



Instrument of Product Success: A Tool to Measure the Success of Products

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Abstract. A successful product is a product that can fulfill the needs, wants, and expectations of its consumers. The success of a product, among others, is seen from the size of the product's market share. To assess the potential success of a product based on consumer desires, a questionnaire is needed that can be used as an effective measuring tool. This questionnaire is designed to capture qualitative and quantitative data on consumer preferences, expectations, and perceptions of the product.

Based on various previous studies on successful products, several variables were obtained that could be generated as variables of successful product measures, which were then arranged as questions on the questionnaire. However, producing a questionnaire measuring product success is not as easy as imagined. This is due to the different language sources and perceptions of the product from the researchers. To facilitate the process of translating the questionnaire as an instrument for measuring product success research, the seven steps of *Brislin* can be used as a measuring tool to produce a product success questionnaire.

This study aims to produce an instrument to measure product success based on variables generated in previous research. Using *Brislin's* steps and methods, an instrument was produced to measure whether a product is successful or not, especially for use in the manufacturing industry.

Keywords: Product Success, Instrument, *Brislin's* Seven Steps, Manufacturing Industry

1 Introduction

Product success has a lot to do with a company's business performance. Creating successful products is a must for a company to survive in today's tough competition. A manufacturing company's business success depends on its ability to identify customer needs and quickly create products that can fulfil those needs at low cost. Creating products based on customer needs is important because it impacts product success.

A successful product performs well, as measured by its ability to generate profit, sales value and market share size, and a relatively short payback period. Product success is generally measured using three dimensions: *financial performance*, *opportunity window*, and *market impact* [1], [2]. This study measures product success based on *financial performance*.

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An instrument is needed to estimate a product's success to measure whether it is performing well or has the potential for success. The instrument described in this study is a measuring tool that can be used to estimate product success, especially manufactured products.

2 Methodology

Designing a measurement tool for successful products in this study consists of two main stages. *First*, designing research instruments based on variables and indicators used in previous studies. *Second*, developing research indicators and translating measurement instruments using *Brislin's seven steps*.

2.1 Stage 1. Designing the Successful Product Instrument

The stage of designing a successful product instrument is a process of reviewing various references related to successful products. Based on previous studies, 5 (five) variables are obtained that correlate with product success, namely *product characteristics* (expressed as variable X1), *management & organizational characteristics* (X2), *marketplace characteristics* (X3), *innovation* (X4), and *knowledge sharing variables* (X5) [3], [4], [5]. The screening process for these five variables was carried out through three stages: In-depth literature review, tabulation method, and correlation meta-analysis study. The results of a literature search on the website www.scopus.com, for example, using the keyword "product success", found 147 documents that discuss product success, consisting of articles, papers, and theses/dissertations [5].

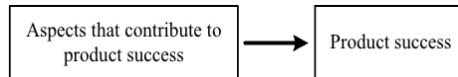


Fig. 1. The process of generating research ideas

The process of finding variables that have an impact on product success was previously carried out by identifying and analyzing using bibliometric methods based on network data, using VOSviewer software. The results of data processing show several variables or topics that are directly correlated to product success, including product design, innovation, product development, customer satisfaction, competition, strategic planning, product performance, and customer needs [4]. This identification process is shown in Figure 2.

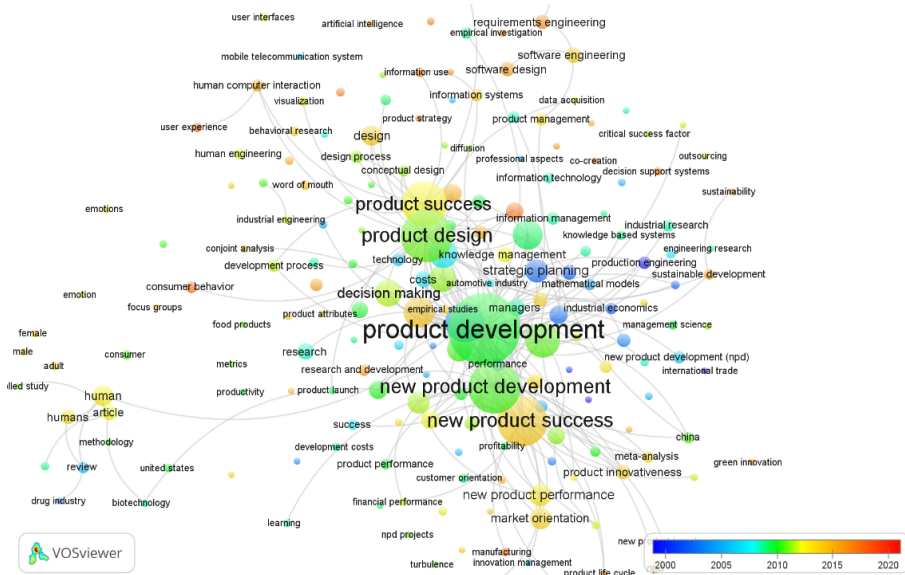


Fig. 2. Visualization of research on successful products using VOSviewer software [4]

2.2 Stage 2. Translating the Successful Product Instrument

The instruments to measure successful products are summarised from previous studies developed by experts from countries whose cultural characteristics differ from Indonesia (cross-cultural). This condition requires researchers who are culturally different to be careful when making language transfers (translations) from the form of research questions on instruments that are **not** in Indonesian into Indonesian research instruments so as **not** to produce erroneous or ambiguous meanings.

Translation is a cognitive process of transforming the information in another culture's research instrument into the target research instrument (Bahasa Indonesia). This study involved two translators who were *bilingual* in Indonesian and English (bicultural translators), with a translation process of "language to language."

According to Lopez et al. (2008) [6], using *Brislin's* seven-step translation method, it is easier for researchers to adapt research instruments across cultures. Briefly, this translation process is outlined as follows:

Step 1: Have the first translator read the entire narrative/document of the instrument so as to become familiar with the content of the questions on the instrument.

Step 2: The first translator translates the instrument (initial text) into Bahasa Indonesia (forward translation).

Step 3: The translated results of the first translator (Bahasa Indonesia) are back-translated into English by the second translator without looking at the original text (the original instrument) in English (back translation).

Step 4: Compare the similarity of words and meaning between the original instrument (original text) and the translated result in step 3 (back translation review).

Step 5: If the results show similarity in perception/meaning, then the translation results can be directly used as a research instrument. However, if the translation results show different meanings (inconsistency), then the researcher needs to make adjustments (harmonization). The adjustment process must pay attention to the original instrument (original text) and communicate back with the two translators in order to obtain results that are truly close to the meaning of the original text according to the perception of the two translators.

Step 6: The customized research instrument (step 5) is then checked again (finalization and proofreading).

Step 7: Testing the final instrument through a pretest or pilot study. In addition, quantitative testing is also needed to see the validity and reliability values of the research instrument. Validity and reliability testing are intended to evaluate the final instrument from the translated results.

The translational concept of the research instrument is simply described in Figure 3.

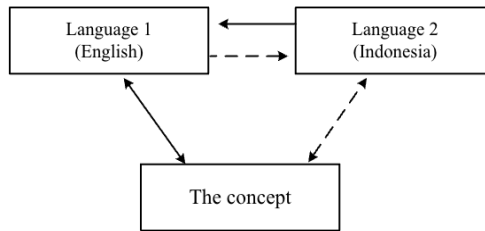


Fig. 3. The process of translating the research instrument

3 Result

Based on the results of translating the variables that determine product success using *Brislin's* seven steps, an instrument is produced to measure the success of a product, as shown in Table 1.

Table 1. Research instruments and translated results (Example: Variables X1)

Predictors	Preliminary Instruments (Original Text)	References	Result of translation	Code
Product advantage (X1.1)	Our product will be of higher quality than competing products	(Fortuin et al. 2007) [7]	Produk kami memiliki kualitas yang lebih baik daripada produk pesaing	PA1
	Compared to competitive products, our product will offer a number of unique features or attributes to the customer	(Fortuin et al. 2007) [7]	Dibandingkan dengan produk pesaing, produk kami menawarkan sejumlah fitur atau atribut yang unik kepada pelanggan	PA2
	The new product was radically different from competitor products	(Langerak et al. 2004) [8]	Produk baru kami sangat berbeda dari produk pesaing	PA3

Table 1. Research instruments and translated results (Example: Variables X1) (Cont.)

Predictors	Preliminary Instruments (Original Text)	References	Result of translation	Code
	We produce new products with high functionality or benefit	(Valle & Vazquez-Bustelo 2009) [9]	Kami memproduksi produk-produk baru dengan fungsi atau manfaat yang tinggi	PA4
	The new product was highly innovative	(Langerak et al. 2004) [8]	Produk baru kami sangat inovatif	PA5
	We develop reliable and long-lasting products	(Valle & Vazquez-Bustelo 2009) [9]	Kami mengembangkan produk yang handal dan tahan lama	PA6
	The new product offered solutions not possible with existing products	(Langerak et al. 2004) [8]	Produk baru kami menawarkan solusi yang tidak bisa dilakukan oleh produk-produk yang sudah ada	PA7
Product meets customer needs (X1.2)	Our product will be clearly superior to competing products in terms of meeting customers' needs	(Fortuin et al. 2007) [7]	Produk kami lebih unggul dari produk pesaing dalam hal memenuhi kebutuhan pelanggan	PN1
	Product easily updated to meet changing needs	(Storey & Easingwood 1996) [10]	Produk kami mudah diperbarui untuk memenuhi perubahan kebutuhan	PN2
	Flexible and can be adapted to individual customers	(Storey & Easingwood 1996) [10]	Produk kami bersifat fleksibel dan bisa disesuaikan dengan pelanggan perorangan	PN3
	Consumers are familiar with this type of product	(Storey & Easingwood 1996) [10]	Konsumen sudah biasa atau tidak asing dengan jenis produk ini	PN4
	Our marketing people met with customers frequently to find out what products or services they needed	(Calantone & Di Benedetto 2007) [11]	Orang-orang pemasaran di perusahaan kami, sering bertemu dengan konsumen untuk mengetahui produk atau layanan apa yang mereka butuhkan	PN5
Product price (X1.3)	To offer products at lower prices than competitors	(Gonzalez & Vazquez 2007) [12]	Perusahaan kami menawarkan produk dengan harga lebih rendah dari para pesaing	PP1
	To compete with prices from other companies on the market	(Gonzalez & Vazquez 2007) [12]	Perusahaan kami bersaing dalam harga dengan perusahaan-perusahaan lain yang ada di pasaran	PP2
	Our firm launched the new product with a low introductory (penetration) price	(Calantone & Di Benedetto 2007) [11]	Perusahaan kami meluncurkan produk baru dengan harga pengantar (penetrasi) yang rendah	PP3
	We charged a premium price for our new product	(Calantone & Di Benedetto 2007) [11]	Kami mengenakan harga premium untuk produk baru kami	PP4

Table 1. Research instruments and translated results (Example: Variables X1) (Cont.)

Predictors	Preliminary Instruments (Original Text)	References	Result of translation	Code
Product technological sophistication (X1.4)	We had sufficient engineering and manufacturing technologies for our product development	(Junfeng & Wei-Ping 2017) [13]	Kami memiliki teknologi rekayasa dan manufaktur yang memadai untuk pengembangan produk kami	PT1
	We had sufficient resources to develop technologies that help us develop new products and related processes	(Junfeng & Wei-Ping 2017) [13]	Kami memiliki sumber daya yang cukup untuk mengembangkan teknologi yang dapat membantu kami mengembangkan produk baru dan proses terkait	PT2
	We possessed a sufficient technological base for our product development	(Junfeng & Wei-Ping 2017) [13]	Kami memiliki basis teknologi yang memadai untuk pengembangan produk kami	PT3
	My company uses technology that allows employees to share knowledge with other persons inside the organization	(Lin 2007) [14]	Perusahaan kami menggunakan teknologi yang memungkinkan karyawan berbagi pengetahuan dengan orang lain di dalam perusahaan	PT4
	Employees use knowledge networks (such as groupware, intranet, virtual communities, etc.) to communicate with colleagues	(Lin 2007) [14]	Para karyawan kami menggunakan jaringan pengetahuan (seperti <i>groupware</i> , intranet, komunitas virtual, dll.) untuk berkomunikasi dengan rekan kerja	PT5
	Projects that include or are based on known technology	(Valle & Vazquez-Bustelo 2009) [9]	Proyek-proyek perusahaan menyertakan atau didasarkan pada teknologi yang telah dikenal	PT6

4 Discussion

The successful product instrument produced in this study is intended to explore consumers' needs, expectations and perceptions of a particular product. The tool measures several key dimensions that influence a product's potential success in the market. At a minimum, the product success instrument covers the following factors:

The functional needs of the product, where this section evaluates whether the product fulfils the basic needs and specific needs of consumers. Questions are directed at finding out the functions of the product that consumers consider most important, as well as the extent to which the product solves the problems faced by users.

Quality and satisfaction, where consumers are asked to rate quality aspects such as durability, reliability, and key product features. The instrument also includes questions related to the level of satisfaction with using the product in the short and long term.

Price and value. In this dimension, consumers are evaluated on how well the product price compares to the perceived value. Related questions include perceived fair price, price-related preferences, and comparison with similar products in the market.

Product design, where in addition to product functionality, product design is an important factor in purchasing decisions. Consumers are asked to assess the product's aesthetic appeal, ergonomics, and comfort of use.

Innovation and differentiation. Contains questions to measure how innovative the product is according to consumers. Does the product offer something unique compared to competing products? Or does the innovation match their expectations?

Consumer trust in brands, where the trust factor in brands can influence consumers in the purchase decision of a product. This instrument will measure how consumers perceive the brand behind the product, including reputation, quality consistency, and loyalty.

User experience. In this section, the questionnaire explored consumers' direct experience with the product, including difficulties encountered, ease of use, and overall satisfaction after using the product.

5 Conclusion

Success is abstract and relative for each individual and company, so it requires an instrument that is able to measure something qualitative into a quantitative measure, including measuring the success of a product. The measurement results obtained from the product success instrument can be calculated, collected, and then analyzed. The results can provide a comprehensive picture of consumer desires and expectations of the product. The results can be used to estimate the potential success of the product in the market, as well as identify important areas of improvement to improve product performance and competitiveness. The instruments created can be used to measure product development success at all levels of industry, especially in the manufacturing industry.

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