Both academic literature and regional governments are interested in the innovativeness of regions and the drivers of competitiveness, especially when considering the impacts on economic development and social progress. Innovation is the basis for global competitiveness. Innovative capacity enables regions to increase productivity and attract investments, thereby sustaining continuous progress in quality and standard of living. A literature review regarding regional innovativeness produces some insights into the effect of contextual elements on the performance of regions and reveals new perspectives on this issue. This study aimed to measure the innovativeness of different European regions and evaluate the nature of the process of innovation, and relationship between its innovativeness and region of origin. This study proceeded from the assumption that the competitiveness of a region is reflected in its capacity or dynamics of innovation. Therefore, we compared European regions verifying the existence of adjacent clusters and determining the characteristics that distinguish the different groups of regions. Innovative capacity was considered in terms of innovative output and several factors were analyzed to identify and differentiate the dynamics of innovations of the regions. The results point to the existence of five groups of regions, and the factors identified are related to innovative processes, namely forms of innovation, factors and objectives of innovation, and aspects related to the framework of innovation such as tertiary education and life-long learning, business and public R&D expenses.