

Implementation of Human Spine Database System for Realizing e-Spine

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1. Introduction

Recently all countries of the world present stricter standard for ultra low sulfur diesel fuel, demand of hydro-treating catalysts, which eliminate sulfur and other foreign material in oil refining process, is increasing. As global environmental regulations become stricter, stricter standard for ultra low sulfur diesel is required, and the emission standard of sulfur in developing countries become more severe. Moreover, as the characteristics of crude oil became acidic including more sulfur and demand of automobile and diesel is increasing, the demand of hydro-treating catalysts for producing clean fuel is increasing. However, domestic oil companies are utilizing advanced countries' hydro-treating catalysts of high-level technical standard, thus, the rate of dependence on imports of hydro-treating catalysts is very high. In this study, the market opportunity of hydro-treating catalysts is evaluated with BMO(Bruth-Merrifield-Ohe method), an objective and systematic market attractiveness evaluation methodology of new business item, and market opportunity and entering strategies for small & medium-sized enterprises(SMEs) are proposed. In addition, for SMEs to obtain technology provider information of gap technology, network analysis of technology providers is performed.

2. Market Opportunity Analysis

BMO(Bruce Merrifield Ohe) Method is known as an objective and systematic market attractiveness evaluation methodology of new business item and existing business item, which is increasing objectiveness by quantifying and simplifying market attractiveness and business goodness of fit and utilized in the department of commerce in the United States, companies, and business schools. The market attractiveness is composed of 6 index, sales and profit potential, growth potential, competition situation, diversification of risks, business reconstruction potential, special social conditions. Business goodness of fit is composed of 6 index, confrontation ability of required fund, marketing ability, production and managing ability, suitability of technology and service planning ability, obtaining ability of raw material, components, and information, management support, each index is on a scale of ten points.

[Table 1] Index Composition of BMO Methodology

BMO Method					
market attractiveness			Business goodness of fit		
1	sales and profit potential	10	1	confrontation ability of required fund	10
2	growth potential	10	2	marketing ability	10
3	competition situation	10	3	production and managing ability	10
4	diversification of risks	10	4	suitability of technology and service planning ability	10
5	business reconstruction potential	10	5	obtaining ability of raw material, components, and information	10
6	special social conditions	10	6	management support	10
Total		60	Total		60

Global market demand of hydro-treating catalyst is estimated to 2.3billion dollars at 2019 with 4.8% CAGR, while domestic market demand of hydro-treating catalysts is estimated to 0.07 billion dollars at 2019. Albemarle, Criterion, WR Grace are leading the global market. In domestic market, oil companies are researching on hydro-treating catalysts. A Oil company is known to possess technology of alumina carrier production and impregnation but do not possess pore size control technology. Hydro-treating catalyst can be utilizing in desulfurization process of other fossil fuels, BTL(biomass to liquid), CTL(coal to liquid), and GTL(gas to liquid). From BMO analysis, hydro-treating catalysts has 36 points out of a possible 60 and business goodness of fit of the target SME, A, has 44 points out of a possible 60, thus, hydro-treating catalyst is considered as a promising business item.

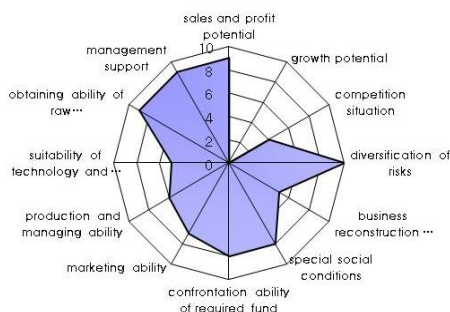


Figure 1. BMO Analysis chart of hydro-treating catalysts

For domestic SME to succeed in hydro-treating catalysts market global leading companies are oligopolizing, global technology replacement strategy is required by developing highly active and long life-term catalysts and obtaining strong intellectual property rights. Also, premarketing and collaborative research with oil company is required. To obtain alumina support preparation technology, catalyst material deposition and modeling technology and long life-time technology of catalysts, industry-academic cooperation is required.

3. Technology Provider Matching by Network Analysis

From elemental technology analysis of hydrotreating catalysts, gap technology was identified and from quantitative analysis of paper DB(web of science), main researchers of hydrotreating catalysts were derived. From network analysis of technology providers, main technology provider was derived. From research mapping, major 4 technology providers of gap technology were extracted. This quantitative and network analysis result can provide technology provider information of gap technology for SMEs to require.

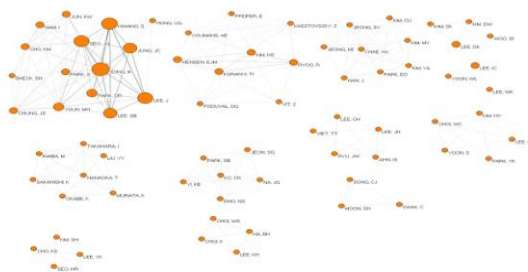


Figure 2. Network Analysis results of domestic hydrotreating catalysts researchers.

4. Summary

This paper provides the market opportunity analysis process and technology providing matching process based on the efficient quantitative analysis of a large amount of papers and network analysis. In the future, it is required to analyze and complement the quantitative analysis result by commercialization experts and to build emerging issue database.

5. References

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