This paper presents a framework for identifying the opportunity to develop emerging technologies, and strategizing and planning the future development of the emerging technologies-based industry in emerging countries like China.

The framework is conducted by integrating bibliometrics, patent analysis, and technology roadmapping. In the framework, bibliometrics is applied to analyze the existing science research position of the emerging technologies, patent analysis is used to analyze the technology application position of the emerging technologies. The leading experts who are identified by bibliometrics and patent analysis can be asked to participate in the technology roadmapping workshops and ensuing roadmap development. The adoption of the bibliometric method and patent analysis can significantly reduce the bias due to using experts’ opinions that are based on intuitive knowledge when planning and roadmapping the future development of emerging technologies from science to market activities.

The Organic Light Emitting Diode (OLED) industry in China is selected as a case study. This study will contribute to the roadmapping methodology, and will be of interest to OLED industry researchers.
Step 2: Identify the key external factors that may shape the growth of emerging technologies-based industry

Step 3: Roadmapping the future development of emerging technologies-based industry

Fig. 1. Analysis methods and industrial emergence stages

Fig. 2. The framework for analyzing the future development of emerging technology-based industry based on bibliometrics, patent analysis and TRM workshops
Some key findings and contributions are listed as follows:

1. The framework provides a tool for roadmapping and planning the future development of emerging technology-based industry, with understanding of the existing science and technology trajectory and the identification of the future macro-level trends in the policy, market, and industry dynamics.

2. A roadmap for the future development of the OLED industry in China was developed in this paper, which may provide a useful reference for government’s OLED policies and enterprises’ investment strategies.

The limitations of this paper are as follows:

1. In the framework presented in this paper, we didn’t take highly uncertainty events which may alter the development path of emerging technologies-based industry into consideration. It is an interesting research direction that combining scenario analysis, business data analysis, bibliometrics, patent analysis, and TRM to analyze future development trend of emerging technologies-based industry. This is also a potential direction for future-oriented analysis.

2. As for the roadmap, due to the finiteness of experts and availability of data resource, in-depth enterprises’ interviews and business data data analysis remain to be done to improve the reliability and validity of it.