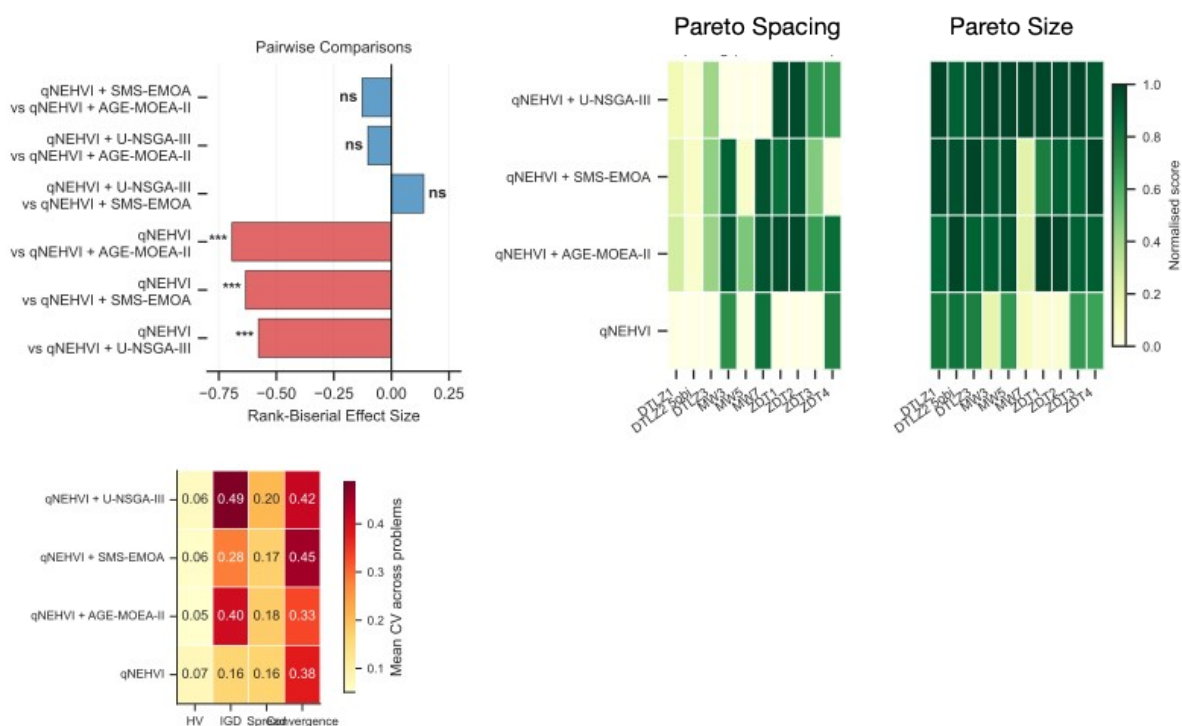


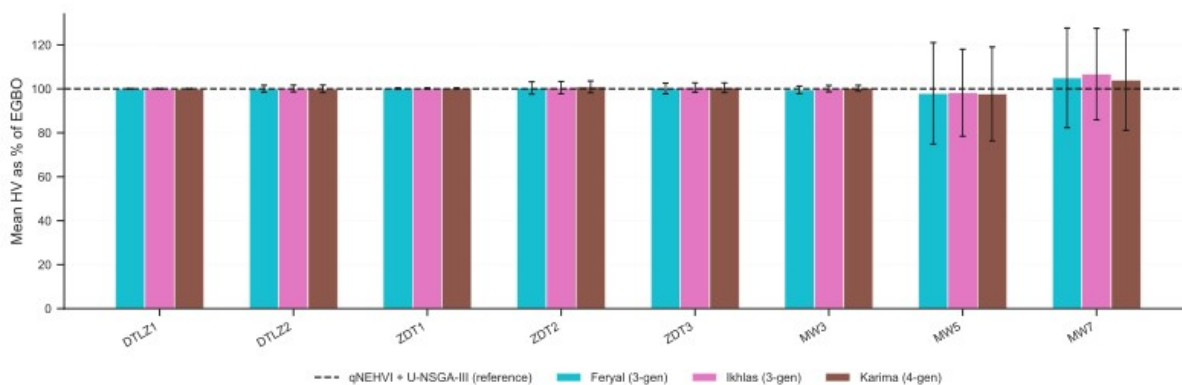
**Supplementary Data for Aqeeli et al. Novelty-Aware Evolutionary Bayesian  
 Optimisation for Multi-Objective Discovery Science**

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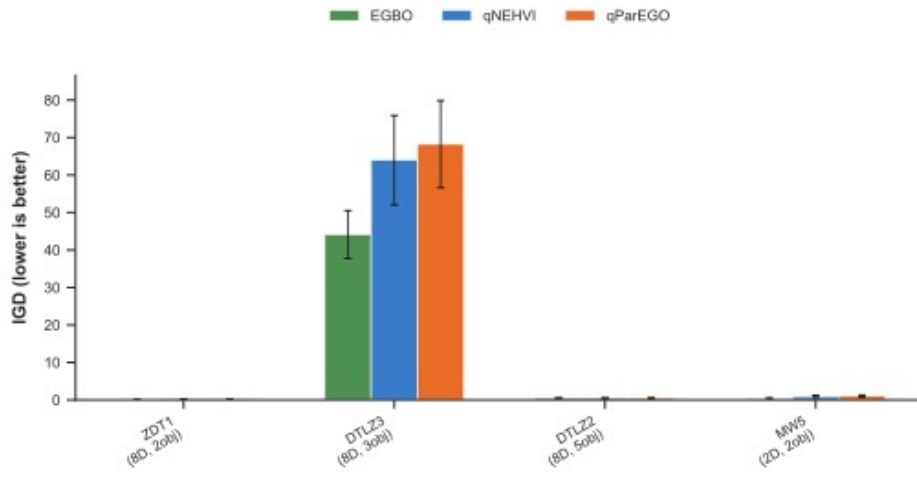
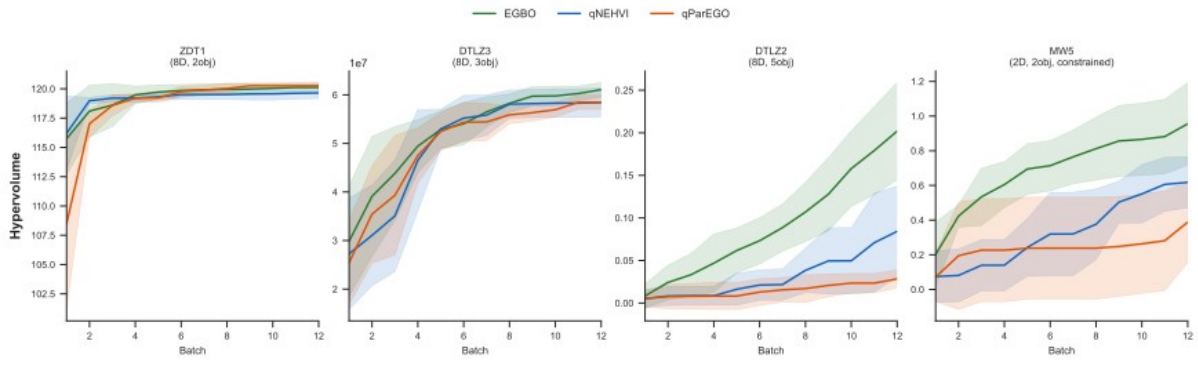
**Figure S1:** Statistical analysis and Pareto properties for different systems. Pareto spacing is defined as the normalised average spacing between points on the Pareto front. Pareto size is defined as the



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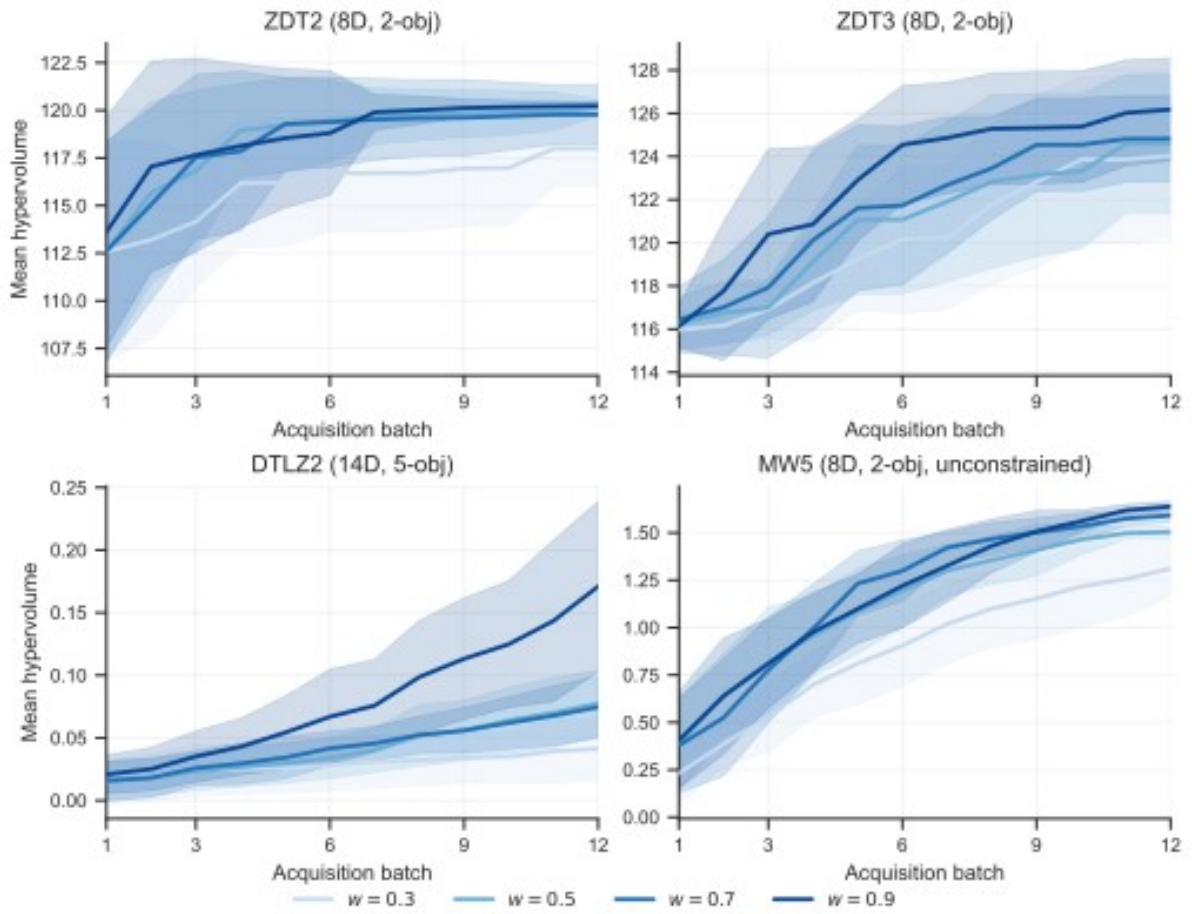
**Figure S2:** HV metrics for multi-generator frameworks on all tested problems.

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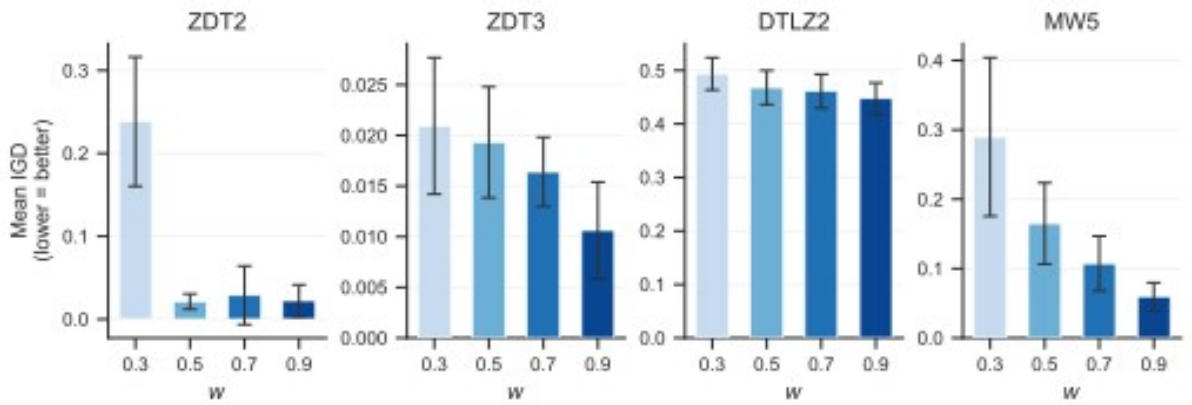


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**Figure S3.** Comparison of EGBO, ParEGO, and qNEVI on four synthetic test systems showing hypervolume traces (top), and IGD scores (bottom).

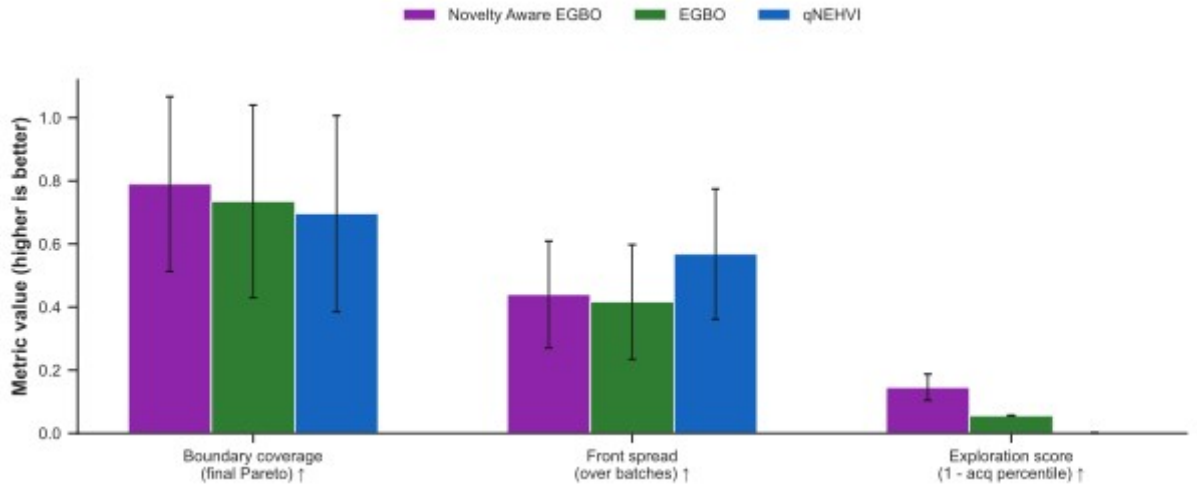


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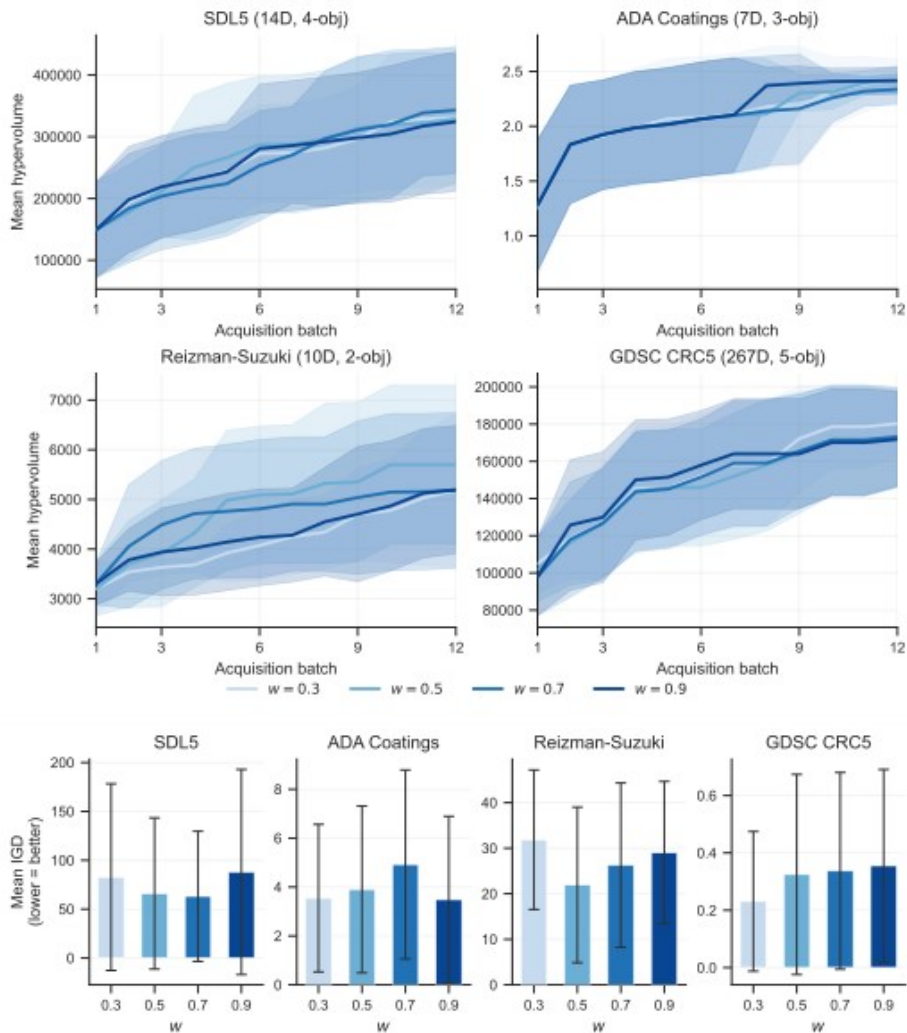


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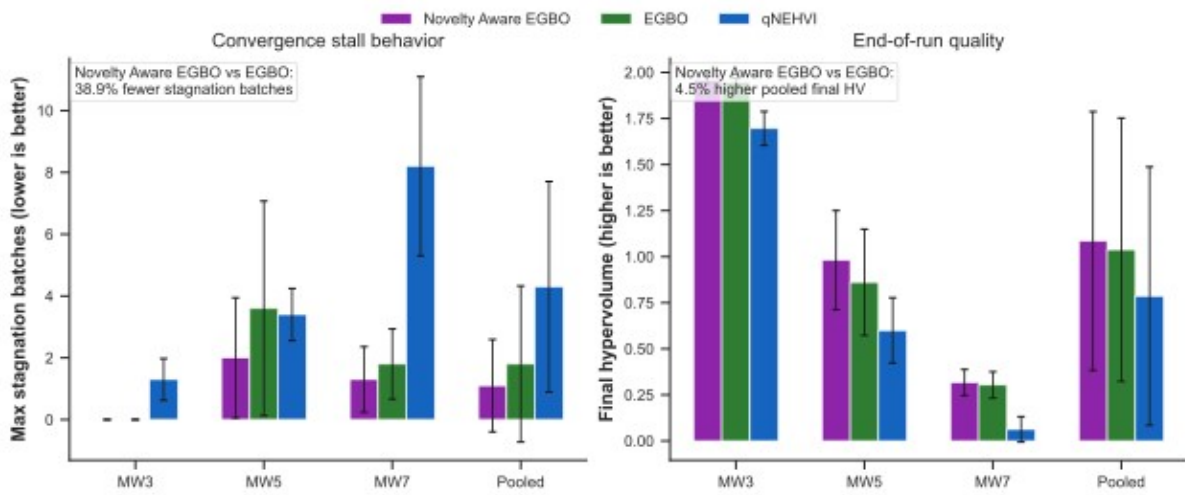
**Figure S4:** Sensitivity analysis for weight parameter of novelty-aware EGBO.



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 46 **Figure S5:** Pareto properties for Novelty-aware EGBO, EGBO, and qNEHVI across a range  
 47 of 10 benchmark tests  
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 50 **Figure S6:** Novelty-aware EGBO Weight sensitivity sweep for real world post-hoc datasets  
 51 showing mean hypervolume traces (top) and Mean IGD scores (bottom).  
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57 **Figure S7:** MW problem metrics for Novelty-aware EGBO, EGBO, and qNEHVI.

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