In the present paper, we consider the problematic of efficiently generating ranked results in the XML IR context, by incorporating the link source of evidence. Despite of their popularity in the Web, only few research have exploited links to handle XML IR tasks. In contrast, we propose a new query-dependent link analysis approach based on a spreading-activation process that propagates relevance score through the two types of XML links, hierarchical and navigational, to compute a link score for each retrieved XML element. This propagation process depends on two features: the distance between elements and the type of the links separating these elements. The assigned link score is then combined with the content-based score to compute a new score used to re-rank the initial returned list of XML elements.We conducted a series of experiments based on INEX 2007 and 2009 test collections. Evaluation showed significant improvement compared to baseline runs and previous obtained results. These evaluation tests were followed by cross-validation test, which confirmed the robustness of our approach