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# DEAVI, An Added Value Interface for the StarFormMapper H2020 Science Project

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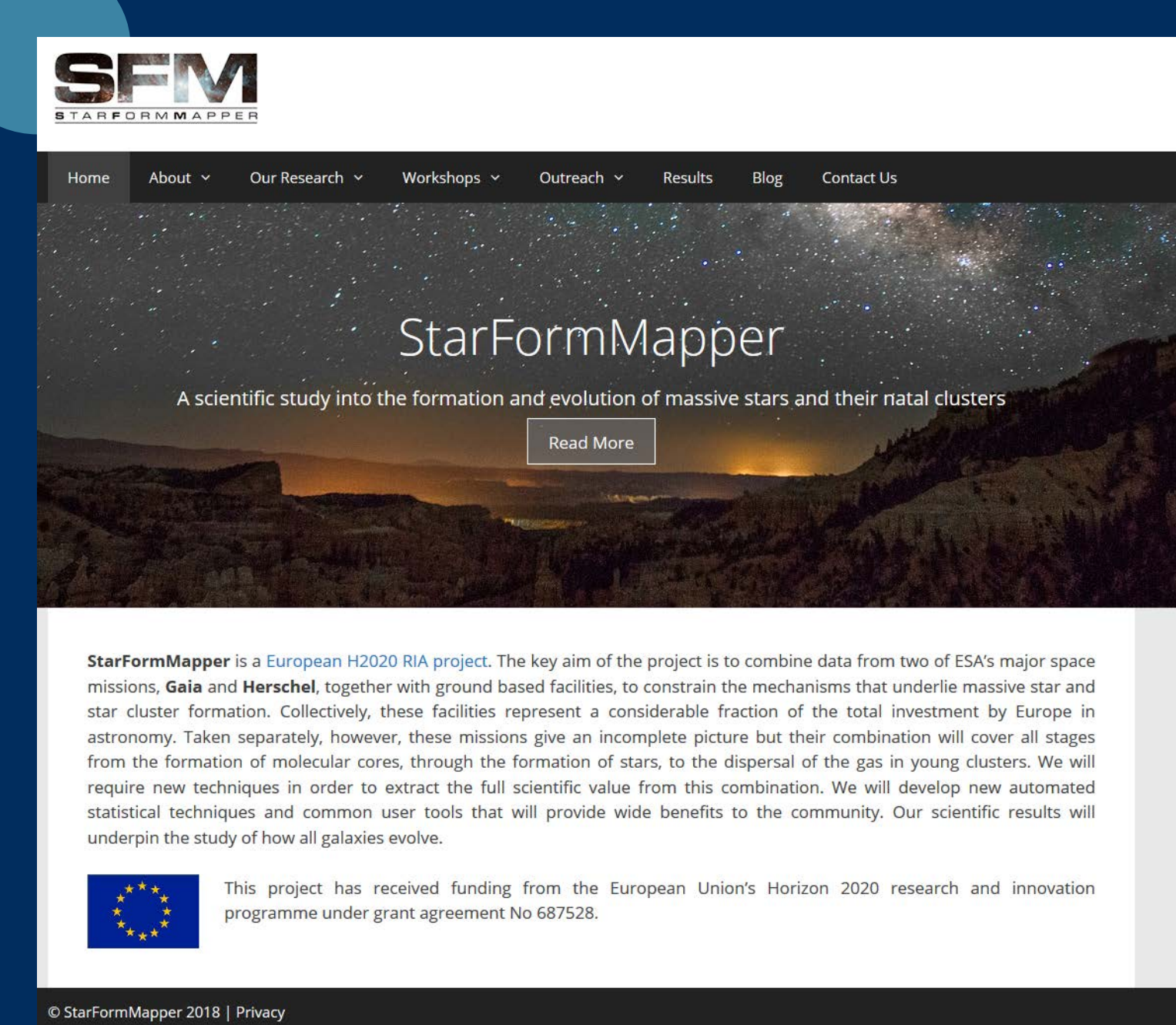
We present the first version of the Dynamic Evolution Added Value Interface (DEAVI). DEAVI is a new AVI developed by the company Quasar Science Resources for the StarFormMapper (SFM) project. SFM is an international project funded by the European Union under the Horizon 2020 programme. DEAVI will allow the exploitation of the scientific contents of the archive of two of ESA's space missions, GAIA and Herschel, in particular, the Gaia DR2 Release Catalogue.



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We provide high quality tailor-made services targeted at Research Centres, Universities and Private Companies looking to expand their activity domain. We operate in the Madrid (Spain) area but our customers include national and European partners both in the public and private sectors.

**Introduction** The SFM project combines data from two of ESA's major space missions, Gaia and Herschel, together with ground based facilities, to constrain the mechanisms that underlie massive star and star cluster formation. Quasar Science Resources involvement deals with the creation of the necessary software tools in order to handle the scientific algorithms for the analysis of the combined Gaia, Herschel and other data of young star clusters, including, the visualization of the results.

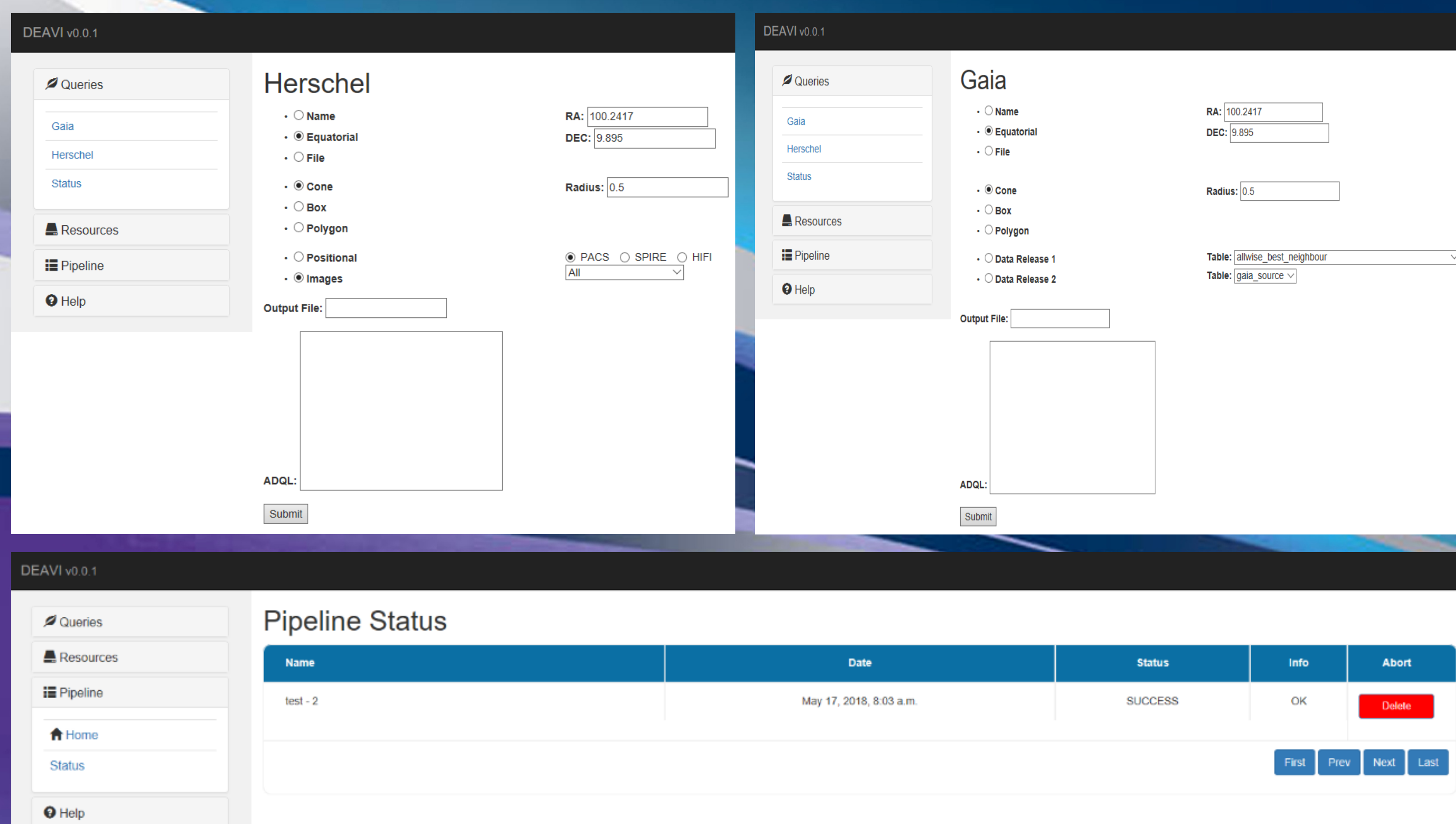


Home page of SFM project, <http://www.sfm.leeds.ac.uk/>

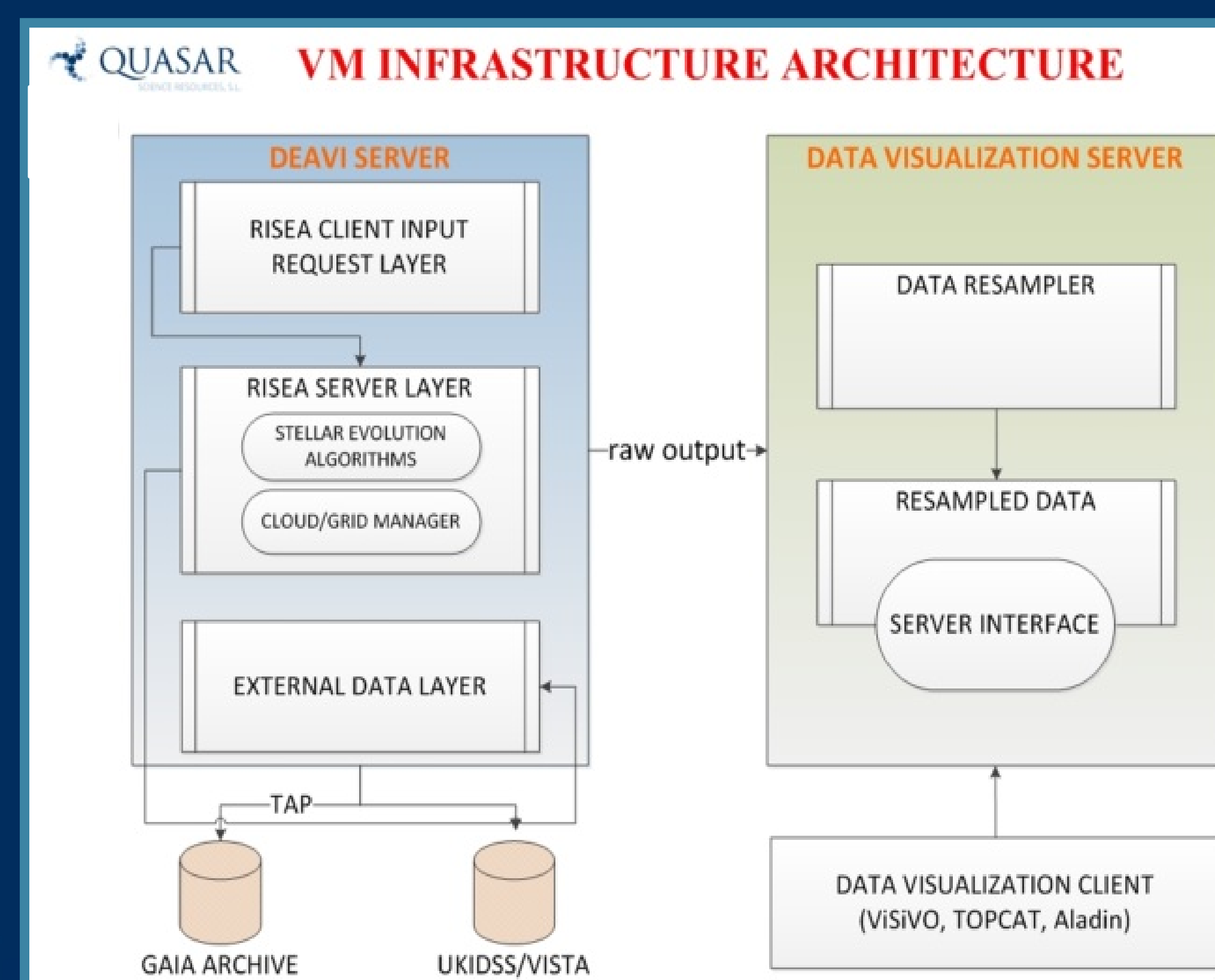
## DYNAMIC EVOLUTION ADDED VALUE INTERFACE

### 1. DEAVI Server

- RISEA Client interface: allows a user to interact with the scientific algorithm(s) in order to add/modify/implement, physical conditions, input parameters and output data.
- RISEA Server: Runs on a virtualized infrastructure, and handles and injects different scientific algorithms.
- Data Access Interface: gives access to the Gaia and Herschel data archives, which are needed by the scientific algorithm. The system will incorporate access to other archives.



Several screen captures of the DEAVI front end used to launch jobs against the ESA archives



Virtual Server architecture design for the SFM project showing the different subsystems

### 2. Data Visualization Server

- Visualization libraries: The system supports the libraries bokeh and d3.js for 2D and 3D data plotting.
- The SAMP protocol has been implemented to exchange information between the server and the client side. For example, we have implemented access to TOPCAT.
- The system allows to download data and products for local use.

## DEPLOYMENT OF DEAVI IN GAVIP

DEAVI will be deployed in the Gaia Added Value Interface Platform (GAVIP) at ESAC, <https://gavip.esac.esa.int/>. GAVIP allows the global science community to run scientific code besides the Gaia and Herschel data archives. This has two significant advantages: 1) Allows data processing without moving data through the network. 2) More computing power thanks to the use of the ESAC infrastructure (RAM, HDD, etc.)



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