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A Model for Forecasting Data Centre Infrastructure Costs

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The computing needs in the HEP community are increasing steadily, but the current funding situation in many countries is tight. As a consequence experiments, data centres, and funding agencies have to rationalize resource usage and expenditures.

CC-IN2P3 (Lyon, France) provides computing resources to many experiments including LHC, and is a major partner for astroparticle projects like LSST, CTA or Euclid. The financial cost to accommodate all these experiments is substantial and has to be planned well in advance for funding and strategic reasons.

In that perspective, leveraging infrastructure expenses, electric power cost and hardware performance observed in our site over the last years, we have built a model that integrates these data and provides estimates of the investments that would be required to cater to the experiments for the mid-term future.

We present how our model is built and the expenditure forecast it produces, taking into account the experiment roadmaps. We also examine the resource growth predicted by our model over the next years assuming a flat-budget scenario.

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