Circular Economy has been progressively acknowledged as a promising and consistent approach to maximizing value by increasing resource productivity, while minimizing resource consumption and related waste. Manufacturing companies operating on a linear fashion are faced with a wealth of potential business benefits derived from a circular economy. However, this transition requires a systemic change mindset, encompassing a wide array of organizational processes and functions: from strategy and business models to take-back and end-of-life management. With a view to supporting the transition of manufacturing companies towards Circular Economy, this article presents a maturity-based approach that supports manufacturing companies to develop and implement strategic roadmaps and action plans for the transition. An analysis of twelve key management practices to manage the transition towards Circular Economy is presented and briefly discussed. Industrial applications of the proposed maturity approach indicate that the maturity approach can effectively strengthen companies' abilities to embrace the beneficial prospects of the Circular Economy.