This paper presents the conceptual design of a high-capacity turboprop-driven transport aircraft for short- and medium-range operation. It also depicts the iterative procedure and results of the design process as well as the design methods involved. The aircraft design is based on a market analysis that reveals that the short- and mid-haul markets represent a major fraction of the air transport sector. With two passenger decks and one cargo deck, the turboprop aircraft is intended to operate with a maximum capacity of 420 seats and five tons of cargo over a travel distance of 3,000 km. The design enables operations at airports with underdeveloped infrastructure. Thus, it is especially suitable for fast growing markets in emerging countries. The use of four turboprop engines, each delivering a take-off power of 9.5 MW, enables more energy efficient flight operations on short routes than conventional aircraft types.