Two Development Strategies in the Video Game Industry

March 26, 2002

Tatsuo TANAKA
Keio University, Faculty of Economics

Goal of the Research

What kind of development strategy is efficient in the video game industry?

Is the silicon valley-style-development strategy (high turnover ratio, performance-based compensation) efficient in the video game industry?

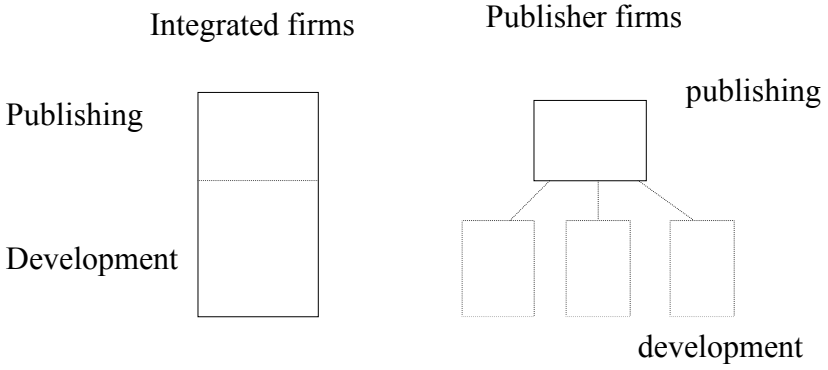
Interview survey to 14 Japanese game soft companies.
Questionnaire survey to 111 Japanese game soft companies.
(Effective answer returned from 85 firms. Conducted on 1999/8)

Efficient development strategy is not so simple, because there coexist two development strategies in the industry.

Two types of development strategies

- Integrated firms
  - keep development staff within the firm(Long term stable employment)
  - Less incentive system to development staff.
  - Accumulation of knowledge and know-how in the firm.
    - Similar to usual manufacturing firms
- Publisher firms
  - Use other firms or individuals to develop the game。
  - Focusing on producer or planner function
  - Utilize new concepts or new technologies through outside development staff.

Illustration of two development strategies



Large firms sometimes adopt both strategies

Operatonal definition of the two types of firms based on questionnaire survey

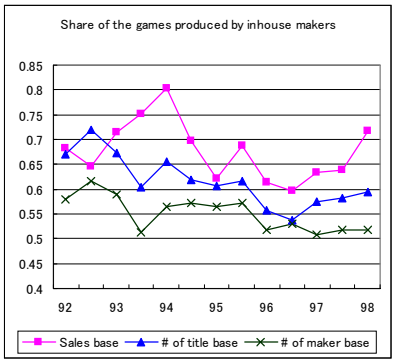
- Q1 fact
  - How many game soft titles did your company develop using outside development staff? (Answer in 5 degrees)
- Q2 policy in mind
  - Which policy does your company agree with? (Answer in 5 degrees)
    - **A**：Video game company needs to accumulate know-how and technique within the firm. To achieve this goal, it is better to keep development staff within the firm
    - **B**：Video game company needs various individual's talents depending on the game types. Therefore it is better to find talented person outside the company.
- In-house index: Simple addition of Q1 plus Q2 produce 9 degree index. We call it in-house index. Operational definition is:
  - Integrated firms :In-house index>=6, 45 firms
  - Publisher firms :In-house index<=5, 38 firms

Historical Share of integrated and publisher firms

- Of 1486 game doft titles during 1995-98, 784 titles(53%) are released by integrated firms and 702(47%) titles are by pu publisher firms.
- Share has been around fifty-fifty.

⇩

No tendency to move to a dominace of either development strategy



Data source：Famitsu best 30 seller

Why two types of development strategy?

- No tendency to dominance of either strategy
  - → Both development strategy should have merits
- What determines the development strategy?

We focus on the game types

Hypotheis: Type of the games determines the suitable development strategy

Hypotheis: Type of the games→Type of the firms

- Game soft =(A)Computer software＋(B)Artistic content
- (A):Technology-Driven Game (TD game)
  - Programming technique and know-how are important
    - Action, Racing, Fighting, Sports
  - To accumulate the technique and know-how, firms need to maintain the development staff within the firm. Thus **integrated** firms achieve better performance.
- (B):Concept-Driven Game (CD game)
  - Story, world setting, and characters (i,.e. concepts) are important
    - Role playing, Adventure, Puzzle
  - To find new concepts or talented persons, firms need to search outside the firm. Thus **publisher** firms show better performance

summary the hypothesis

	Development strategy	Effect of Experince
Technolgy Driven game	Integrated	Yes
Concept-Driven game	Publisher	No

H1: For TD game, integrated firms show better performace
H2: For TD game, development experience has positive effect.

H3: For CD game, publisher firms show better performance
H4: For CD game, development experience has no effect.

Data and method

<Data>

- Sales data of individual game titles: by Media Creat.
  732 titles from 1997-1998, for Playstation, SegaSturn, and Nintendo64. We use the only the game titles released by the firms that answered the questionnaire survey.
- Questionnaire survey : In 1999, 113 game software firms(75.2%)
- Interview survey to 14 game software firms

<Method>

- Regression analysis:
  Sales of Individual game titles
  = f (firm's characteristics such as integrated or not, etc)

Definition of variables(1)

- [Explained variables]
  - Logarithm of sales of individual game titles
- [Explanatory variables]
  - In-house dummy:Whether the firm is integrated or not
  - in-house dummy=1 if in-house index>=6,
  - =0 if in-house index<=5.

expected sign: TD game (+), CD game(－)

<index of experience>

–Total number of titles of the game type developed by the firm

expected sign: TD game (+), CD game(－)

Definition of variables(2)

- [control variables]
  - Accumulated sales of the hardware(+)
  - Price of the game titles(－)
  - Platform maker dummy(+)
  - Hit series dummy (+)
  - (Total number of the develop game titles: index of the firm size(+))

Result: TD game

Exlained variable is the logarithm of sales of individual game titles
(t-value in the parenthesis)

	Technology-driven game (Action, Shooting, Fighting,Racing, Sports, Table)			
	model 1	model 2	model 3	model 4
Constant	3.9714	3.8317	3.6943	3.9494
	(11.99)	(11.43)	(10.55)	(11.98)
Platform penetration	0.0092	0.0114	0.0155	0.0127
	(0.77)	(0.95)	(1.30)	(1.06)
price	0.0247	0.0313	0.0323	0.0317
	(0.57)	(0.72)	(0.75)	(0.74)
Platform maker dummy	0.2499	0.402**	0.4792**	0.4995**
	(1.32)	(2.01)	(2.45)	(2.49)
Hit series dummy	1.0174***	0.9908***	0.9324***	0.9704***
	(6.68)	(6.52)	(6.15)	(6.33)
Total number of developed titles	0.0089***	0.0072***	0.0063***	
	4.0409	3.15	2.8	
Inhouse dummy		0.1905**		
		2.19		
Specialization to the game type				
inhouse dummy * specialization			0.5383**	
			(2.57)	
(1-inhouse dummy) * specialization			0.119	
			(0.56)	
Number of developed game titles of the type				
inhouse dummy * number of the game titles				0.0143***
				(4.22)
(1-inhouse dummy) * number of the game titles				(0.01)
				(0.63)
R2	0.2081	0.2203	0.2421	0.2174
Adjusted R2	0.1952	0.205	0.2421	0.2021
F-value	16.1829	14.4545	13.9605	14.2156
number of obsrevation	314	314	314	314

Result(1)TD game

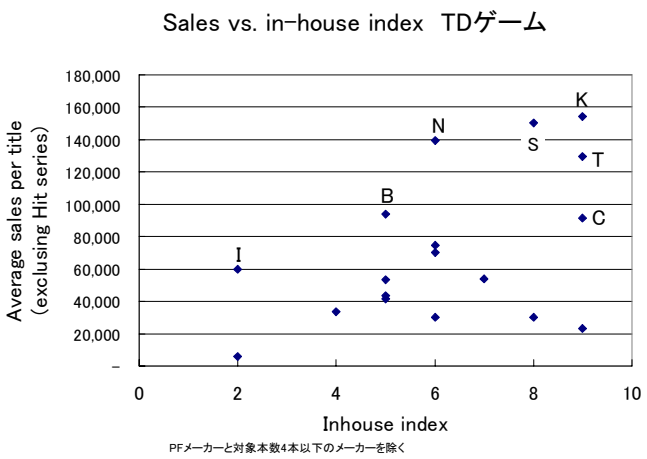
	Development strategy	Effect of Experince
Technolgy Driven game	**Integrated**	**Yes**

- H1:For TD game, integrated firms show better performance
  - Model 2 :inhouse dummy is significantly positive.
  - There fore H1 is supported! ○
- H2: For TD game, development experience has positive effect.
  - Model 4: inhouse*experience is significantly positive.
  - Therefore H2 is supported! ○

– Control variable:Platform maker dummy and Hit series dummy is significantly positive.

For TD game, in-house development and accumulation of experience are good development strategy.

Result(1):Another view
TD game　Firm level regression



PFメーカーと対象本数4本以下のメーカーを除く

Result: CD game

Exlained variable is the logarithm of sales of individual game titles
(t-value in the parenthesis)

	Concept-driven game (Role Playing, Adventure, Puzzle)			
	model 1	model 2	model 3	model 4
Constant	3.8094	3.5886	3.2174	3.5608
	(9.64)	(8.34)	(7.38)	(8.79)
Platform penetration	0.0163	0.0183	0.0219	0.0192
	(1.05)	(1.18)	(1.43)	(1.26)
price	0.0466	0.068	0.0876*	0.0686
	(0.91)	(1.26)	(1.66)	(1.26)
Platform maker dummy	0.3574**	0.4857**	0.456**	0.4014
	(2.10)	(2.46)	(2.53)	(0.93)
Hit series dummy	1.2734***	1.2453***	1.1468***	1.1505***
	(8.26)	(8.00)	(7.30)	(7.19)
Total number of developed titles	0.0046	0.0036	0.0075**	
	1.48	1.11	2.1614	
Inhouse dummy		0.1424		
		1.28		
Specialization to the game type				
inhouse dummy * specialization			0.862***	
			(2.91)	
(1-inhouse dummy) * specialization			0.3213	
			(1.22)	
Number of developed game titles of the type				
inhouse dummy * number of the game titles				0.0367***
				(2.69)
(1-inhouse dummy) * number of the game titles				(0.01)
				(0.56)
R2	0.3226	0.3226	0.3538	0.3436
Adjusted R2	0.305	0.307	0.33	0.323
F-value	18.2868	15.5645	14.8584	16.6641
number of obsrevation	198	198	198	198

Result（2）CD game

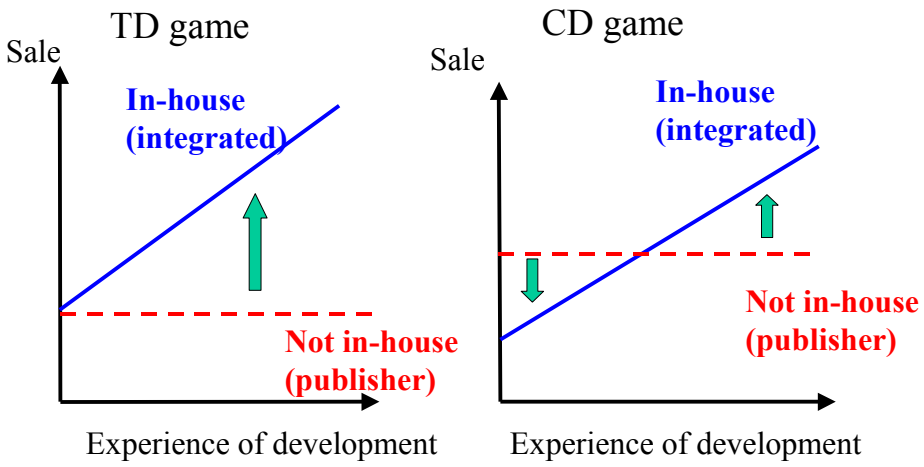
	Development strategy	Effect of Experince
Concept-Driven game	Publisher	No

- H3:For CD game, publisher firms shows better performance
  - Model 2 :in-house dummy is not significant (Expected to be significantly negative) 。 △
- H4：For CD game, development experience has no effect.
  - Model 4 in-house*experience is significantly positive !
    (expected to be not significant) ×

- Control variable:Platform maker dummy and Hit series dummy is significantly positive.

In-house development does not improve the performance. But accumulation of experience has positive effect if the firm adopt in-house development.

Interpretation of the result



Conclusion

（1）For Technology driven game, better development strategy is to maintain the development staff within the firm and accumulate the experience. Thus integrated firms show better performace

(2)For Technology driven game, we don't obtain such a clear result. We can not explain why publisher firms exist.

（3）Hit series dummy always show strong positive effect on the sales. Thus, if you get a hit title, you should try to make it series title.

Thank you!