



Visualising the Human Dimension

What we do

Helyx has been engaged in Applied Research activities, the definition of future standards and procedures, and their resultant exploitation, since 2002. We identify innovative, but practical, uses for state of the art technology and we deliver effective solutions, which address all Defence Lines of Development.

Our background

Our consultants have the capability to undertake Applied Research work across the information management, decision support and information exploitation domains, as well as across the wider Defence and Security sectors.

Our specific Applied Research capabilities include:

- Concept Development - our consultants exploit their domain knowledge, insight and intellect, to explore a concept, in order to revise an approach, or produce a detailed precis of a specific topic.
- Thought Leadership - our consultants utilise their knowledge and experience to develop white papers and presentations, on relevant subjects and topics within a Defence Lines of Development (DLOD) context.
- Prototype and Demonstrator Development - our consultants design, develop, manufacture and deliver prototypes or concept demonstrators.
- Technology Investigation - our consultants review literature, provide hands-on testing and undertake comparison and assessment of evolving technologies (typically technologies at a high Technology Readiness Level (TRL), yet to be deployed by our customers).

Case Study

Visualising the Human Dimension:

As part of the Defence Science and Technology Laboratory's (DSTL) Advanced Geospatial Information and Intelligence Services Research (AGIS) programme, Helyx

worked with defence stakeholders over a four-year period (from 2012 - 2016), to develop a common understanding and approach, to managing geospatial information in the Human Dimension sphere.

The Human Dimension (HD)

The Human Dimension (HD) is recognised as an increasingly important element of modern warfare. The Ministry Of Defence (MOD) is committing significant investment in personnel and capabilities to exploit HD for conducting effective, informed operations. HD encompasses the totality of the human sphere of activity; geospatial information ranges from macro Human Geography activities, to the detailed Human Terrain.

The task

Helyx was selected to investigate Information Management (IM) and Information Exploitation (IX) relevant to HD within the MOD, with a specific focus on geospatial aspects.

Creation of a Human Dimension Community of Interest (HD COI)

Through effective stakeholder management, we identified the HD requirements and assisted in the creation of the "Human Dimension Community of Interest" (HD COI).

The HD COI brings together a wide range of defence organisations, all with a vested interest in HD. It provides an invaluable platform for HD research and development to be circulated; as well as providing a forum for the discussion of HD requirements, capabilities and approaches.

Collating the output from this forum, enabled us to establish a recognised HD taxonomy, which is already providing coherence and consistency to ongoing discussions and studies in the HD sphere. We were also able to establish an agreed roadmap for future activities.

Establishing the Human Dimension Taxonomy

Helyx established the HD taxonomy (figure 1), within which, key terms, organisations and processes are defined and agreed, between members of the HD COI. We helped in providing initial definitions, prior to advocating specific members of the HD COI, to take ownership of the different elements.

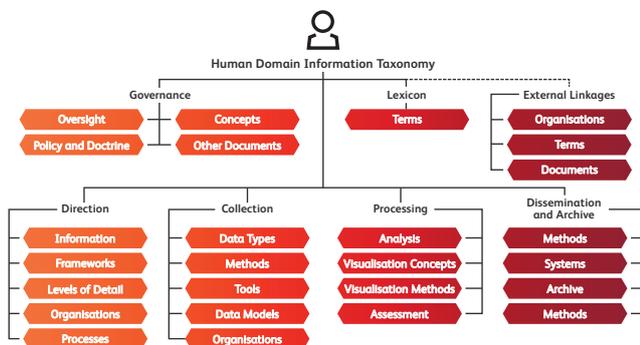


Figure 1: The HD taxonomy developed by Helyx provides a framework of discrete elements for defining the key terms, organisations and processes

Visualisation of the Human Dimension

Visualisation of HD information is key to its effective exploitation. We developed proof-of-concept tools for the visualisation of HD information and for the identification of conceptual workflows.

We also established a suite of experimental presentation and exploitation tools, including; a portal-based management system, analysis tools (including bespoke routing tools based on population sentiment), and a variety of presentation techniques (figure 2).

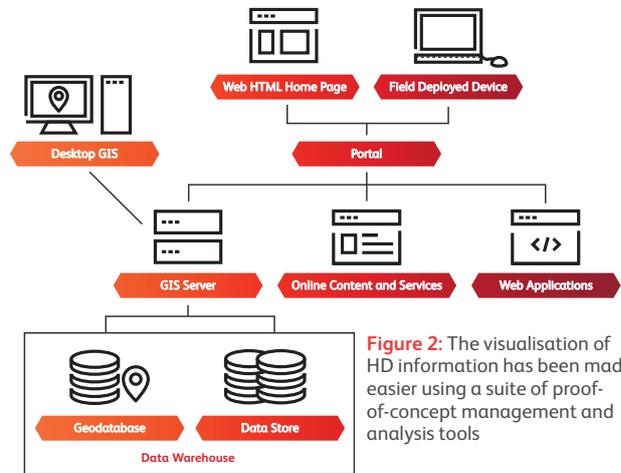


Figure 2: The visualisation of HD information has been made easier using a suite of proof-of-concept management and analysis tools

Outcomes and benefits

In developing the HD data model during this project, Helyx also provided support and recommendations to the Defence Geographic Centre (DGC). We are currently undertaking follow-on research to expand on our recommendations, through requirements capture, Geographic Information Systems (GIS) platform evaluation and practical implementation considerations. We anticipate that this will lead to the adoption of a standard model, which will support information management across the military HD community.

Helyx has been involved in Applied Research activity for nearly a decade. Our input to, and the subsequent output from DSTL's AGIS programme, directly supports the delivery of enhanced Spatial Data Infrastructure (SDI) for Defence and the Single Intelligence Environment, as well as informing other UK initiatives such as the UK Location Council, NATO and coalition organisations. Our research has directly addressed technologies, which are considered exploitable over the next 5-10 years.

- In addition to our UK MOD-sponsored HD work, Helyx is working closely with Esri Inc on the development of Defence and Emergency Management solutions.
- One recent aspect of this work has involved the development of solutions and demonstrations of Esri technology to support Emergency Management solutions. We have drawn on our knowledge and understanding of Human Geography and the HD to enhance and focus the value and effectiveness of this work, and to ensure that it includes practical insights gained from our support to MOD.