The overall development of the densely populated and highly urbanized areas have been saturated, which physical environment quality and the urban function has gradually declined. For avoiding urban internal decline and outward sprawl, using the principle of growth management to guide the built environment towards regeneration sustainability and to construct the revitalization development strategies has become the important trend. The revitalization development should be based on using the regional environment characteristics to promote the recovery of local, social and economic development, and thus to create the overall future competitiveness. Because the built environment revitalization involved are complex and extensive, in order to stimulate and implement effectively, it is necessary to explore the critical influencing factors to serve as the basis for the follow-up development. This paper quotes the smart growth, sustainable growth and inclusive growth of the EU 2020 strategy to be the classified aspects to combine with literature review. Firstly, the related possible influence factors are summarized, fuzzy Delphi method (FDM) next is applied to extract the critical evaluation criteria. Results of this paper not only can become the foundation of serial research for urban built environment revitalization, but also can provide reference for subsequent practical applications.