

แบบจำลองการตัดสินใจสำหรับการพัฒนาอุปกรณ์ตกแต่งรถยนต์ในระดับภูมิภาค



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DECISION MODEL FOR REGIONAL VEHICLE ACCESSORY DEVELOPMENT

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A Thesis Submitted in Partial Fulfillment of the Requirements
for the Degree of Master of Engineering Program in Engineering Management
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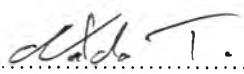
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ในกระบวนการพัฒนาผลิตภัณฑ์ใหม่ส่วนเริ่มต้นของกระบวนการมักเป็นส่วนที่มีความซับซ้อนอยู่มากเนื่องจากข้อมูลที่ใช้ยังเป็นข้อมูลที่ได้จากการคาดคะเนของผู้ที่มีส่วนเกี่ยวข้องเท่านั้น นอกจากนี้การเจริญเติบโตอย่างรวดเร็วของประเทศในแถบเอเชียแปซิฟิกและแอฟริกายังมีส่วนทำให้บริษัทต่างๆหันมารวมกลุ่มประเทศในการพัฒนาผลิตภัณฑ์ใหม่เพื่อลดต้นทุนในการผลิตและเวลาที่ใช้ในการเสนอผลิตภัณฑ์ใหม่สู่ตลาด การศึกษาชิ้นนี้ทำขึ้นเพื่อพัฒนาระบบการตัดสินใจลงทุนพัฒนาอุปกรณ์ตกแต่งรถยนต์ในระดับภูมิภาคให้กับบริษัทในกรณีศึกษา

แบบจำลองการตัดสินใจพัฒนามาจากระบบการวางแผนแบบ modified stage and gate และกระบวนการตัดสินใจแบบหลายเกณฑ์การตัดสินใจและหลายตัวเลือก แบบจำลองนี้รวบรวมข้อดีของการเปรียบเทียบความสำคัญของเกณฑ์แบบคู่ Analytical Hierarchy Process และการจัดลำดับความสำคัญของตัวเลือกด้วยการคำนวณแบบถ่วงน้ำหนัก Weight Sum Method และได้ทำการทดสอบใช้จริงกับโปรแกรมสองโปรแกรมในบริษัทในกรณีศึกษา นอกจากนี้ยังมีการวิเคราะห์ความไวต่อการเปลี่ยนแปลงของเกณฑ์ด้วย

แบบจำลองนี้สามารถช่วยลดความซับซ้อนของกระบวนการตัดสินใจ (จาก 16 เหลือ 5 จุดตัดสินใจ) และยังช่วยลดเวลาที่ใช้ในการตัดสินใจจาก 27 สัปดาห์ เหลือ 17 สัปดาห์ ในบริษัทในกรณีศึกษา แบบจำลองทำให้ผู้ที่มีส่วนเกี่ยวข้องสามารถมองเห็นภาพของกระบวนการและเป้าหมายชัดเจนมากขึ้น แบบจำลองสามารถสร้างความพึงพอใจให้กับผู้ที่จะใช้งานแบบจำลองในบริษัทในกรณีศึกษาถึงร้อยละ 79

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In new product development process, the front end is usually called fuzzy front end with difficult alignment between workers since data is presented in the form of estimations and best guess. Besides, Asia Pacific and Africa is a high growth region where companies are heading toward regionalization for cost reductions and frequently introduce new products to customers. This study is aimed to accommodate the case company with a multi-criteria decision making model which supports the choosing of regional vehicle accessory new product development and investment.

A combination of modified stage and gate process, currently used for case company's vehicle development, and multi-criteria decision making method is proposed in a form of decision making model and calculation sheet. Advantages of Analytical Hierarchy Process and Weight Sum Method are jointed in the alternatives prioritization process. The model was tested with two projects and sensitivity analysis is done with the weights given to the criteria.

The model is proven to be effective that from initial idea to the prioritized accessory list, gates are reduced from 16 to 5 and timing used reduced from 27 to 17 weeks. The process is more transparency and the output satisfied direct users at 79% satisfaction rating.

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Advisor's Signature *Natcha*

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