



Product Success Through Market and Human Knowledge

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This research sheds light on the effect of market knowledge and human knowledge on product success. Most Enterprises do not appreciate knowledge management and do not fully perceive its importance to Enterprise success. To address this indifference, we market knowledge and human knowledge in Product success. Data were collected using a questionnaire distributed to several Industrial Enterprise in China. When providing products to the market, the products should meet customer needs through product success. The design should be identical to the specifications accredited by knowledge management. Achieving competitive advantage cannot be successful without effective product design, which requires knowledge of the qualities and characteristics of products. Results indicate that Product design success is important to achieve competitive advantage by meeting customer requirements. Without realizing market, human knowledge in Product success, companies cannot provide products that meet customer requirements and achieve satisfaction. Knowledge management positively affects product success. The direct effects of market and human knowledge on Product design success have been clarified. How these classifications affect on knowledge management itself, which in turn affects Product success, has not been explained. Product design success does not only comprise product and operations management or simple management's participation. The foundation of Product design success is valuable knowledge.

Key words: *Product design success, market knowledge, human knowledge, knowledge management*



INTRODUCTION

This research investigates why and how knowledge management affects Product success. Recently, researchers introduced of market and human knowledge that direct affects Product design success in achieving competitive advantage of Enterprise (Fu et al, 2008).

Product design success do not last long because of competition. An institution must continually plan for the future and seek ways to increase efficiency and productivity by relying on knowledge management awareness and knowledge of workers. Researchers confirmed that knowledge dissemination among employees leads to the creations of products with high quality, low costs, and simplified operational processes.

Knowledge management supports all sections of a institution, especially the production department, by providing the latest information on project research and development. It also supports all stages of Product design success and integration proficiency and prolongs the life cycle of products to achieve the best results (Jennex, 2005; Yan *et al.*, 2006). Designers deal with massive amounts of information during Product success. The problem is that many knowledge management systems interact poorly with the design process (Fu et al, 2008). Thus, Product design success depends on successful knowledge management. Effective knowledge management is crucial because everything is based on knowledge. Recent studies confirmed the effect of knowledge management on Enterprise performance. Competitive advantage is achieved by offering products that satisfy customer requirements through integrating IT and human resources (MahdaviMazdeh & Hesamamiri, 2014).

Many factors maintain a company's competitive advantage, and one of these factors is knowledge management. Knowledge is the main source of competitive advantage (Mingliang & Bin, 2009) as well as to Organizations and skillful Managements (Lucarelli & Peters, 2001). Previous studies on the effect of creating knowledge on Product design success confirmed that knowledge management is considered as one of the fundamental factors for Enterprise success (Voelpel *et al.*, 2006).

A few studies introduced knowledge management classifications and identified their effect on Product success.

This research focuses on the two knowledge management classifications that affect Product design success and explains the relationship between different kinds of knowledge, namely, human and market knowledge, and their direct effect on Product success.

RESEARCH MODEL AND HYPOTHESES

Figure 1 shows the proposed model of the research and the nature of the relationship among three key variables.

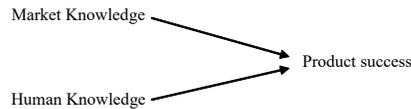


Figure 1
Model of the Proposed

The above figure indicates that market and human knowledge is the independent variable that affects Product design success (dependent variable).

MARKET KNOWLEDGE

One of the key factors for Product design success is market knowledge. According to marketing literature, market knowledge is generated through the use of internal knowledge of the companies to gain external knowledge. Compiling information about current and potential customers along with milestones related to customers and competitors is considered the foundation of Product success. Such information gives companies an insightful and broad view of ideas for products that meet different customer needs. It allows companies to understand their customers and competitors and implement complex tasks quickly. Companies should analyze many available new alternatives of strategies and inquiries (Luca & Atuahene-Gima, 2007). Market knowledge is the main foundation for idea generation of products (Ammann, 2009). It helps companies understand the market and what benefits them, make rapid decisions that meet the market needs, and adapt to market changes (Heirati & O’Cass, 2015). In addition, market knowledge allows companies to explore and utilize markets, products, capabilities, and techniques. Companies can also have superior performance and upgrade their abilities to obtain an extended competitive advantage and achieve a maximum range of efficiency (Vorhies et al., 2011). The trend toward market knowledge increases the efficiency of companies for designing their products by exploring and utilizing specializations (Atuahene-Gima, 2005). Market knowledge is one of the basic conditions for a successful expansion by providing customer needs.

Knowledge from the outside market through market information should be acquired, collected, analyzed, and stored, such that companies can benefit from it. Companies should also keep a continuous internal communication to add the newly acquired knowledge to the existing ones, which can help them improve their performance and achieve competitive advantage, continuity,

and conservation (Xu, 2016). Effective performance directly contributes to the success of product designs.

A detailed understanding and analysis of customers and competitors is the basis for product design implementation. Interest in product design and meeting customer needs can help companies to achieve a competitive advantage and profit by selling their products. Successful companies produce the best product design with high quality and low cost and time, and the most difficult aspects that they face in Product design success are customer requirements and competitors' products (Kumar *et al.*, 2014). Based on the above statements, we posit the following:

H1 Market knowledge has a statistically significant positive effect on product design success.

Human knowledge

an era of rapid technological changes, human knowledge pertains to the convergence between objectivities and target (Brier, 2000). With extant human skills and expertise, errors can now be detected before they occur or fixed quickly through it can super Product design success (Hori *et al.* 2004). (Pozna & Precup, 2012) clarified that through human perception, attention, memory, logical thinking, causal relationships, experimentation, and intelligence, Product design success can be realized. Human knowledge is important in testing and determining the best (Yang *et al.*, 2014). Knowledge can be implicit or explicit, which helps in making the right decision and determining what is best through all stages of Product (Mayer *et al.*, 2015). These two types of knowledge can be expanded by converting them for interaction and knowledge creation. Several studies presented four modes of conversion, from implicit to implicit, from implicit to explicit, from explicit to implicit, and from explicit to explicit. Human knowledge can improve Enterprise performance by offering competitive products (Song, 2008). It generates ideas, which represent the extent of knowledge absorption of an individual, such as skills, expertise, and creativity. Knowledge is important because it exists in all designers and must be utilized by a team. It refers to how much know and what is known. Is Knowledge you can depend on it, and it is required in making Product design success decisions. It is vital to accomplish goals and perform efficiently (Yuan *et al.*, 2006). Knowledge improves Enterprise performance and develops companies' ability to adapt to the changing competitive environment. It represents the ability of human cognitive and learning new innovations In addition to his infrastructures. Many opportunities to link internal and external company activities, thereby increasing efficiency and effectiveness and improving operations through human knowledge, together with other classifications of knowledge, companies can provide products that conform to the specifications of their customers

and achieve competitive advantage (Ibrahim, 2012). This observation leads to the following hypothesis:

H2: Human knowledge has a statistically significant positive effect on Product design success.

Data and Sample

The research sample comprised Industrial Enterprise in Wuhan of China, focusing on managers, engineers, and specialists in research and development, knowledge management, and operation production and management. We ensured that the survey was conducted with 200 samples, as shown in the table 1 To obtain the most accurate results, we verified that the respondents have adequate experience to respond to our questions. A five-point Likert scale (strongly disagree (1), disagree (2), neutral (3), agree (4), strongly agree (5)) was adopted to display data as well as analyze and extract results.

variable	Category	number	percent
The Enterprise Type	Private	20	10.0
	Joint stock	20	10.0
	State-owned	120	60.0
	Joint venture	20	10.0
	Foreign funded	20	10.0
Total		200	100.0
Period of the enterprise development	11-20	20	10.0
	more than 20	180	90.0
Total		200	100
Number of employees	more than 5000	40	20.0
	1000-5000	80	40.0
	less than 1000	80	40.0
Total		200	100
Total sales in 2015 (Unit: Yuan)	50-100m	40	20.0
	100-500m	60	30.0
	more than 500 million	100	50.0
Total		200	100
period of service in the company	1-5	48	24.0
	5-10	63	31.5

	10-15	15	7.5
	more than 15	74	37.0
Total		200	100.0
period of service in the current position	1-5	119	59.5
	5-10	69	34.5
	10-15	9	4.5
	more than 15	3	1.5
Total		200	100.0

Reliability of scale is determined through Cronbach's coefficient, which shows the internal consistency of items. In Table 3, all items are higher from acceptable when the ratio is greater than 60%. The total internal consistency 0.946654 shows the consistency of the scale (Sekaran 2003, Hair 2010).

Table 3		
RELIABILITY STATISTICS		
The main variable	The number of items	Cronbach Alpha
Market knowledge	4	0.826238
Human knowledge	4	0.803909
Product design success	5	0.676987

Table 4 presents validity the internal consistency through correlation coefficient. The result is statistically significant, and all correlation coefficients are acceptable, showing validity the internal consistency.

Table 4
CORRELATIONS

	HK1	HK2	HK3	HK4	TK1	TK2	TK3	TK4	PS1	PS2	PS3	PS4	PS5	
HK1	Pearson Correlation	1												
	Sig. (2-tailed)													
	N	200												
HK2	Pearson Correlation	.426**	1											
	Sig. (2-tailed)	.000												
	N	200	200											
HK3	Pearson Correlation	.505**	.532**	1										
	Sig. (2-tailed)	.000	.000											
	N	200	200	200										
HK4	Pearson Correlation	.602**	.372**	.666**	1									
	Sig. (2-tailed)	.000	.000	.000										
	N	200	200	200	200									
TK1	Pearson Correlation	.342**	.390**	.402**	.290**	1								
	Sig. (2-tailed)	.000	.000	.000	.000									
	N	200	200	200	200	200								
TK2	Pearson Correlation	.318**	.570**	.491**	.386**	.587**	1							
	Sig. (2-tailed)	.000	.000	.000	.000	.000								
	N	200	200	200	200	200	200							
TK3	Pearson Correlation	.479**	.533**	.499**	.452**	.536**	.741**	1						
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000							
	N	200	200	200	200	200	200	200						
TK4	Pearson Correlation	.441**	.642**	.541**	.462**	.583**	.801**	.815**	1					
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000						
	N	200	200	200	200	200	200	200	200					
PS1	Pearson Correlation	.447**	.646**	.447**	.363**	.354**	.476**	.493**	.548**	1				
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000					
	N	200	200	200	200	200	200	200	200	200				
PS2	Pearson Correlation	.401**	.442**	.356**	.360**	.212**	.373**	.334**	.385**	.325**	1			
	Sig. (2-tailed)	.000	.000	.000	.000	.003	.000	.000	.000	.000				
	N	200	200	200	200	200	200	200	200	200	200			
PS3	Pearson Correlation	.060	.479**	.348**	.167*	.291**	.420**	.309**	.407**	.349**	.277**	1		
	Sig. (2-tailed)	.401	.000	.000	.018	.000	.000	.000	.000	.000	.000			
	N	200	200	200	200	200	200	200	200	200	200	200		
PS4	Pearson Correlation	.542**	.417**	.460**	.486**	.348**	.341**	.503**	.486**	.582**	.331**	.266**	1	
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000		
	N	200	200	200	200	200	200	200	200	200	200	200	200	
PS5	Pearson Correlation	.241**	.140*	.484**	.395**	.380**	.526**	.454**	.468**	.182**	.171*	.206**	.280**	1
	Sig. (2-tailed)	.001	.048	.000	.000	.000	.000	.000	.000	.010	.016	.003	.000	
	N	200	200	200	200	200	200	200	200	200	200	200	200	200

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

The previous data are valid for statistical analysis. Table 5 indicates that all the average of search (i.e., agree) agrees with the research objectives. Thus, the researched companies have an acceptable level of application of research variables (Likert 1932).

Table 5											
DIRECTION OF MEASURE											
items		1	2	3	4	5	Std.	Mean item	Sample direction	Direction and variable Mean	
MK 1	frequency			67	98	35	.698	3.84	agree	3.8125 AGREE	
	percent			33.5	49.0	17.5					
MK 2	frequency			78	80	42	.755	3.82	agree		
	percent			39.0	40.0	21.0					
MK 3	frequency			83	88	29	.700	3.73	agree		
	percent			41.5	44.0	14.5					
MK 4	frequency			50	129	21	.579	3.86	agree		
	percent			25.0	64.5	10.5					
HK 1	frequency			35	124	41	.617	4.03	agree		3.83 AGREE
	percent			17.5	62.0	20.5					
HK 2	frequency		14	42	108	36	.803	3.83	agree		
	percent		7.0	21.0	54.0	18.0					
HK 3	frequency			100	75	25	.698	3.63	agree		
	percent			50.0	37.5	12.5					
HK 4	frequency			68	99	33	.690	3.83	agree		
	percent			34.0	49.5	16.5					
PDS	frequency			41	119	40	.638	4.00	agree	4.122 AGREE	

1	percent			20.5	49.5	20.0				E
PDS 2	frequency			34	112	54	.657	4.10	agree	
	percent			17.0	56.0	27.0				
PDS 3	frequency			15	115	70	.593	4.28	agree	
	percent			7.5	57.5	35.0				
PDS 4	frequency			35	100	65	.693	4.15	agree	
	percent			17.5	50.0	32.5				
PDS 5	frequency			41	103	56	.694	4.08	agree	
	percent			20.5	51.5	28.0				

RESULTS

We used a statistical program (i.e., SPSS) for extracting linear regression to test our hypotheses.

H1: Market Knowledge has a statistically significant positive effect on Product design success.

we can clarify hypotheses through next outputs, Supported by Tables 6–8, we proved the hypothesis: Market Knowledge has a statistically significant positive effect on Product success.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.628 ^a	.395	.392	.33792
a. Predictors: (Constant), Market Knowledge				

The R= 0.628; and 40% of the change in Product design success are due to the market knowledge because R²= 0.395.

Table 7					
ANOVAa					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	14.758	1	14.758	129.25	.000b
Residual	22.609	98	.114		
Total	37.368	99			
a. Dependent Variable: Product success					
b. Predictors: (Constant), Market Knowledge					

Calculated $F > F$ tabular, where it is 129.245, compared with 6.76. Sig=0.00, which is less than the required significance level 1%.

The table 8, show linear regression equation between market knowledge and Product design success is as follows:

$$Y=2.253+ 0.490X (2)$$

Where (Y) represents the dependent variable (Product success), and (X) represents the independent variable (market knowledge). This equation represents the effect of market knowledge on Product design success via coefficient (B), which has a value of 0.490.

H2: Human Knowledge has a statistically significant positive effect on product design success.

While the following tables 9-11 support Hypothesis H2: wherein Human knowledge is independent variable, and Product design success is Depended variable

Table 8						
Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant	2.25	.166		13.582	.000
)	3				
	Market Knowledge	.490	.043	.628	11.369	.000
a. Dependent Variable: Product success						

Table 9 Model Summary				
model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.737 ^a	.543	.541	.29367
a. Predictors: (Constant), Human Knowledge				

Table 10 ANOVA ^a					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	20.292	1	20.292	235.304	.000 ^b
Residual	17.075	198	.086		
Total	37.368	199			
a. Dependent Variable: Product success					
b. Predictors: (Constant), Human Knowledge					

Table 11 Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	1.935	.144		13.443	.000
	Human Knowledge	.571	.037	.737	15.340	.000
a. Dependent Variable: Product success						

R= 0.737, and R²= 0.543, which represents the level of change in the dependent variable, that is, a 54% change in Product success, because of human knowledge

From the value of F, human knowledge is statistically significant in Product success, where the value of F (1, 198) = 235.304, which is the largest from the tabulated value; and the Sig =0.00, which is less than the required significance level 1%.



The table 11, indicates the linear regression equation between human knowledge and Product success, which is as follows:

$$Y=1.935+0.571X \quad (3)$$

This equation represents the effect of human knowledge on Product design success by a coefficient (B), which has a value of 0.571.

Through the above statements, we accepted the hypothesis: Human Knowledge has a statistically significant positive effect on Product success.

DISCUSSION

This paper presents a knowledge framework and its application. It is one of the first to attempt to integrate Market and human knowledge and Product design success theoretically and practically in various Industrial Enterprise in China. Through research samples, we found the importance and effect of knowledge management in achieving competitive advantage for companies through performance and Product design success according to customer requirements. Companies need knowledge and information on internal and external environment to serve customers in all categories. The foundation of company success is reaching the customers at the lowest possible cost, which can be achieved through knowledge management according to trends. Through this, competitive advantage can also be achieved.

Knowledge has different classifications.

This research focuses on Market and human knowledge is from knowledge management classifications that affect Product design success (Yuan Fu *et al.*, 2006). These classifications positively affect Product success. Companies should acquire these classifications to achieve their goals. These classifications create high competitiveness among companies. They cannot operate separately; rather, they complement each other (Gao & Clarke, 2008).

Previous studies focused on knowledge management and Product success. Most of them dealt with knowledge management capabilities, theory, and practice. However, Market and human knowledge and their theoretical and practical effect on Product design success are rarely discussed.

The recent awareness of companies about Product design success and the misuse of knowledge management in Product design success are of great interest in this field (Hertenstein *et al.*, 2012; Yuan Fu *et al.*, 2009). The results of the present research revealed that Market and human knowledge affect Product success. This finding can provide a basis for evaluating knowledge



management in companies. Companies should enhance these capabilities for effective knowledge management to contribute in Product design success significantly. They may design products inaccurately if they do not adopt knowledge management or not use it properly (Russell & Taylor-Iii, 2011; Fu et al., 2008). Moreover, we found that the effects of the Market and human knowledge on Product design success differ according to the nature of the company and its industry.

Finally, market and human knowledge, exerts a positive effect on Product design success (Fu Qiu et al. 2008).

CONCLUSION

Several conclusions are drawn from this research.

- All types of companies need knowledge management in Product design success and development because Industrial Enterprise emanate from the principle of meeting customer requirements.
- Expertise, skills, and teamwork are needed in making the right decision in Product design success and development process, which leads to faster Product success.
- Product design success depends on market analysis and the conscious awareness and meeting of consumer demands.
- Market and human knowledge significantly affect Product success.



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