

Analysis of Issue and Commercialization opportunity of LED Fusion Industry using NEWS System

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1. Introduction

Light Emitting Diode is a new light source combined with semiconductor process technology of epi/chip/packaging and light IT technology. LED can implement wavelength selection, digital control, falsification, polarization and photochromic function, normal light source cannot implement, besides advantages such as superior energy efficiency, long lifetime, environmental friendly. Thus, LED industry pulls derivative high-value industries combined with car, IT, environment, medical device, transportation, and agricultural industries.

Emerging issues mean some signals with the potential to emerge as new and powerful trend. Despite several limitations of the analysis of newspapers, we can use the information obtained by a newspaper article to gauge the status of currently attracting attention of leading technology and product innovation. The newspaper quickly tells a variety of information of the entire process of research and development and new business activities and also sets the agenda about social issues[1]. In this study, main technology issues and main institute of LED fusion industry were extracted by newspaper database analysis using NEWS(New, Emerging, Well-extracted items Suggestion System), which informs newly emerging business items related to recently floating market and technology trends. In addition, market opportunities and market entering strategies of main LED fusion industries are proposed.

2. Media Quantitative Analysis and Network Analysis

We collect online news articles including LED fusion from Oct. 2011 to Oct. 2013. Figure 2 shows the number of the news articles relating LED fusion industry. It was recognized that the articles about LED fusion industry are increasing very rapidly. The articles in 2013 are two time more than those in 2012.

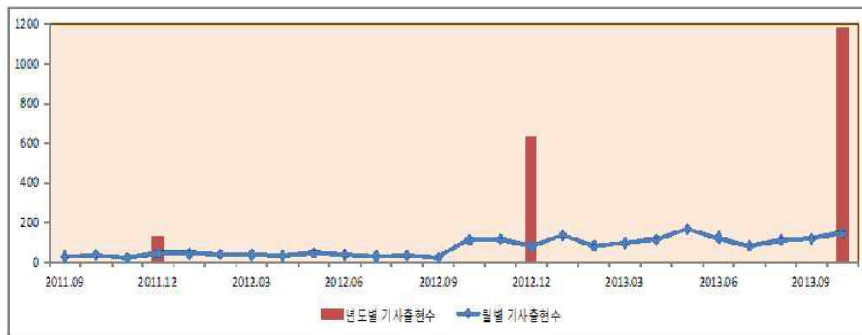


Figure 1. The Numbers of news articles

We use NEWS(New, Emerging, Well-extracted items Suggestion System), the self-developed analysis tool for identification and selection of emerging issues from raw news articles. And we use VOSViewer for visualization of the network analysis result. The analysis procedure consists of five steps; 1. Raw data downloading and cleansing, 2. Morpheme analysis, 3. T-score analysis, 4. Selecting emerging keywords, 5. Network analysis of emerging keywords). Figure 2 shows network analysis result of emerging issues related to LED fusion industry. The primary keywords are automobiles, agricultural bio fusion, medical device, IT confusion, network system, transportation, light diode, marine bio, ship, etc. This represents that LED industry is being confused with various existing industries from automobiles, IT, agricultural bio, medical devices, marine, transportation to construction.

We use NEWS(New, Emerging, Well-extracted items Suggestion System) for identification and selection of main institute related to LED fusion industry from raw news articles. Figure 3 shows network analysis result of emerging institutes related to LED fusion industry. The primary institutes are Korea photonic technology institute, LED fusion technology research center, Korea association for photonic industry development, LED marine fusion technology research center, Pukyong National University, and Chonbuk National University, etc.

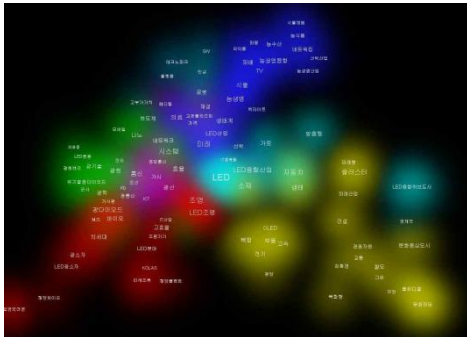


Figure 2. The network visualization of LED fusion industry's issues using VOSviewer (t-score is more than 0.7)



Figure 3. The network visualization of LED fusion industry's institutes using VOSviewer (t-score is more than 0.7)

3. Market Opportunity of LED fusion industry

LED industry is leading higher value-added business by fusion with various existing industries. Especially due to the various advantages of LED in diagnosis and treatment medical device, environment-friendly plant growth, Medical device and plant production factory utilizing LED light source are emerging as new promising business items.

In LED medical device, market is forming around skin care medical device and beauty device as the center. LED skin care medical device has relatively low entering barrier, thus relatively higher access potential of SMEs. Thus, SMEs has to extract business opportunity by developing new type's applications through exploring customer needs besides sufficient database improving effectiveness, safety, stability of the medical device.

In LED plant production factory, energy saving and securing of profitability are pivotal point of business, development of process cost saving technology and seeds suitable to plant production factory, business model of high profit by extracting market creating high profit such as crops for a special purpose like high class vegetable and medicinal crops.

4. Summary

This paper provides emerging technology issue and institutes of LED fusion industry based on the efficient quantitative analysis of a large amount of newspaper articles and papers for the decision-making of new business planning and core strategy. In addition, market opportunities and market entering strategies of main LED fusion industries are proposed.

In the future, it is required to analyze and complement the quantitative analysis result by LED fusion industry experts and to build emerging issue database.

5. References

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