

**Project Title: Generating novel customer needs for new product development**

**研究項目: 生成新的顧客需求用以新產品開發**

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### **Abstract**

Identifying new customer needs is critical for developing innovative products and starting new businesses. For instance, when Ford recognized baby boomers' desire for inexpensive sporty cars in the 1960s, they developed the Mustang, selling over 400,000 units in the first year. Companies want to identify emerging needs early for profit opportunities, but traditional market research is slow and costly. Recent advances in AI like ChatGPT present new chances to efficiently generate novel customer needs for product development. We propose incorporating domain knowledge into large language models, then using the enhanced models and deep learning to generate fresh customer need texts. This methodology can: 1) understand relevant domain knowledge; 2) rapidly create novel needs beyond current ones; and 3) require fewer company resources than traditional techniques. Our approach could transform product ideation and development by enabling designers to derive more creative ideas from AI-generated insights. The results will advance product design research by demonstrating the power of generative AI for innovation. This project has practical implications for mining insights for new products and businesses