Responsible research and innovation requires the alignment of what developers and societal actors perceive as problems and what they perceive as desirable purposes to be fulfilled by new technologies. In this process, the challenge is to prospectively identify potential concerns and (systemic) barriers that might hamper innovation development and embedding. The current thesis proposes CTA as a promising approach to responsible research and innovation. The studies in this thesis explore and contextualise different visions of neuroimaging innovations in the Dutch clinical context, as held by actors related to these developments. The results show that different visions yield different desirable technology paths, each with specific concerns and barriers. Furthermore, the thesis identifies factors, mechanisms and dynamics which might become barriers during the development and embedding of medical neuroimaging innovations, and consequently formulates strategies to manage medical neuroimaging in a responsible way. The results of thesis suggest that in order to facilitate an appropriate societal embedding of innovations, responsible research and innovation could, and perhaps should, have a structural place in all emerging science and innovation processes that aim to produce societal benefits.