



BANK OF JAPAN

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Quality Adjustment of Digital Services in Japan's SPPI



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Quality of Digital Services

- ✓ This presentation will focus on quality adjustment of the following digital services.

ISIC	
Title	
6311	Data processing, hosting and related activities
6312	Web portals
7310	Advertising

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Japanese SPPI (2010base)	
Items	Weights
ASP (Application Service Provider)	2.8
Data processing services (except ASP)	31.6
Internet based services	9.2
Internet advertising	6.8

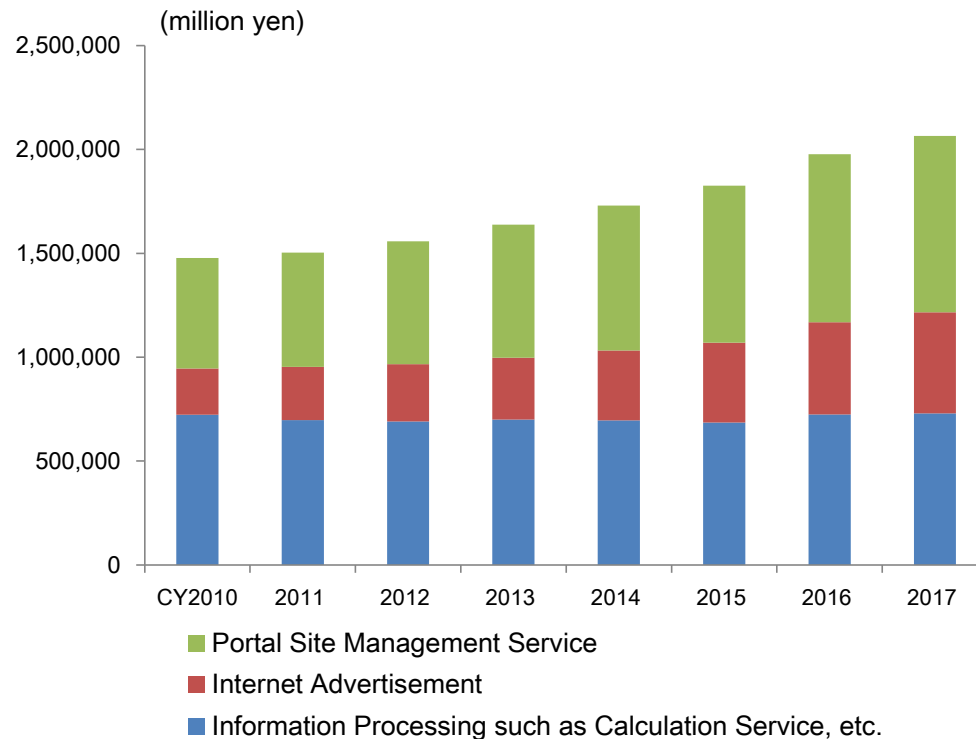
Note: Total weight of all items is 1,000.



Trends of Turnover and Price.

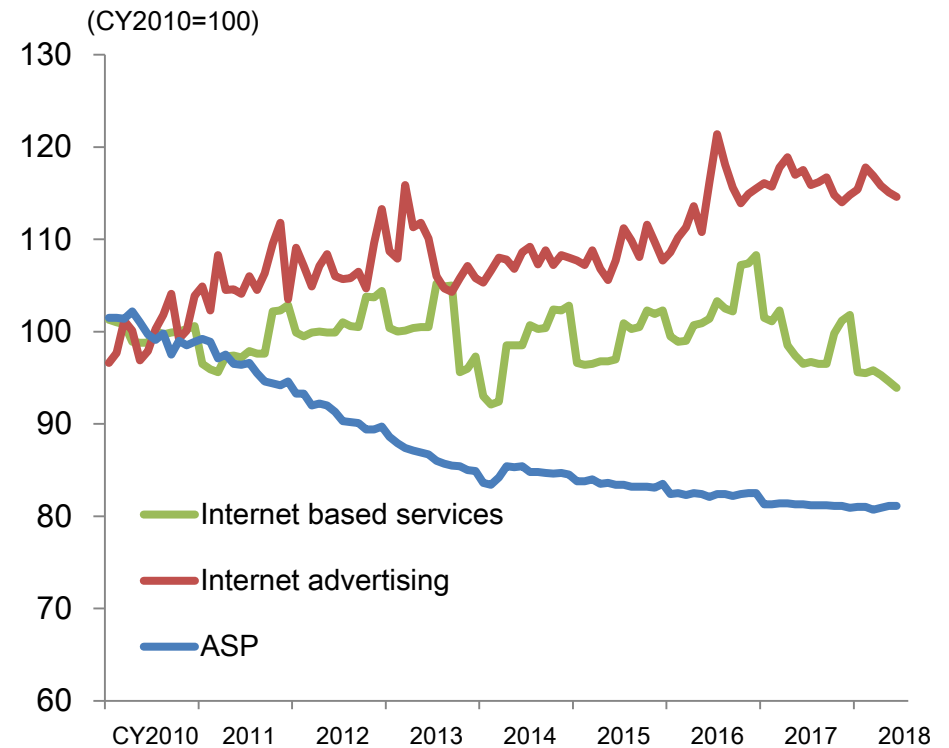
- ✓ Turnover of each service has been expanding in Japan.
- ✓ Price developments are different depending on the quality adjustment methods.

Turnover



Source: Ministry of Economy, Trade and Industry

Price developments



ASP

- ✓ Application Service Provider (ASP) is cloud application, which provides application via internet.
- ✓ The Bank surveys monthly fee in various pricing methods.

Variety of Surveyed Application



Adopted pricing methods

Direct Use of Repeated Transaction

- ✓ Fixing service content and customer

Unit Value

- ✓ Fixing service content

Model Price

- ✓ Assuming major transaction



ASP(cont.)

- ✓ When the surveyed application is upgraded, the production cost method is often applied. The Bank collects several information for quality adjustment.

(Ex.) Production Cost Method in ASP

	Aug. 2018	Sep. 2018
Monthly Application Fee per User	300 yen	300 yen
Application Version	Ver.3.1	Ver.3.2
Index Level	100	75

$$\frac{300}{300 + 100} \times 100$$

Price Information Reported from Respondent	
Total amount of upgrading cost of the surveyed application	1.2 million yen
Number of users of the surveyed application	5,000 users
Assumed period to have a return on upgrading cost	24 months

Calculation of Production Cost Method	
Number of Estimated Users	5,000 users × 24 months = 120,000 users
Additional Cost per User	1.2 million yen / 120,000 users = 100 yen



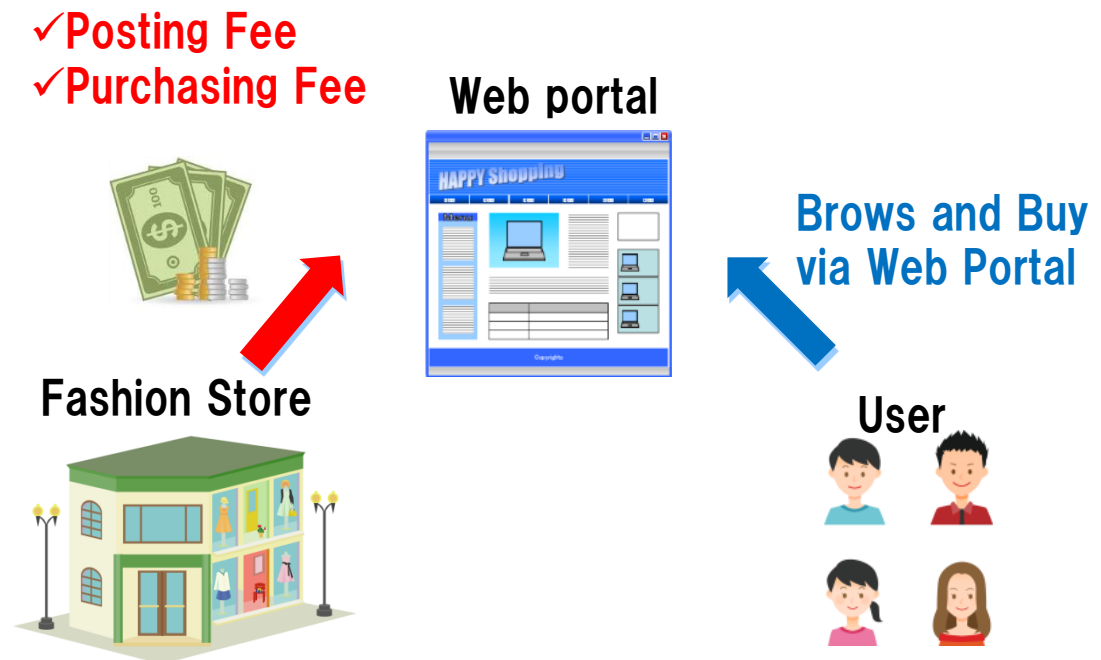
Web Portals

- ✓ Web portals are the services operating search engine or related portal sites.
- ✓ The Bank surveys posting and purchasing fee paid to the portal sites.

Variety of Surveyed Websites



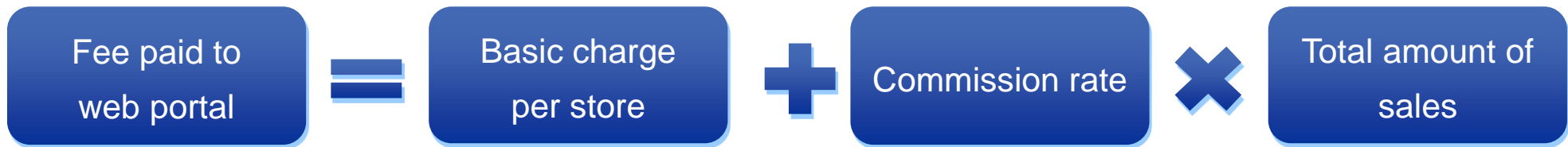
Channel of Web Portals



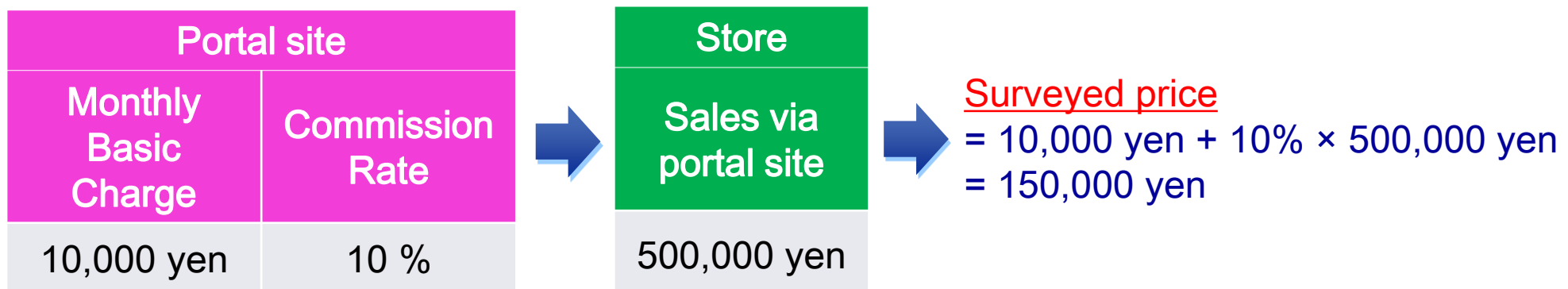
Web Portals(cont.)

- ✓ One of the leading shopping sites received fees from each store, which is composed of basic charge and commission charge based on the amount of sales.
- ✓ In this case, the Bank surveys commission fee per store.

Calculation of the fee paid to web portal



(Ex.) Calculation of surveyed price

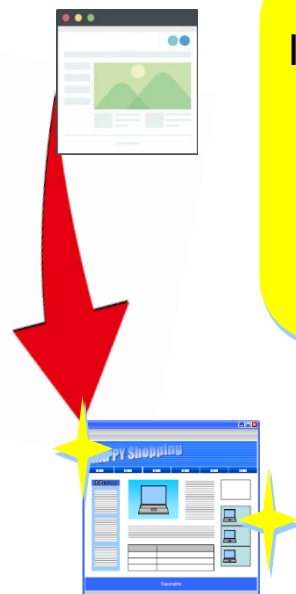


Web Portals(cont.)

- ✓ In this pricing method, surveyed price rises as sales of the store increase .
- ✓ If the increase in sales is caused by improving the attractiveness of the portal site (such as the case where site is renovated,) surveyed price should be adjusted since the attractiveness of the portal site is considered to be quality of the portal site.

(Ex.) In case where price change is caused by change in quality of the surveyed site

Surveyed Month	Monthly Basic Charge	Comission Rate	Sales via Portal Site	Surveyed Price
Jan.	10,000 yen	10 %	5,000,000 yen	510,000 yen
Feb.	10,000 yen	10 %	6,000,000 yen	610,000 yen
Mar.	10,000 yen	10 %	7,000,000 yen	710,000 yen
Apr.	10,000 yen	10 %	8,000,000 yen	810,000 yen
May	10,000 yen	10 %	9,000,000 yen	910,000 yen



If the increase in surveyed price comes from renovating site, it should be adjusted according to the change in the quality of the site.



Web Portals(cont.)

- ✓ In order to adjust quality of the portal sites, the Bank considers using the number of visitors under the hypothesis that the number of its users are proportional to the quality of portal sites.

Surveyed Month

Jan.



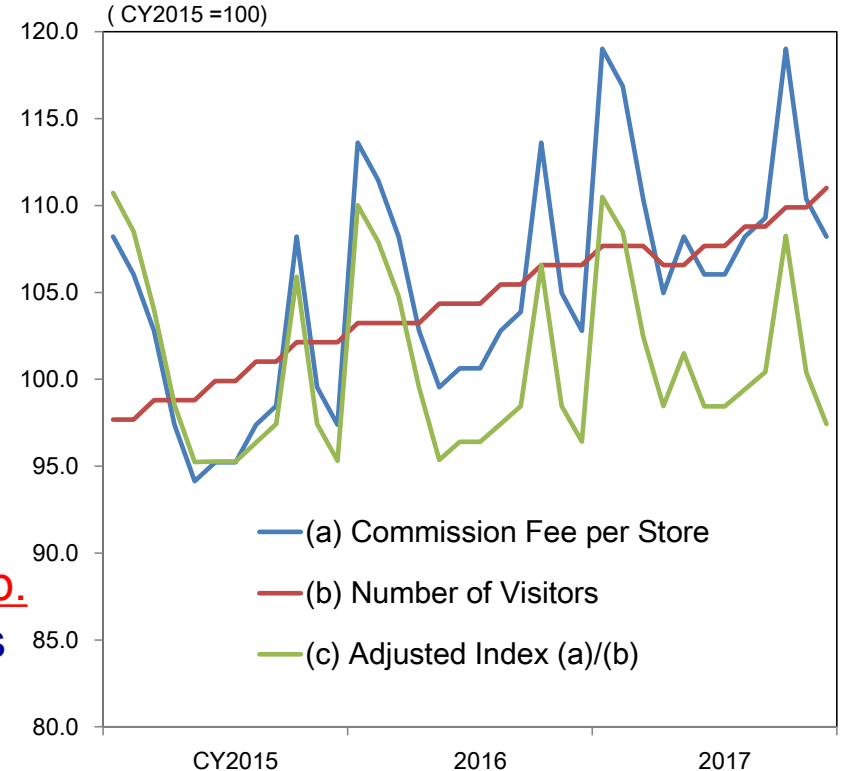
Surveyed Price of Jan.
 20,000 yen / 4 visitors
 = 5,000 yen

Feb.



Surveyed Price of Feb.
 30,000 yen / 6 visitors
 = 5,000 yen

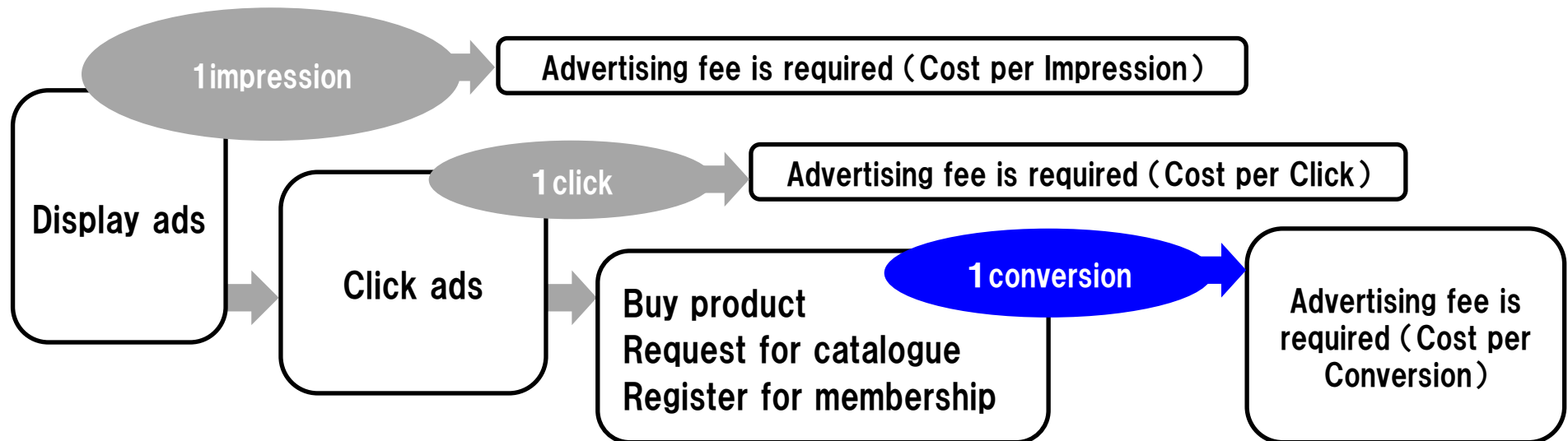
(Ex.) Image of comparison of index



Internet Ads

- ✓ On the back of expanding internet ads, ads technology has improved and many companies are measuring the effectiveness of internet ads using conversion rate.

Indicator of the Advertising Effectiveness and Fee



Quality Measure Unit for Internet Ads

2010 base	CPM (Cost per impression)	CPC (Cost per Click)
Newly Adopted From 2015 base	Cost per Conversion	Cost per View



Internet Ads(cont.)

✓ The price developments can be different depending on the quality measure unit.

(Ex.) Price development for each quality measure unit

	Ads information				CPM (Cost per Impression)		CPC (Cost per Click)		Cost per Conversion	
	(a) Advertising Fee (yen)	(b) Number of Impression	(c) Number of Click	(d) Number of Conversion	(d) Price (a)/(b)	(e) MoM (%)	(g) Price (a)/(c)	(h) MoM (%)	(g) Price (a)/(d)	(h) MoM (%)
Jan.	6,000,000	50,000,000	3,000,000	2,500	0.12		2.00		2,400	
Feb.	6,000,000	50,000,000	3,000,000	2,500	0.12	0.0	2.00	0.0	2,400	0.0
Mar.	6,000,000	50,000,000	3,000,000	2,500	0.12	0.0	2.00	0.0	2,400	0.0
Apr.	6,000,000	50,000,000	3,000,000	2,500	0.12	0.0	2.00	0.0	2,400	0.0
May	6,000,000	50,000,000	3,000,000	2,500	0.12	0.0	2.00	0.0	2,400	0.0
Jun.	7,800,000	50,000,000	4,500,000	2,500	0.16	30.0	1.73	-13.3	3,120	30.0
Jul.	7,800,000	50,000,000	4,500,000	2,500	0.16	0.0	1.73	0.0	3,120	0.0
Aug.	7,800,000	50,000,000	4,500,000	2,500	0.16	0.0	1.73	0.0	3,120	0.0
Sep.	7,800,000	50,000,000	4,500,000	3,000	0.16	0.0	1.73	0.0	2,600	-16.7
Oct.	7,800,000	50,000,000	4,500,000	3,000	0.16	0.0	1.73	0.0	2,600	0.0
Nov.	7,800,000	50,000,000	4,500,000	3,000	0.16	0.0	1.73	0.0	2,600	0.0
Dec.	7,800,000	50,000,000	4,500,000	3,000	0.16	0.0	1.73	0.0	2,600	0.0



Conclusion

✓ The BOJ has made great efforts to resolve quality issues for each digital services.

ASP (cloud application)

- When the surveyed application is upgraded, the price change caused by upgrading is adjusted using the production cost methods.

Web portals

- In order to survey posting and purchasing fee paid to web portals with constant quality, the BOJ will consider using its number of its visitors.

Internet advertising

- Cost per conversion should be surveyed since many companies recently get to measure the effectiveness of the ads by the number of conversion as the ads technology has improved.



Thank you for your attention



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