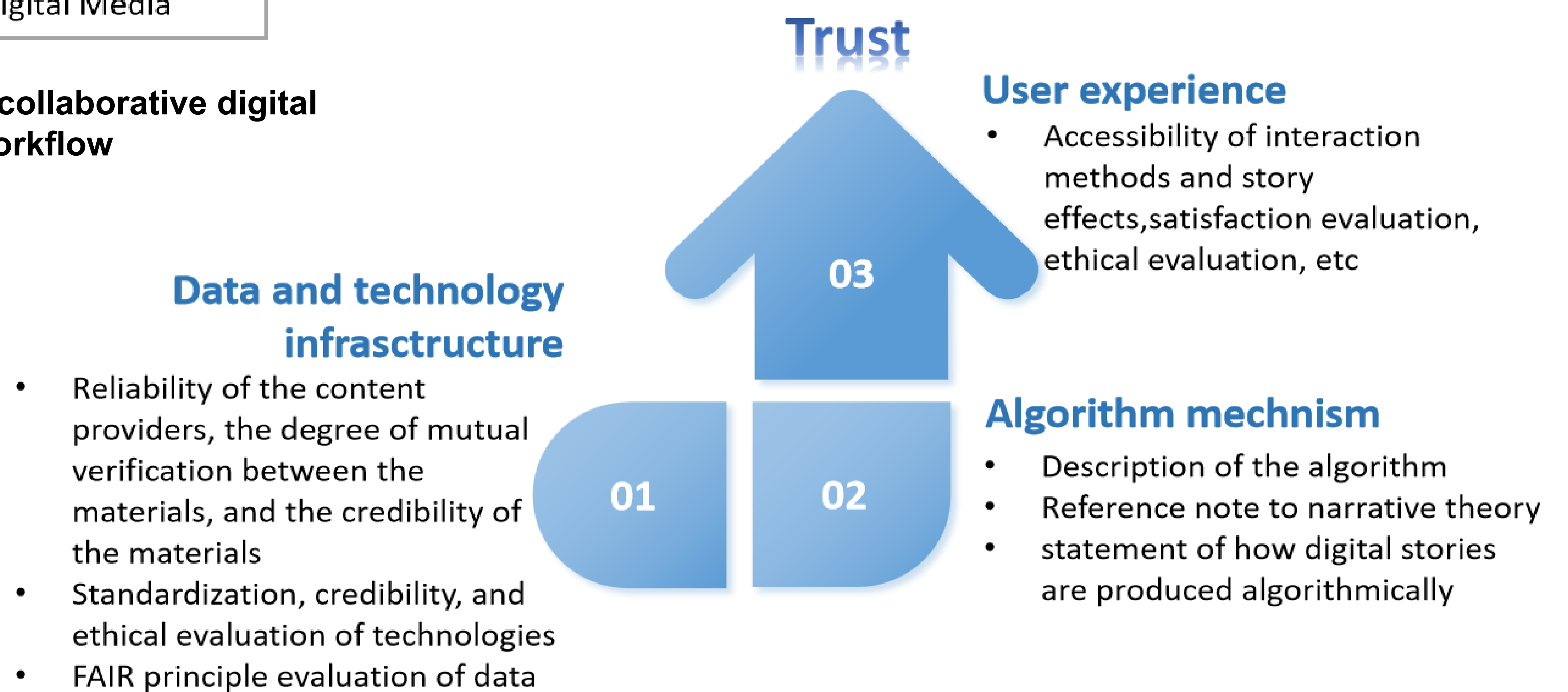


Figure 2: Evaluation framework for digital storytelling outcomes in the AI age

Trust is a significant issue, particularly if the providers do not make it clear that these digital stories are produced algorithmically. **Trust is highlighted in the European Commission's White Paper on AI**. A lack of trust 'is a main factor holding back a broader uptake of AI' and prompts developing a clear regulatory framework (European Commission, 2020: 9).

Trust is often reduced regarding confidence in AI generated content because of a lack of verifiability (Samek and Müller, 2019). Hence the need for **explainable AI**; 'in part motivated by the need to maintain trust between the human user and AI' (Jacovi et al, 2021: 624). Whether this trust can be achieved seems uncertain as the use of AI in different scenarios are often unclear and not fully understood.

When a human-machine collaborative digital storytelling product is developed, it is important to **evaluate user experience**; how the audience feels about the outcome, whether they are satisfied with it, as well as the **accessibility, and ethical evaluation of the interactive effect**.

A framework such as we suggest here will go some way towards **building the necessary trust for digital storytelling outcomes using AI where human and machine gradually build a collaborative workflow**.