

## **Valuing flexible airport design through real options**

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Investing in large transport infrastructures, as is the case of airports, is a risky venture subjected to all kind of uncertainties. Traffic volatility is one of the major concerns to airport authorities, public policy makers, regulators, and other stakeholders. Traditional airport planning paradigms, based on master plans and forecasts, seem inadequate to deal with a highly volatile environment in terms of economic, technological, and technical conditions. To try to overcome those sources of uncertainty concepts like flexible design of projects has arisen. To be successful in highly competitive and uncertain markets, airports have to be (dynamically) adaptable to changeable engineering systems, and create reliable links to the air transport value chain. This research focus on the analysis of the economic value of flexible airport design under a real options approach, which provides a framework to fill in the limitations of traditional valuation models, like the standard net present value. The analysis was conducted using a model developed by the authors, which was empirically implemented in a sample of Portuguese airports, to estimate the value underlying the flexibility in the design of different airport subsystems. The model can be regarded as a support system, able to help decision makers and project managers in strategic and tactical decisions regarding airport infrastructure project design, execution and management.

**Keywords:** Real Options; Uncertainty; Flexibility; Airport Design; Project Evaluation.