Visualisations and storytelling in defence: Establishing requirements for a service offering

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SUMMARY

Visualisations and storytelling help to communicate and facilitate the understanding of complex information, thereby supporting problem solving and optimal decision making. Interviews were conducted with 19 stakeholders to discover the needs and requirements for a new Visualisation and Storytelling Service (VSS) within a Defence context. A Thematic Analysis produced six key themes and 18 recommendations for the VSS. This paper will explain the discovery methodology used, and the themes and recommendations generated for the future initialisation of the VSS.

KEYWORDS

Visualisations, Storytelling, Defence, Interviews, Thematic Analysis, Requirements

Introduction

In the current data-driven and fast-paced environment, the ability to assess and understand complex information quickly is vital for informed decision making. Visualisations (e.g. graphics, videos) and storytelling help make information easier to comprehend, quicker to process and easier to transfer to long-term memory, thereby aiding performance (Kosara & Mackinlay, 2013). It is for these reasons that visualisations are used across numerous domains, including health care (e.g. Crackerjack Visual Thinking, n.d.), education (e.g. Bobek & Tversky, 2016) and transportation (e.g. Hansson, 2020). In this project, the Human Factors project team was asked to support the development of a Visualisation and Storytelling Service (VSS) for Defence where programme teams can procure a visualisation to help them communicate complicated ideas quickly. The intention was for the VSS to create videos and graphics to educate people on technical topics, communicate complicated problems/solutions, and explain the complicated background behind decisions to support optimal decision making and enhance performance of the UK Defence system of systems and those working within it.

Method

This project followed the Government Digital Service framework stages of Discovery, Alpha, Beta and Live. The project team participated in the Discovery phase, over a four-week period. A user-centred approach was taken to discover the needs and requirements for the VSS. The project team conducted interviews with potential stakeholders (users) to understand the demand, scale, size and requirements for the VSS. The findings were then used to develop recommendations for the future initialisation of the VSS. During the interviews, the project team was asked to gather key information regarding the volume of demand, complexity of outputs required, output classification, budget and any other considerations which may impact demand on the VSS.

Participants

A preliminary user research phase (which is outside the scope of this paper) generated ten personas to represent potential stakeholders (users) of the new VSS. Nineteen stakeholders were invited to attend a one-hour interview over Microsoft Teams, each representing one of these ten personas.

Semi-structured interview process

Twelve core questions to be asked in all interviews were generated. These were designed to produce insights regarding how the stakeholders currently work, how they could benefit from the new VSS, what their key needs for the service were and any other factors that could influence the effectiveness of the VSS. The questions covered their desired visualisation content, format of current evidence summaries, information classification, volume, branding and key target audiences. Where interviews finished early, additional questions were asked to gain further and more in-depth understanding of stakeholder needs (e.g. other types of visualisations, current visualisation challenges). Each interview included two project team members: a primary facilitator and an assistant. The facilitator led the interview and asked the majority of the questions. The assistant was invited to ask questions at various points, to gain clarity and ensure all core questions were covered. Both team members took detailed notes during the interviews, and these were reviewed and collated following each interview to accurately capture stakeholders' responses.

Data analysis

A Thematic Analysis, following the guidance in Braun and Clarke (2006), was used to analyse the interview data. The analysis produced six key themes; these represented the themes that were mentioned most frequently across the interviews and answered the key questions around volume, complexity, classification, and budget.

Results and key findings

The Thematic Analysis revealed six main themes in stakeholder responses:

- Tailored content – Stakeholders emphasised the need for content that accommodates diverse learning preferences, problem spaces, information needs and time constraints.
- Holistic view of the problem space – Stakeholders valued the ability to see the 'big picture' and zoom out to understand the broader system, identify gaps and avoid duplicate efforts (i.e. not procuring a capability that has already been acquired elsewhere).
- Communicate at the right level of detail – Content should strike a balance between complexity and simplicity, using accessible language (e.g. consistent use of terms, not full of jargon or overly technical language) and format (e.g. not a lengthy report).
- Demand for visualisation expertise – Many stakeholders create their content internally with little visualisation expertise. This leads to slower creation times and variable quality, in part due to the use of non-specialist applications like Microsoft Office tools.
- Practical considerations for producing visualisations – Information classification and content volume varied based on project/programme demands and needs (e.g. quarterly, all stages of the project lifecycle, one per project, multiple per project).
- Frequency of updates – Stakeholders indicated different levels of demand for content updates, including once in a project lifetime, annual updates, quarterly updates, once every project milestone and monthly updates.

These themes were then used to propose 18 recommendations for the future development of the VSS. The next phase of the project involved designing and initialising the VSS Alpha Service, incorporating the recommendations.

References

Bobek, E., & Tversky, B. (2016). Creating visual explanations improves learning. Cognitive Research: Principles and Implications, 1(27), 1-14.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, 3(2), 77-101.

Crackerjack Visual Thinking. (n.d.). Great feedback from Manchester University NHS Foundation Trust about the 'Transforming Care for the Future' rich picture created by Crackerjack Visual Thinking #engage #communicate. Retrieved from CRACKERJACK VISUAL THINKING: https://crackerjackvisualthinking.com/2018/10/02/great-feedback-from-manchester-university-nhs-foundation-trust-about-the-transforming-care-for-the-future-rich-picture-created-by-crackerjack-visual-thinking-engage-communicate/

Hansson, L. (2020). Visual representation in urban transport planning: Where have all the cars gone? Transportation Research Part A: Policy and Practice, 133, 1-11.

Kosara, R., & Mackinlay, J. (2013). Storytelling: The Next Step for Visualization. Computer, 46(5), 44-50.