

The background is a solid blue color. In the center is a large circular graphic. It consists of a thick, light blue ring with a dashed line inside it. A solid blue segment of the ring is positioned at the top. Six small white circles are spaced evenly around the ring, each connected by a thin white line to an icon. The icons, starting from the top and moving clockwise, are: a desktop monitor, a bar chart, a smartphone, a laptop, a pie chart, and a tablet. In the center of the ring, the text 'Appier' is written in a white, stylized font with a small 'SM' trademark symbol. Below it, 'Research Report' is written in a bold, white, sans-serif font. Further down, 'Asia's First Cross-Screen User Behavioral Insights' and 'H1 2014' are written in a smaller, white, sans-serif font.

AppierSM

Research Report

Asia's First Cross-Screen
User Behavioral Insights
H1 2014

Intelligent marketing made happier

Cross Screen

is becoming increasingly important given the diverse user behaviors & patterns across devices.

19% of global users have both smartphone and tablet.

Usage of smartphone vs. tablets is highly dependent on time of day & day of week.

Ad Format

With the exception of Southeast Asia,

Rich media

is the best performing ad format across both smartphones and tablets.

Executive Summary

Screen Size

Data based on user behaviors across different screen sizes suggests an increasingly targeted strategy.

Consumer preference for **screen size is shifting towards the middle**; there is a growing number larger mobile phones and smaller tablets.

Smaller screen sizes, regardless of device type, show **higher CTR** potentially due to larger 'share of screen' on smaller screens.

AppierSM

In 2014,

19%

of global users have both
smartphone and tablet.

And the number is growing...

In 2016 , the percentage will reach

25%

User behaviors across devices are extremely complex and cannot be predicted without leveraging AI & Big Data automation

56%

of users demonstrate **highly similar** behaviors (95%) across their tablets and mobile phones

23%

of users show **completely different** behaviors on their smartphones vs. tablets



Source: based on Appier data in TW | Period: 2014 Q1~Q2

The background features a dark blue gradient with a large, faint graphic of concentric circles. Various icons representing different devices and data are scattered around: a desktop monitor, a tablet, a laptop, a smartphone, a bar chart, and a pie chart. A small bar chart is also visible on the left side of the slide.

Comparison of User Behaviors & Patterns on Different Devices

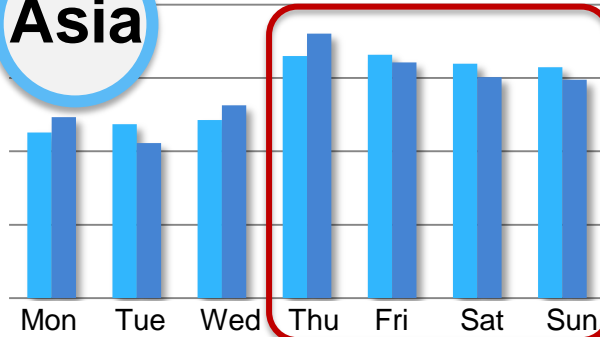
usage of smartphones vs. tablets at various times

Advertisers need to be prepared to capture the surge in weekend mobile traffic, which begins early on Thursdays.

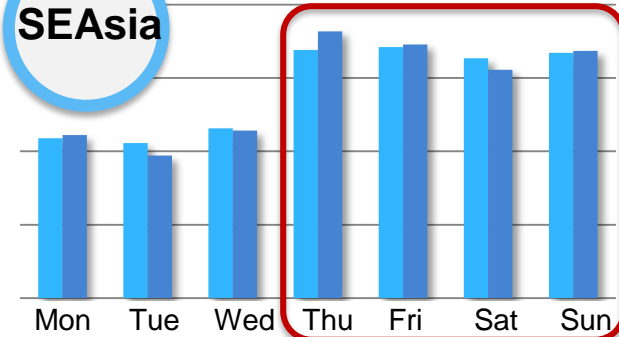
Usage of
Smartphone
& Tablet
(Day of Week)

smartphone
tablet

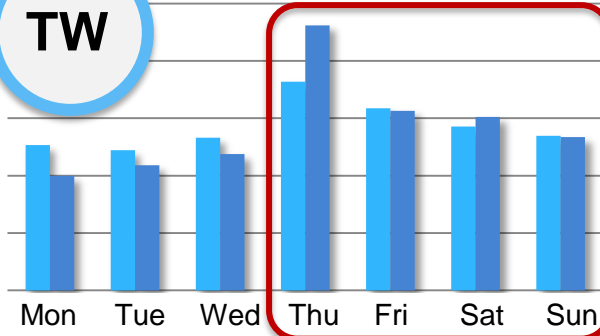
Asia



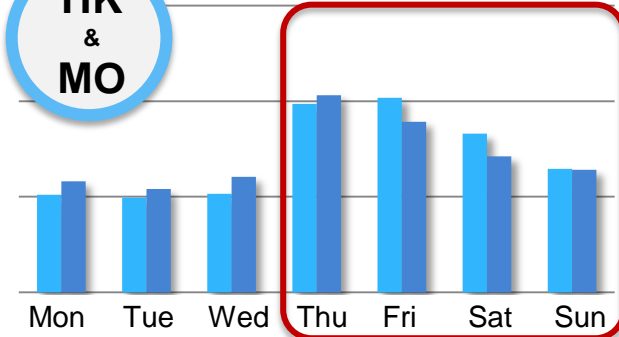
SEAsia



TW



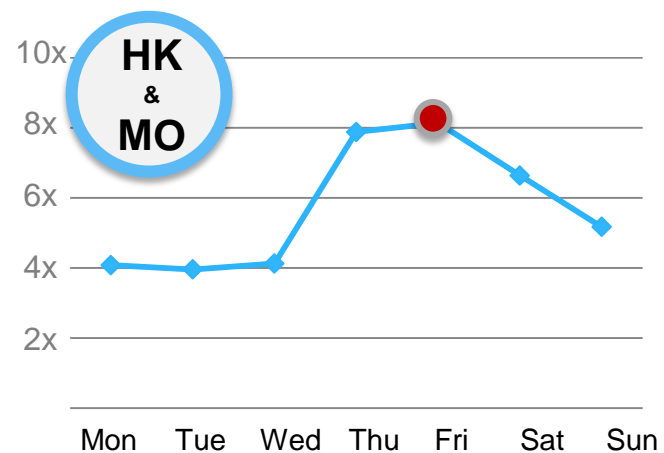
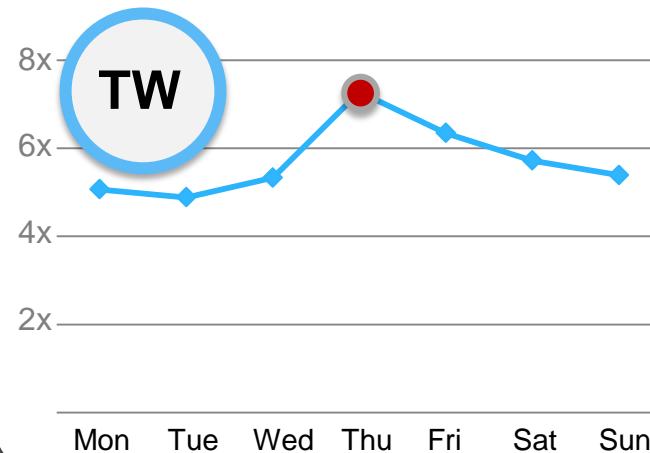
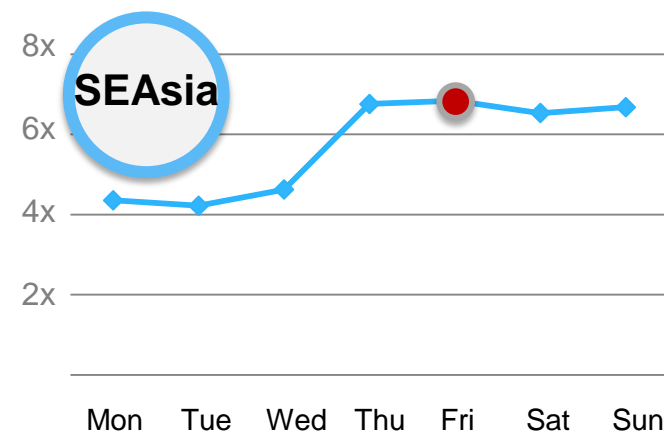
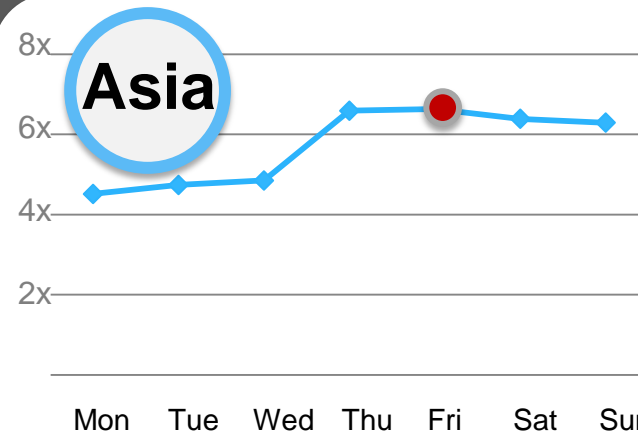
HK
&
MO



y axis: impression

Smartphone traffic is generally higher on the weekends, with Fridays being the highest in volume for most markets.

Usage of
Smartphone
(Day of Week)



y axis: impression

Take advantage of the 3 spikes in mobile traffic in the day to increase awareness and engagement with potential users.

Mobile activity is the highest during lunchtime, right after work & right before bedtime.

Usage of smartphone vs. tablet (Time of Day)

y axis: impression ◆ smartphone ■ tablet



Spikes in smartphone usage

Area	Bedtime	Working hours	Off work
SEAisa	01:00	14:00	19:00
HK & MO	01:00	14:00	20:00
Taiwan	01:00	13:00	20:00

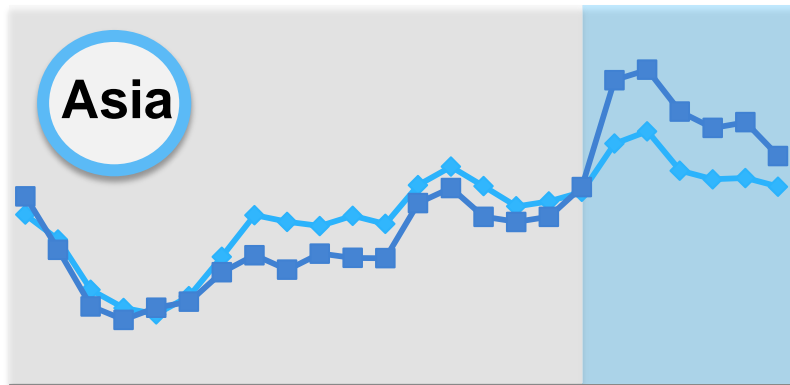
Spikes in tablet usage

Area	Bedtime	Working hours	Off work
SEAisa	01:00	18:00	19:00
HK & MO	01:00	14:00	23:00
Taiwan	01:00	14:00	20:00

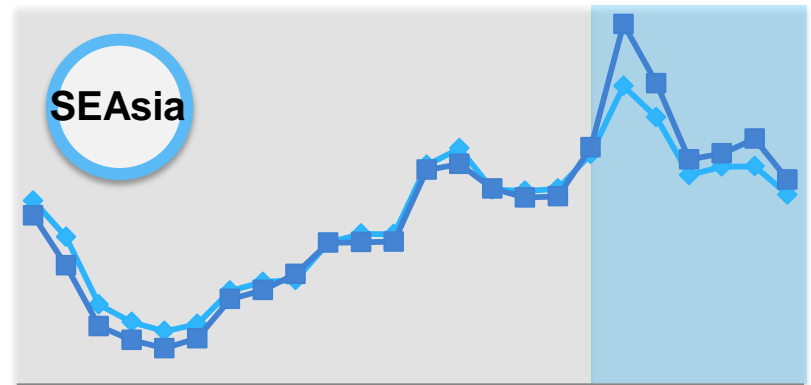
Increase ad engagement by delivering ads via the right mobile devices at the right time.

- The highest mobile usage rate happens in the evening after 6pm.
- Smartphone usage is higher during the day when people are at work, while tablet usage is higher during off-work hours.

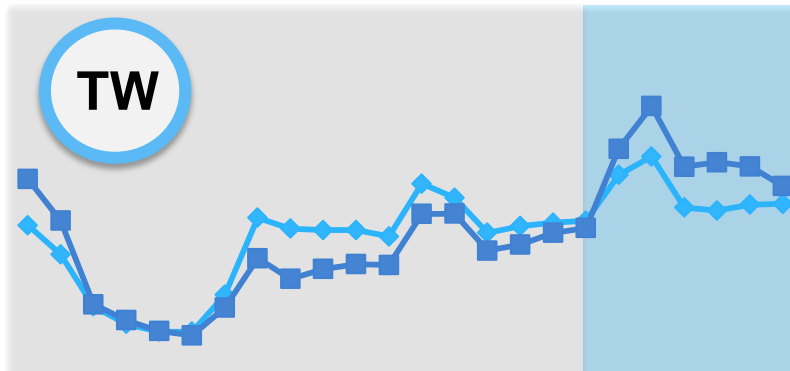
y axis: impression Usage of smartphone vs. tablet (Time of Day) ◆ smartphone ■ tablet



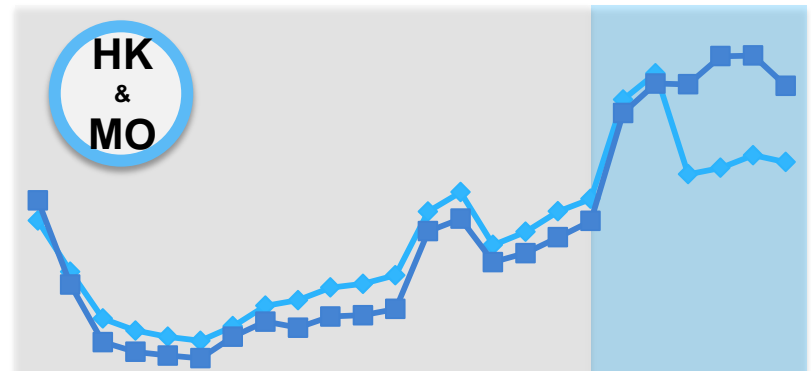
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24



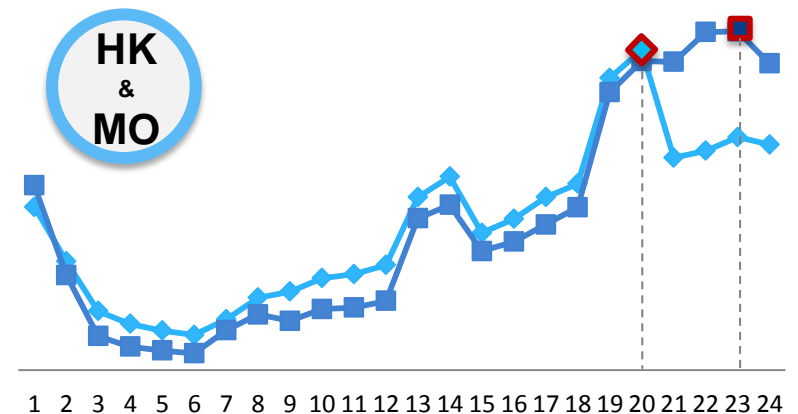
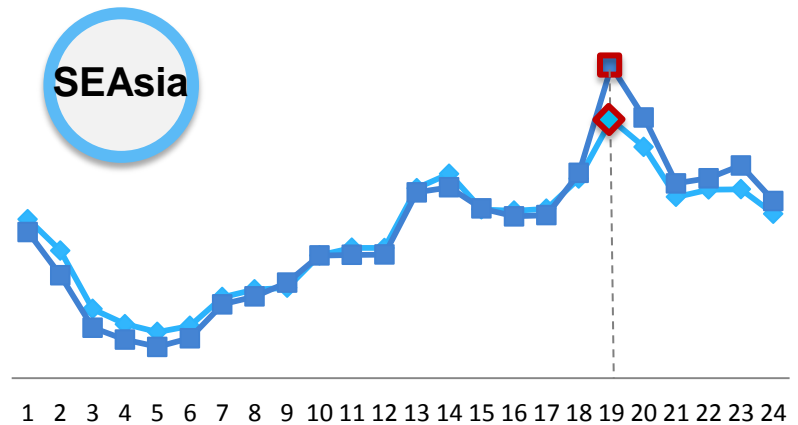
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

Smartphone vs. tablet usage patterns are consistently similar across markets, with the exception of HK & Macau

 smartphone  tablet



The background features a large, light blue circular graphic with concentric rings and dotted patterns. Various icons are scattered around the circle, including a desktop monitor, a tablet, a laptop, a smartphone, and a bar chart. A dark blue horizontal bar is positioned across the center of the image, containing the main title and subtitle.

Market Trend for Devices based on Screen Size

user preference for device screen size

Consumer preference for device screen size is shifting towards the middle.

There is a growing number of larger mobile phones and smaller tablets.



Small Screen < 4.7 in
Large Screen > 4.7 in

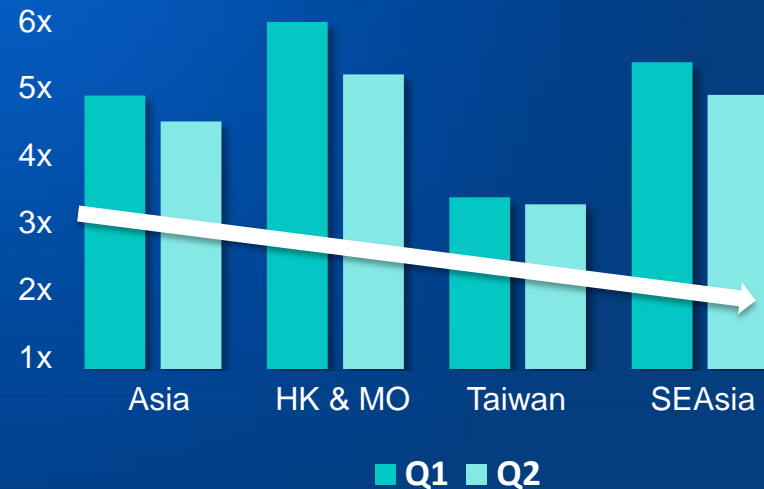


Small Screen < 8 in
Large Screen > 8 in

Trend in **Smartphone** Usage based on Screen Size*

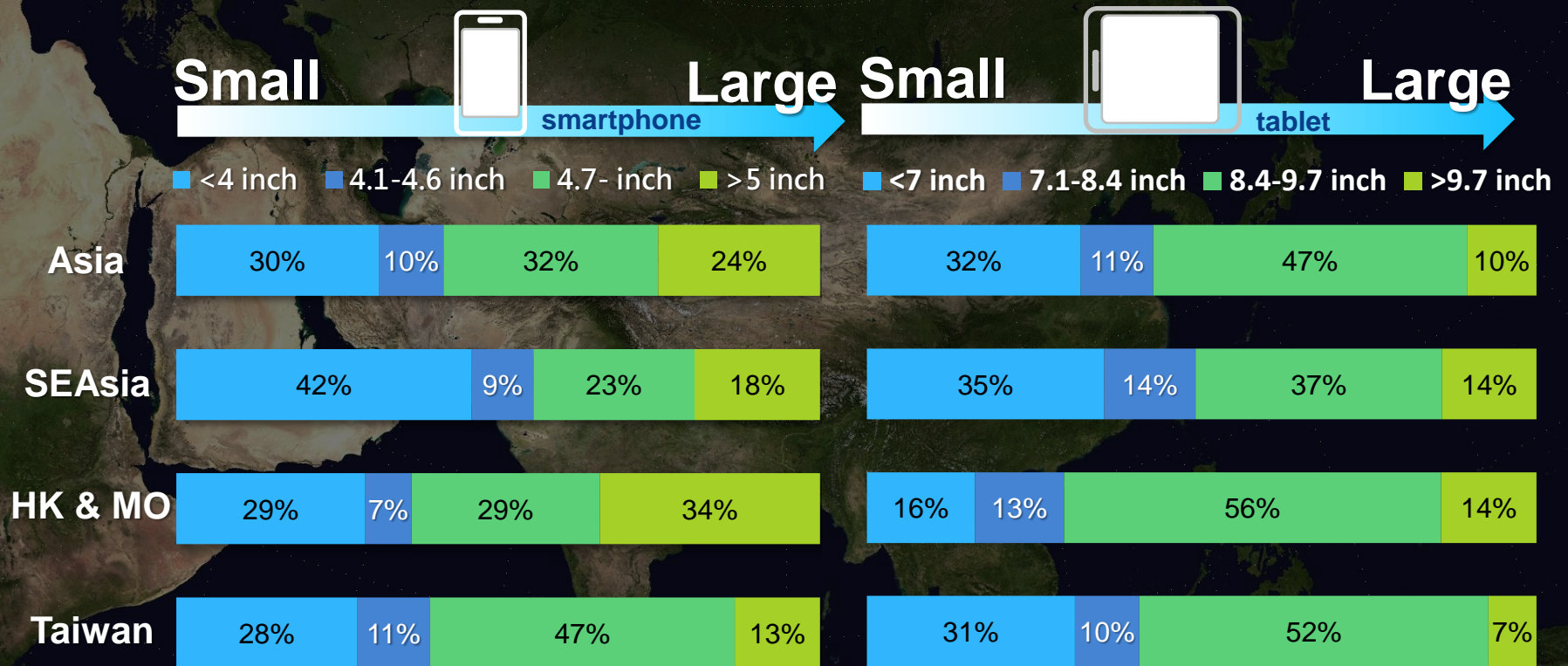


Trend in **Tablet** Usage based on Screen Size*



Despite growing preference for smaller tablets, larger tablets still makes up for the majority of the tablet market

Screen Size Breakdown





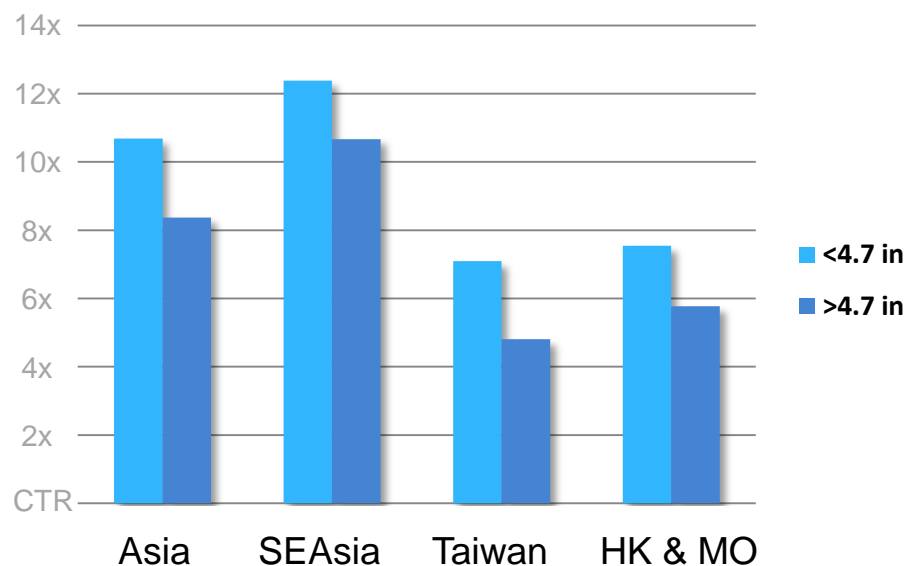
Correlation between Screen Size & Advertising Effectiveness

ad preferences on various screen sizes

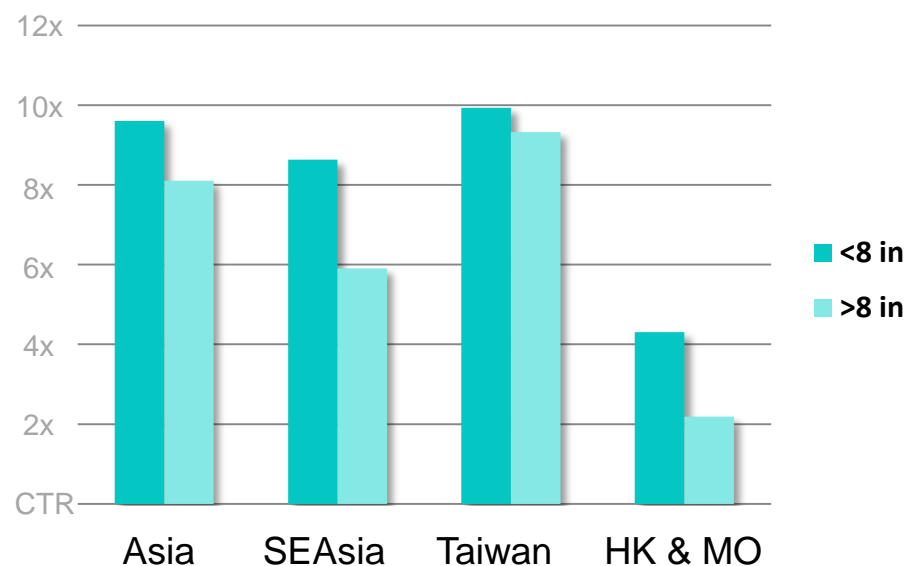
Smaller screen sizes, regardless of device type, show higher ad click-through-rate (CTR)

The proportionally larger 'share of screen' on the smaller screens may be a potential explanation for the higher CTR on smaller screens.

Smartphone CTR

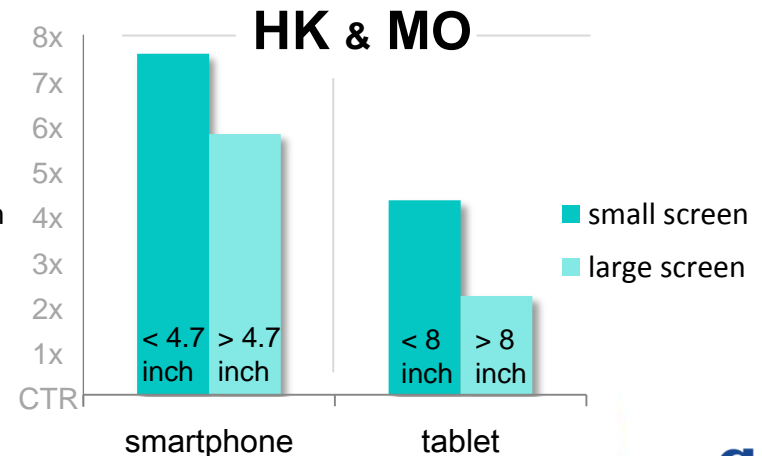
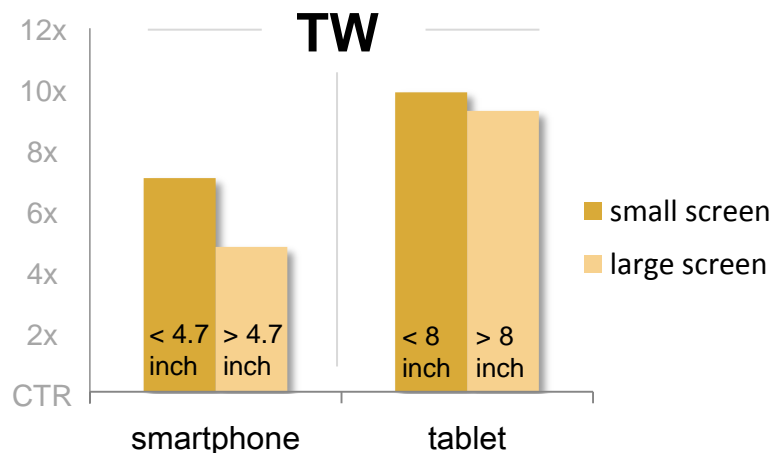
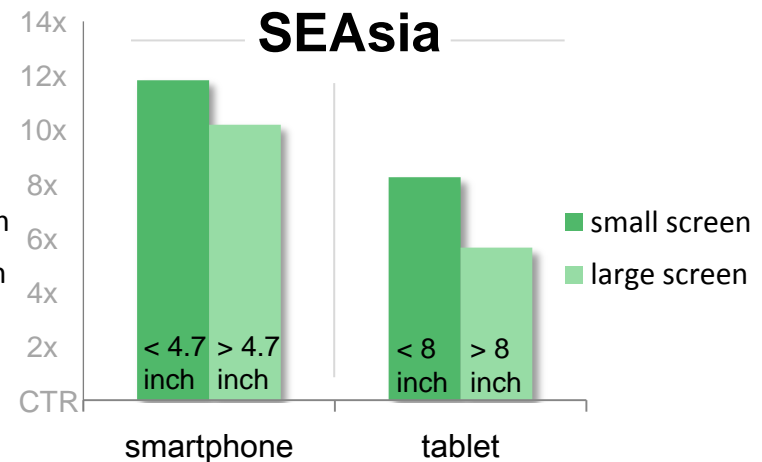
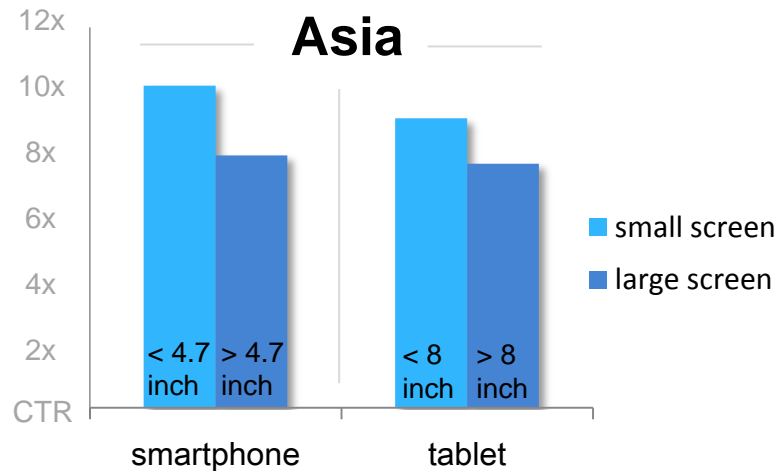


Tablet CTR



Majority of the Asian markets show higher CTR on smartphone as opposed to tablets, with the exception of Taiwan.

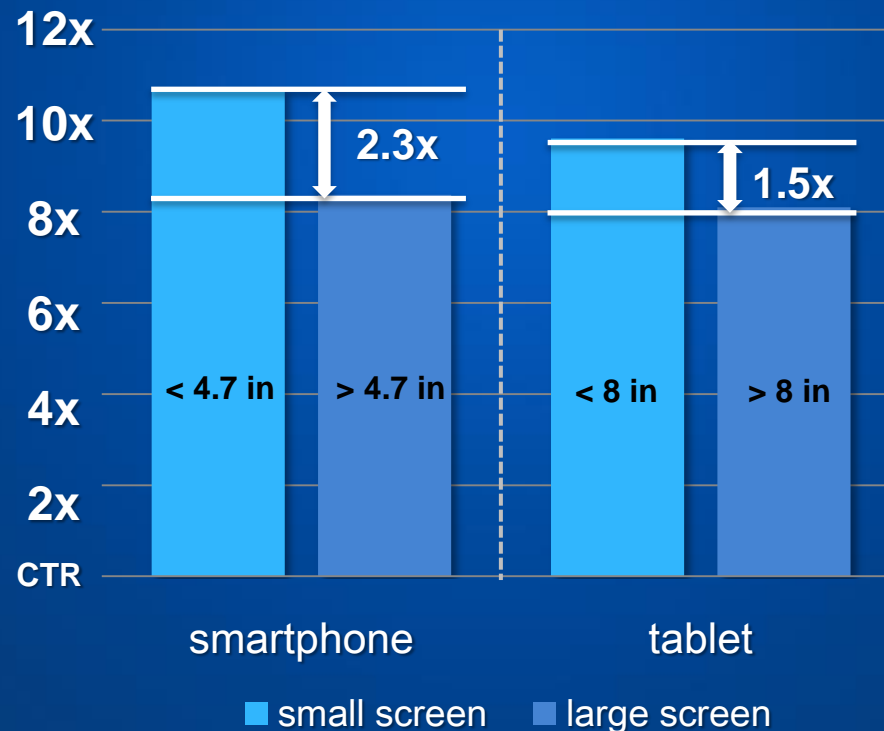
The Taiwanese market showed up to 30% higher CTR on tablet vs. smartphone.



Overall Asian Market

Focus on capturing users on their smaller-screen smartphones may help with the increase of overall ad CTR.

- Not much difference in overall CTR between smartphones and tablets.
- That said, screen size has a significantly larger impact on smartphones than they do on tablets. Smaller-screen smartphones have better CTR than larger-screen smartphones.



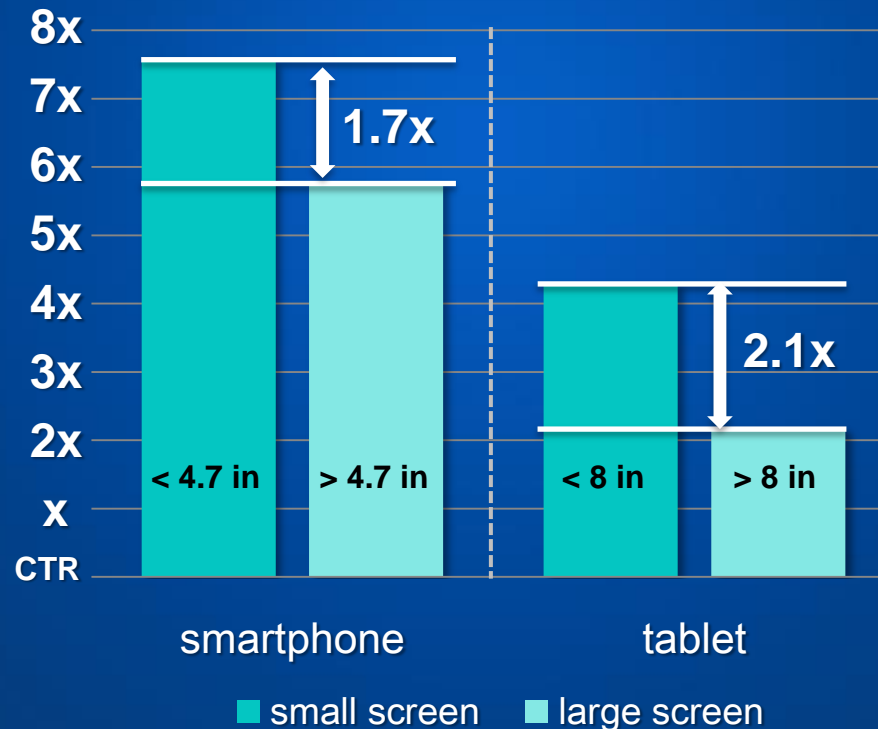
Focus on capturing users on their smartphones & smaller-screen tablets may help with the increase of overall ad CTR.

-
- The chart illustrates the relative importance of screen size for smartphone and tablet users. The Y-axis represents the relative importance, ranging from CTR (Control) to 14x. The X-axis shows two categories: smartphone and tablet. For each category, two bars are shown: 'small screen' (dark green) and 'large screen' (light green). The importance of screen size is 1.7x higher for smartphone users with screens > 4.7 in compared to < 4.7 in. For tablet users, the importance is 2.7x higher for users with screens > 8 in compared to < 8 in.
- | Device | Screen Size | Relative Importance |
|------------|-------------|---------------------|
| smartphone | < 4.7 in | 1.0x (CTR) |
| | > 4.7 in | 1.7x |
| tablet | < 8 in | 1.0x (CTR) |
| | > 8 in | 2.7x |

Hong Kong & Macau Market

Focus on capturing users on their smartphones & smaller-screen tablets may help with the increase of overall ad CTR.

Overall, smartphones show higher CTR than tablets. Smaller-screen tablets have significantly higher CTR than larger-screen tablets.



Focus on capturing users on their tablets may help with the increase of overall ad CTR.

-
- The chart displays the ratio of small screen to large screen for two device categories: smartphone and tablet. The y-axis represents the ratio, ranging from CTR to 12x. A vertical dashed line separates the smartphone and tablet data.
- | Device | Screen Size | Ratio (Small Screen / Large Screen) |
|------------|-------------|-------------------------------------|
| smartphone | < 4.7 in | 2.3x |
| | > 4.7 in | 1.0x (CTR) |
| tablet | < 8 in | 0.6x |
| | > 8 in | 1.0x (CTR) |
- Legend:
■ small screen
■ large screen

- 21

The figure consists of two bar charts. The left chart compares the overall CVR for smartphone and tablet. The y-axis is labeled 'CVR' and ranges from 'x' to '4x'. The x-axis has two categories: 'Smartphone' and 'Tablet'. The right chart compares the CVR for two industries: 'Gaming industry' and 'Beauty industry'. The y-axis is labeled 'CVR' and ranges from 'x' to '5x'. A legend indicates that dark teal bars represent 'smartphone' and light teal bars represent 'tablet'.

Category	Smartphone CVR	Tablet CVR
Overall	~2.8x	~4.0x
Gaming industry	~3.6x	~4.9x
Beauty industry	~2.4x	~3.0x

Figure 2

Similarly, CVR is much higher on Android than iOS for two of the most popular mobile ad industries in Taiwan, **gaming & beauty**. (Figure 2)

Taiwan Market Conversion Analysis

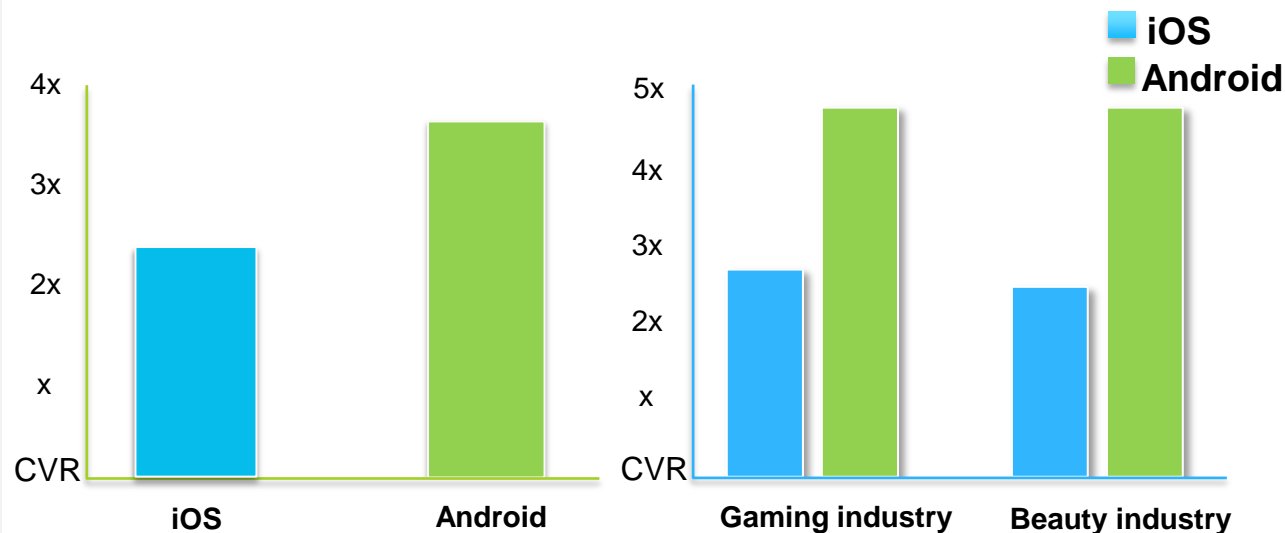


Figure 1

Figure 2

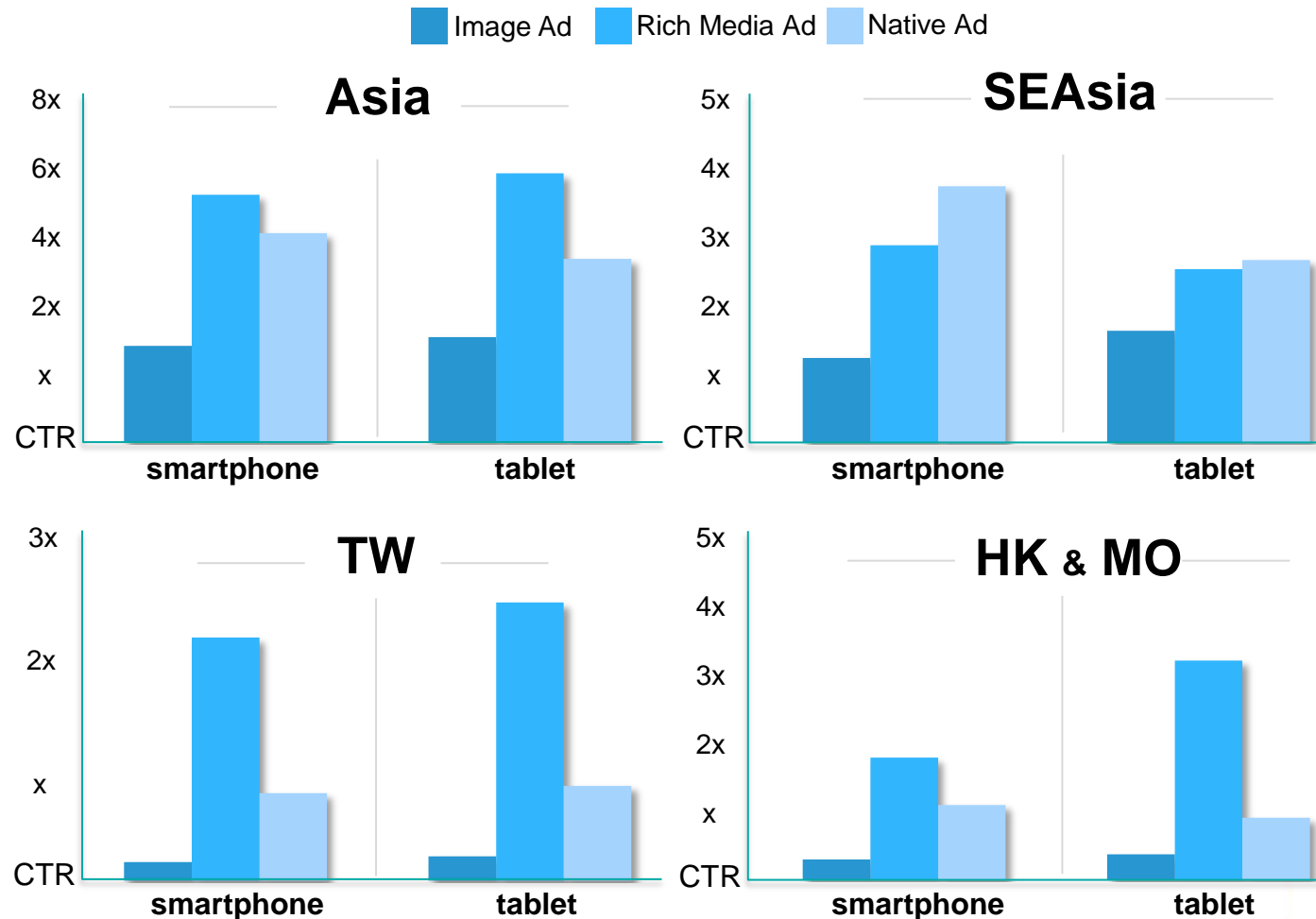
The background features a dark blue gradient with a large, light blue circular graphic composed of concentric rings and dotted lines. Various icons representing digital devices and data are scattered around the circle: a desktop monitor at the top left, a laptop at the top right, a smartphone at the bottom left, a laptop at the bottom right, and a pie chart near the bottom center. On the far left, there is a small bar chart with five vertical bars of varying heights.

Effects of Ad Format on Cross-Screen Targeting Experience

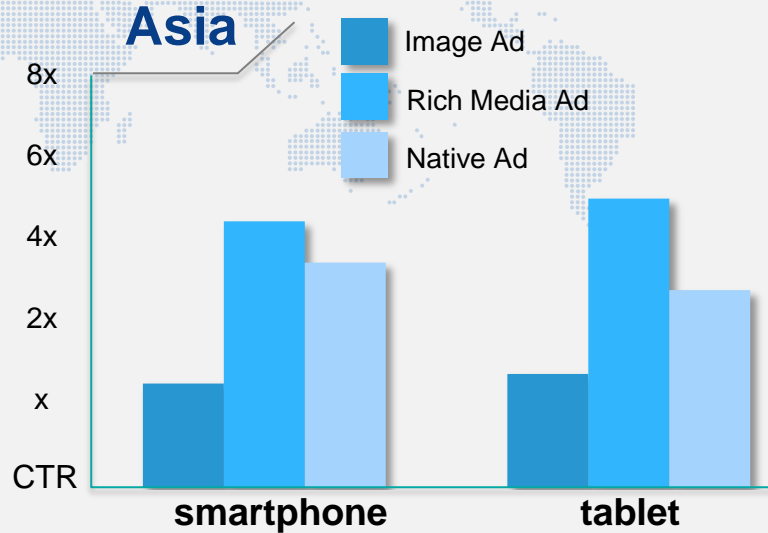
ad CTR for various ad formats

Ad format plays a critical role in the success of your cross-screen advertising strategy.

With the exception of Southeast Asia, **Rich Media** is the best performing ad format across both smartphones and tablets.



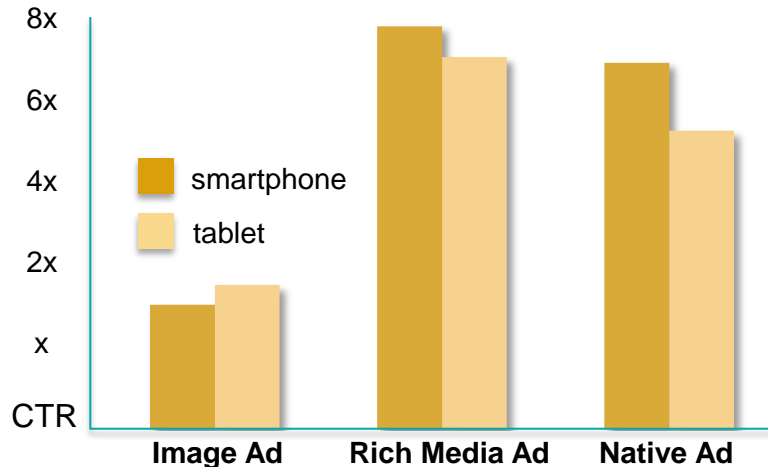
Leverage Rich Media ads to increase CTR & user engagement



CTR in Asia Market:

Rich Media > Native Ad > Image Ad

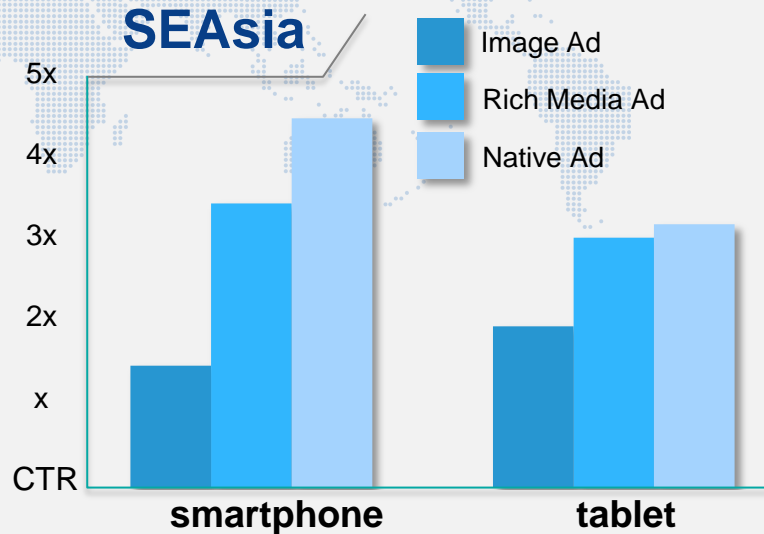
across both smartphones and tablets



Cross-comparison of ad formats:

- **Image ads** receive higher CTR on tablets
- **Rich Media & Native Ads** both perform better (i.e. higher CTR) on smartphones
- **Rich Media & Native ads** have a **50% higher CTR** than traditional Image ads.

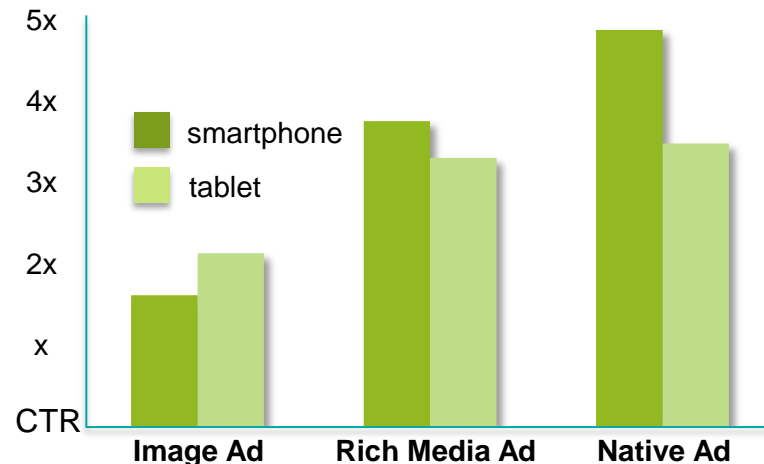
Leverage **Native ads** to increase CTR & user engagement



CTR in **SEAsia** Market:

Native Ad > Rich Media > Image Ad

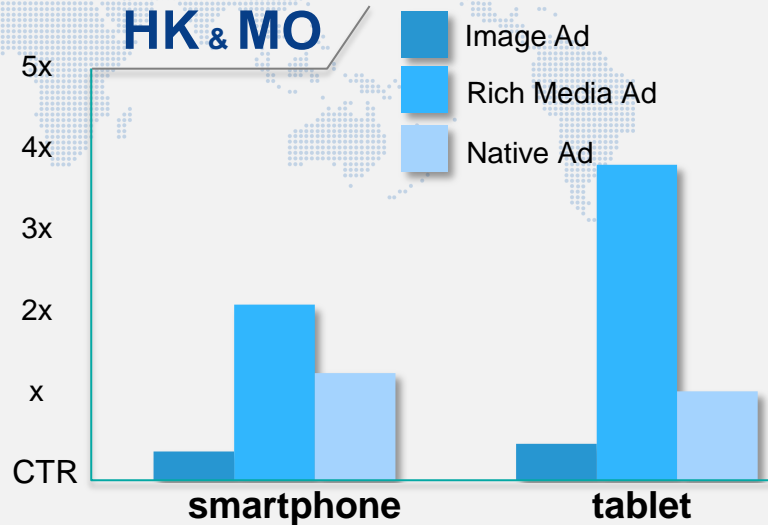
across both smartphones and tablets



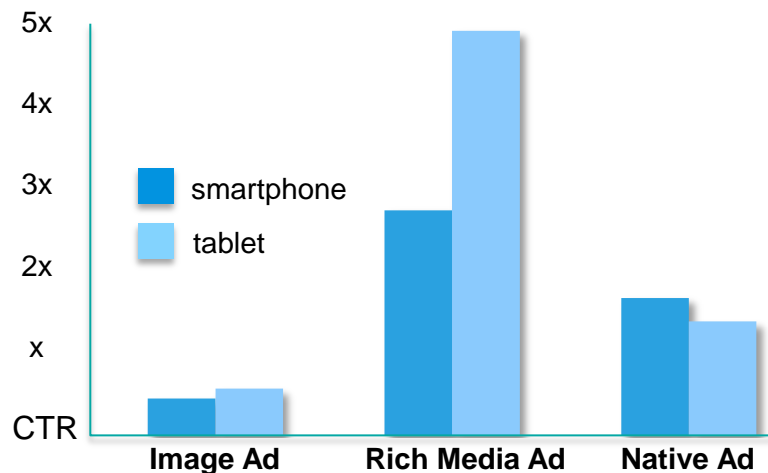
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Leverage Rich Media ads on tablets to increase CTR & user engagement



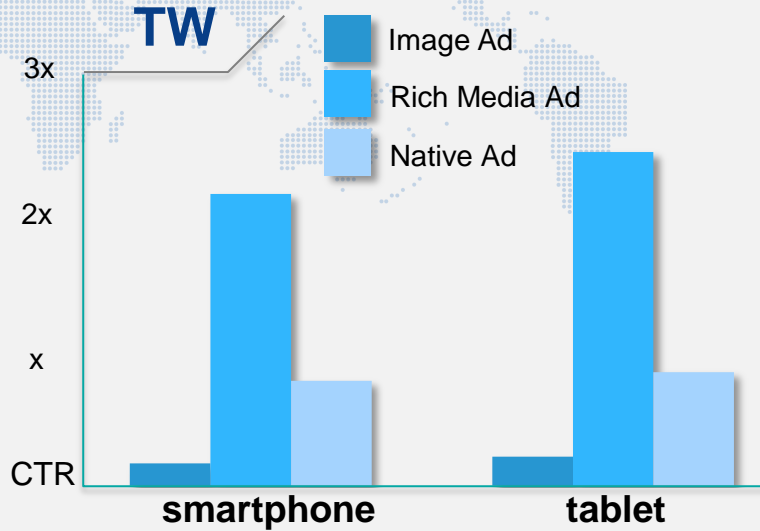
CTR in Hong Kong & Macau Market:
Rich Media > Native Ad > Image Ad
across both smartphones and tablets



Cross-comparison of ad formats:

- **Image ads** receive higher CTR on tablets
- **Rich Media** ads perform better (i.e. higher CTR) on tablets; **Native ads** perform better on smartphones
- **Rich Media & Native ads** have a **70% & 60% higher CTR**, respectively, than traditional Image ads.

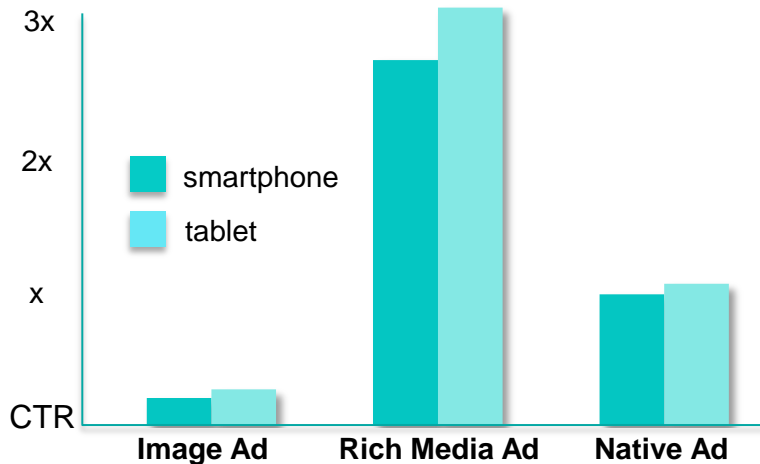
Leverage Rich Media ads to increase CTR & user engagement



CTR in **Taiwan** Market:

Rich Media > Native Ad > Image Ad

across both smartphones and tablets



Cross-comparison of ad formats:

- **Rich Media** ads perform better on tablets than smartphones.
- **Image ads** have only about **10%** of **Rich Media** CTR.

Key Findings

- ◆ **An Era of Multi-Screen:** Mobile devices such as smartphones and tablets are becoming increasingly common. By 2016, a quarter of the entire world will have at least 2 mobile devices.
- ◆ **Complex Cross-Screen User Behaviors:** User behaviors on various mobile devices are complex and cannot be easily predicted. Only half of the users show similar interests across devices, while 1/4 have no similarities at all.
- ◆ **Mid-size Mobile Devices:** Based on Appier's cross-screen data, users in Asia prefer "mid-size" mobile devices, specifically, smaller tablets and larger smartphones. Marketers need to develop different content based on the various screen-sizes and the advertisement layout on the different devices.
- ◆ **6 key Insights to Increasing Cross-Screen CTR** on mobile devices:

Enticing Content	Size of the device is not the main factor for CTR performance, Content is still the key.
Engaging Ad Format	Rich Media and native ads allow for user interactions and often result in higher ad engagement. Marketers should experiment with creative ways to leverage ad formats beyond traditional image ads.
The Perfect Time	Users spend more time on their smartphones after work, especially on the weekends.
Aggressive Investment during Peak Periods	As opposed to smartphone usage, users spend more time on tablets on Thursdays and anytime after work, whereas smartphone usages often happen on Fridays or during work hours. Invest heavily during peak periods on each device can increase impressions and clicks more effectively.
Smart Budget Allocation during Off-Peak Periods	Despite the lower usage rate during off-peak periods on mobile devices, it is crucial not to miss out on the (still very high) number of users who are on their mobile devices during these times. Leverage user database to identify high potential users with high engagement rate during off-peak hours and intelligently deliver to them their preferred content and ads on the right device.
The Right Device	Leveraging user behavior data & machine learning, retarget users that have shown interests in your product before by showing them relevant ads on their other devices.

- ◆ **Focus on the Users:** Successful cross-screen targeting campaigns deliver user-preferred ads at different times to different devices based on that target user's behaviors across his/her devices. It is a completely customized ad experience based on the individual user's cross-screen behaviors.
- ◆ **It's not too Late to be Early:** As we move into the era of multi-screen, digital marketing campaigns can no longer be relied on manual AB testing. Cross-screen user behaviors are more complex than ever before, and we must leverage machine learning to help us sort through this ocean of big data to achieve ultimate ROI.



Regional Findings

Spotlight on SEAsia:

- ◆ 7pm is the peak time for smartphone and tablet usage.
- ◆ There is an increasing trend for smaller screen-size smartphones and larger screen-size tablets; avg. CTR on smartphones is higher than tablets. Native ads perform better than other ad formats. Invest more budget on smartphone with native ad to increase overall CTR.
- ◆ Smaller tablets, like smaller smartphones, demonstrate higher CTR due to the larger share of screen. It is important to balance investments between the growing number of larger screen tablets and the higher CTR on smaller tablets.

Spotlight on Hong Kong & Macau:

- ◆ Smartphone usage is the highest at 8pm and tablet usage is the highest at 11pm. There is a significant drop in smartphone usage after 9pm. Tablet traffic increases steadily during offwork hours. Invest in tablet ad exposure in the offwork hours.
- ◆ While there are more numbers of larger screen devices, average CTR on smartphones is better than on tablets.
- ◆ Invest in Rich Media ads on tablet may increase overall CTR.

Spotlight on Taiwan:

- ◆ 8pm is the peak time for smartphone and tablet usage. Tablet usage surpasses smartphone usage after 7pm.
- ◆ Traditional image ads show lower CTR and user engagement. Leverage Rich Media ads to increase overall CTR.
- ◆ Average CTR and CVR are both higher on tablets than smartphones. Average CVR on Android devices is 30% higher than that of iOS; this is especially apparently in the gaming app industry.
- ◆ Given the high avg. CTR & CVR for gaming-apps traffic on tablets, advertisers should increase tablets ad budget.

Research Methodology

- The data for this research was from a sample of 345 billion data points from Appier database from Q1 to Q2 2014 in Asia. The presented results were at a 95% confidence level, with a margin of error +/- 4.5%.
- All data from this research report were based on actual user behavior data, no questionnaire was used.
- Research data covers the following 10 Asian markets:
Hong Kong, Indonesia, Japan, Korea, Macau, Malaysia, Singapore, Taiwan, Thailand, Vietnam.



Delivering the right content to the right audience
on the right screen at the right time.

