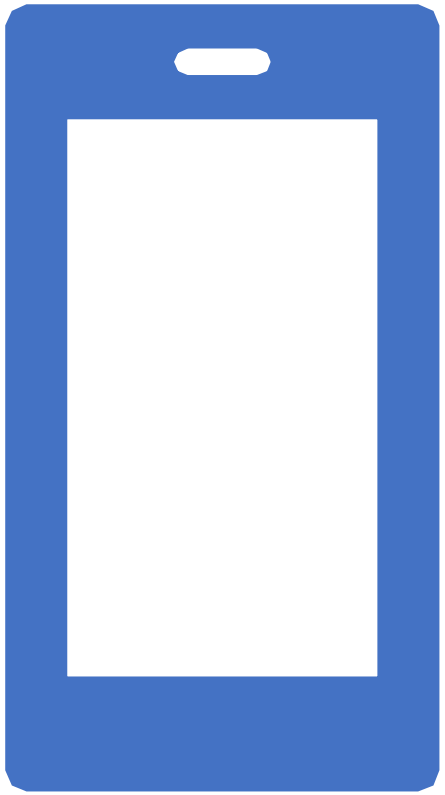
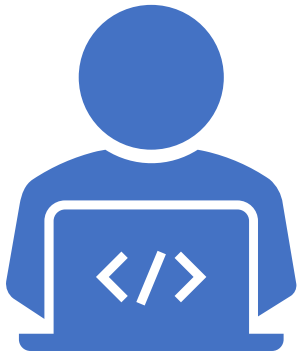


“We Can’t Live Without Them!” App Developers’ Adoption of Ad Networks and Their Considerations of Consumer Risks

Abraham Mhaidli, Yixin Zou, Florian Schaub

University of Michigan School of Information

50% of mobile apps use ads (and by extension, advertising networks)



App developers with an app

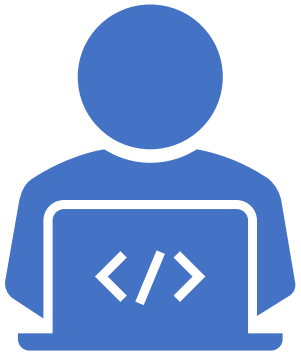
Advertising Networks

Google Ad Mob
InMobi
StartApp

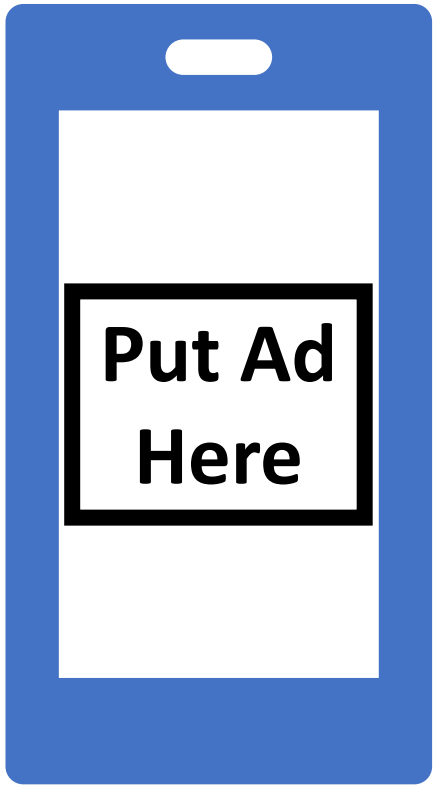
Advertisers with ads to show

Developer

Ad Network



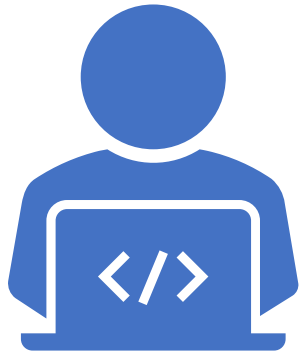
Through SDK provided by ad network



Receives data from app

Developer

Ad Network



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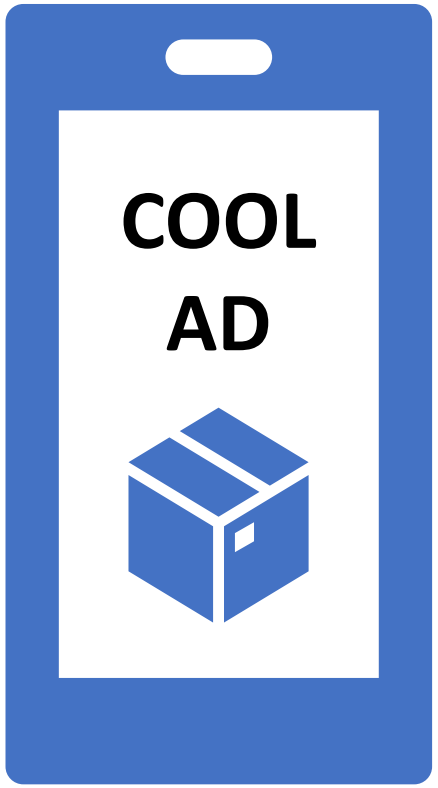


Receives data from app

Puts specific ad in

Can control:

- Category of ad
- Data sent to ad network
- Targeted ads or not

Ads are great!
… or are they?

PERVASIVE DATA COLLECTION

MALWARE

ANNOYING

CONSUMERISM

Proposals have been put forward to manage these risks...

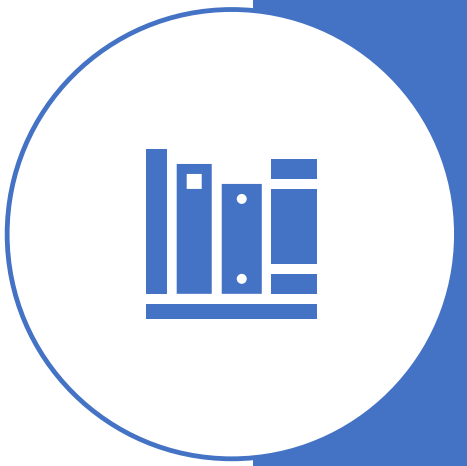
… but little is known about how app developers reason about and integrate ads.

Related Work

Consumer risks of advertising networks (Borgesius, 2015)

Developer Behaviors

- Information Seeking (King et al, 94; Shilton and Greene, 2017)
- Tool Selection (Xiao et al., 2014; Witschey et al., 2015)
- Privacy and Security Behaviors (Balebako et al, 2014; Acar et al. 2017)



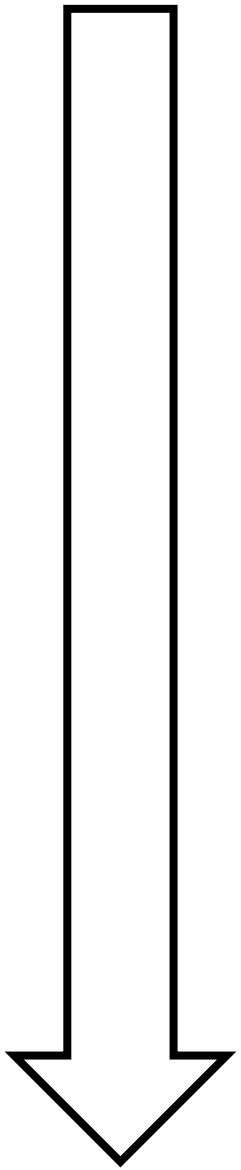
Areas of Focus

1. Why do developers choose to use advertising?

2. How do they choose an advertising network?

3. How do they configure ads in their app?

4. How do they manage consumer risks?



Method

Mixed Method: Survey and Interview

Survey

- App experience
- Advertising network usage
- Behaviors & Attitudes

Interview

- In depth probing regarding rationale of behaviors.

Participant Demographics

App developers who had monetized their apps through advertising

49 for survey; 10 for interview

Mostly small independent app developers

Findings

Areas of Focus

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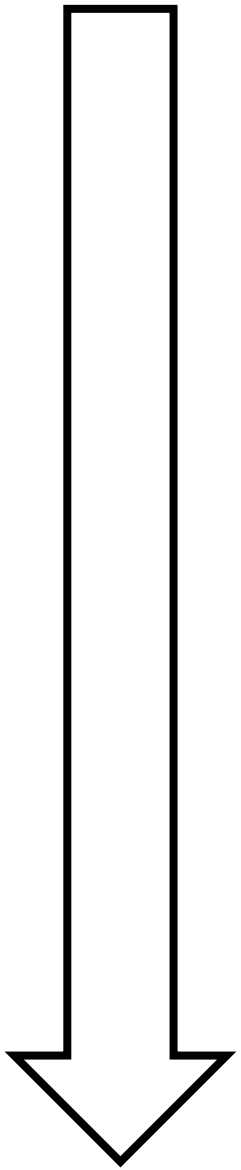
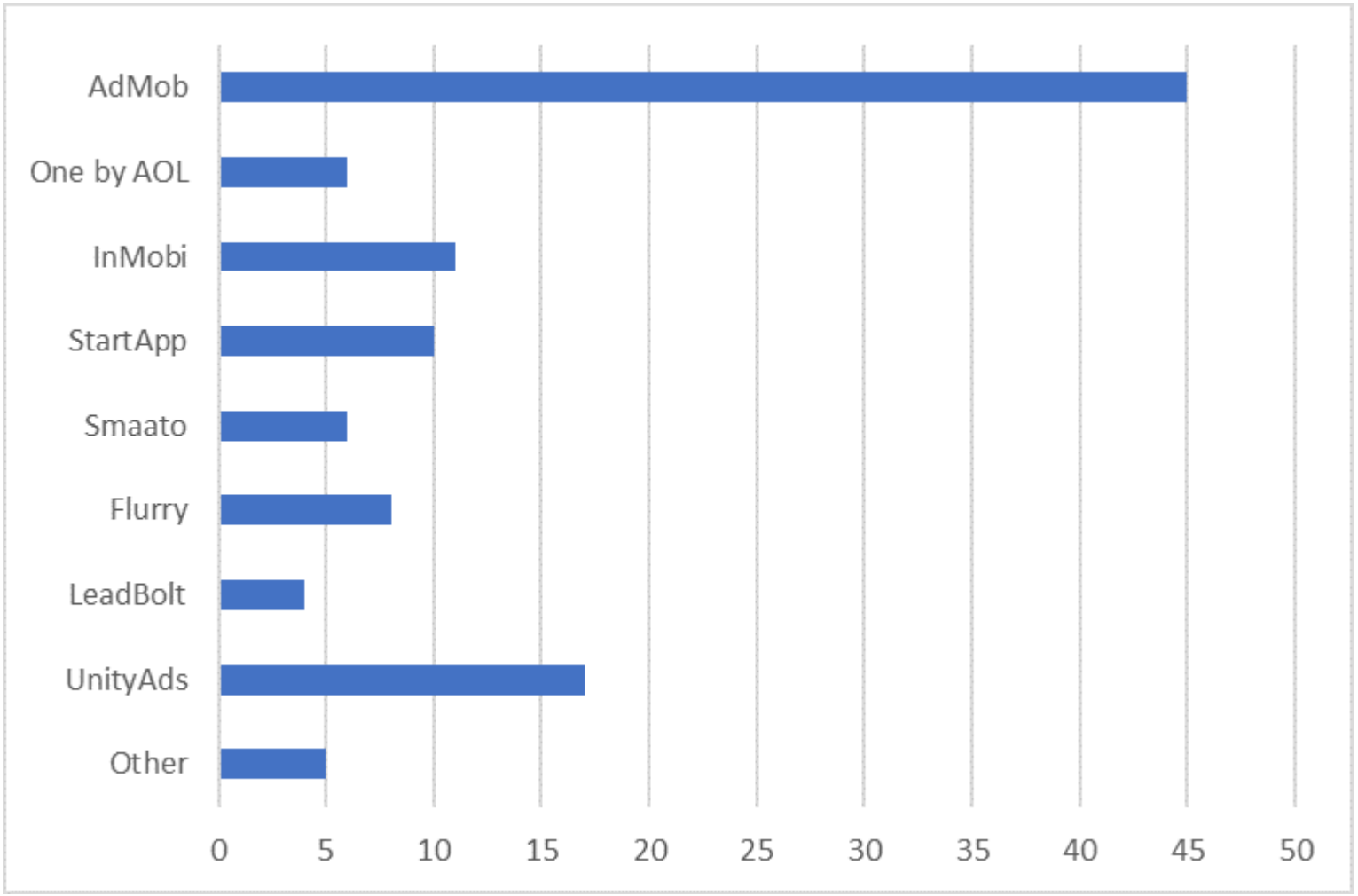


Advertising is Key (Survey)



40% of participants only used advertising as a monetization model

Ads seen as necessity
(Interview)

“If it wasn’t for advertising, almost all the independent developers would basically just die.”

BUT dissatisfied with revenue

All small independent app developers complained about revenue being too low

(Interview)

Revenue main reason for switching ad networks

(Survey)

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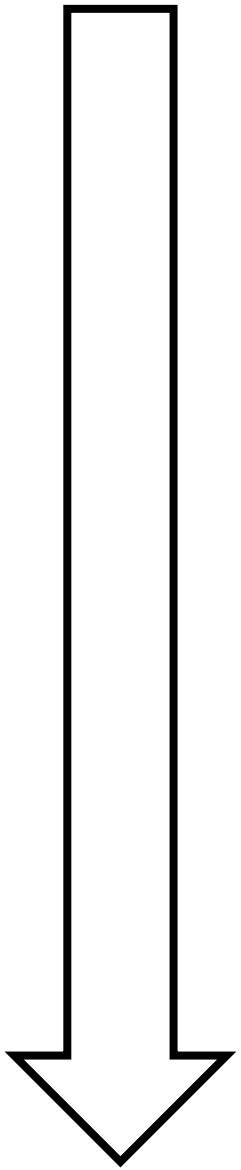
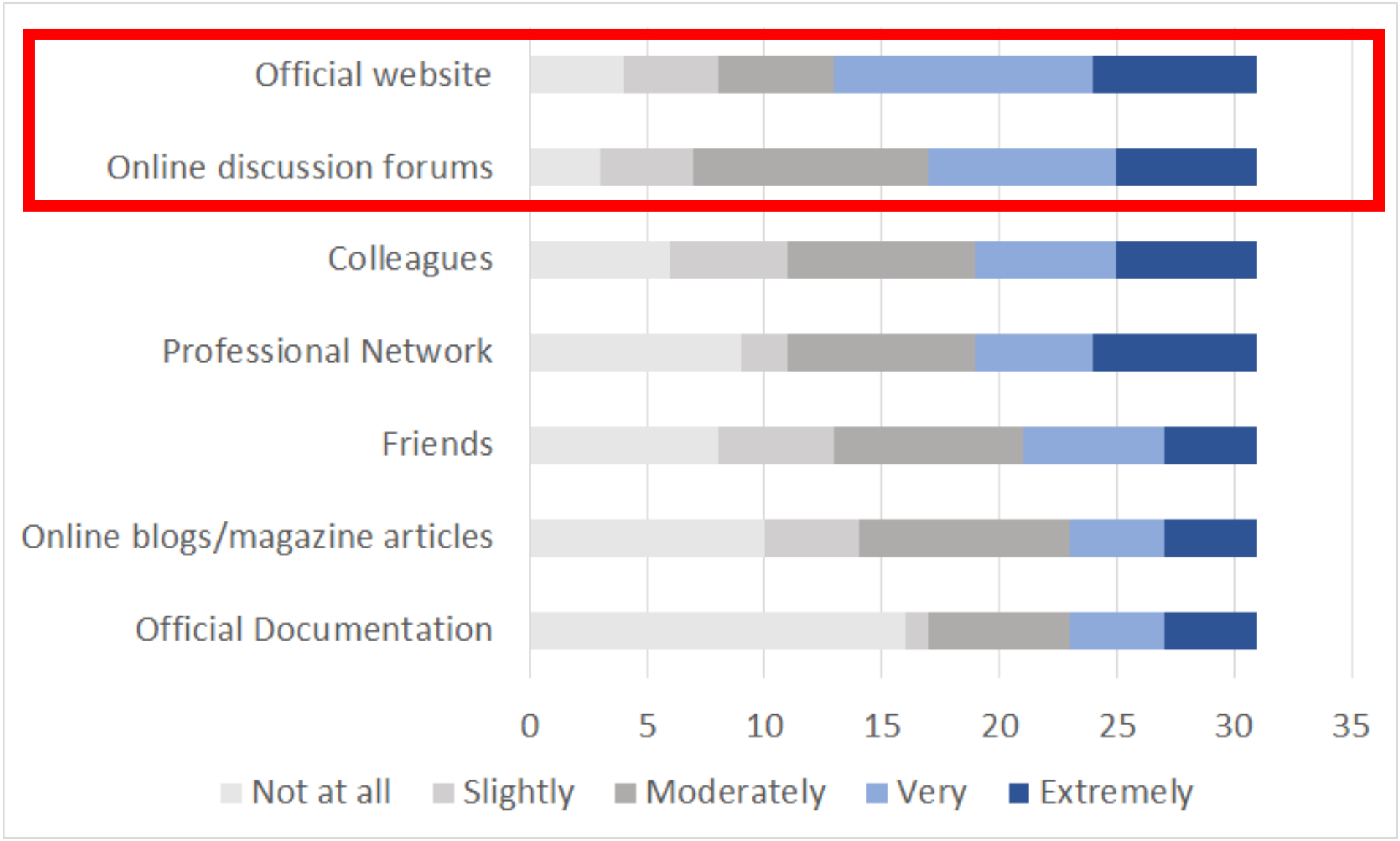


Website and Forums Important (Survey)



Developers do not really research what ad network to use (Interview)

Rough Heuristics

Website

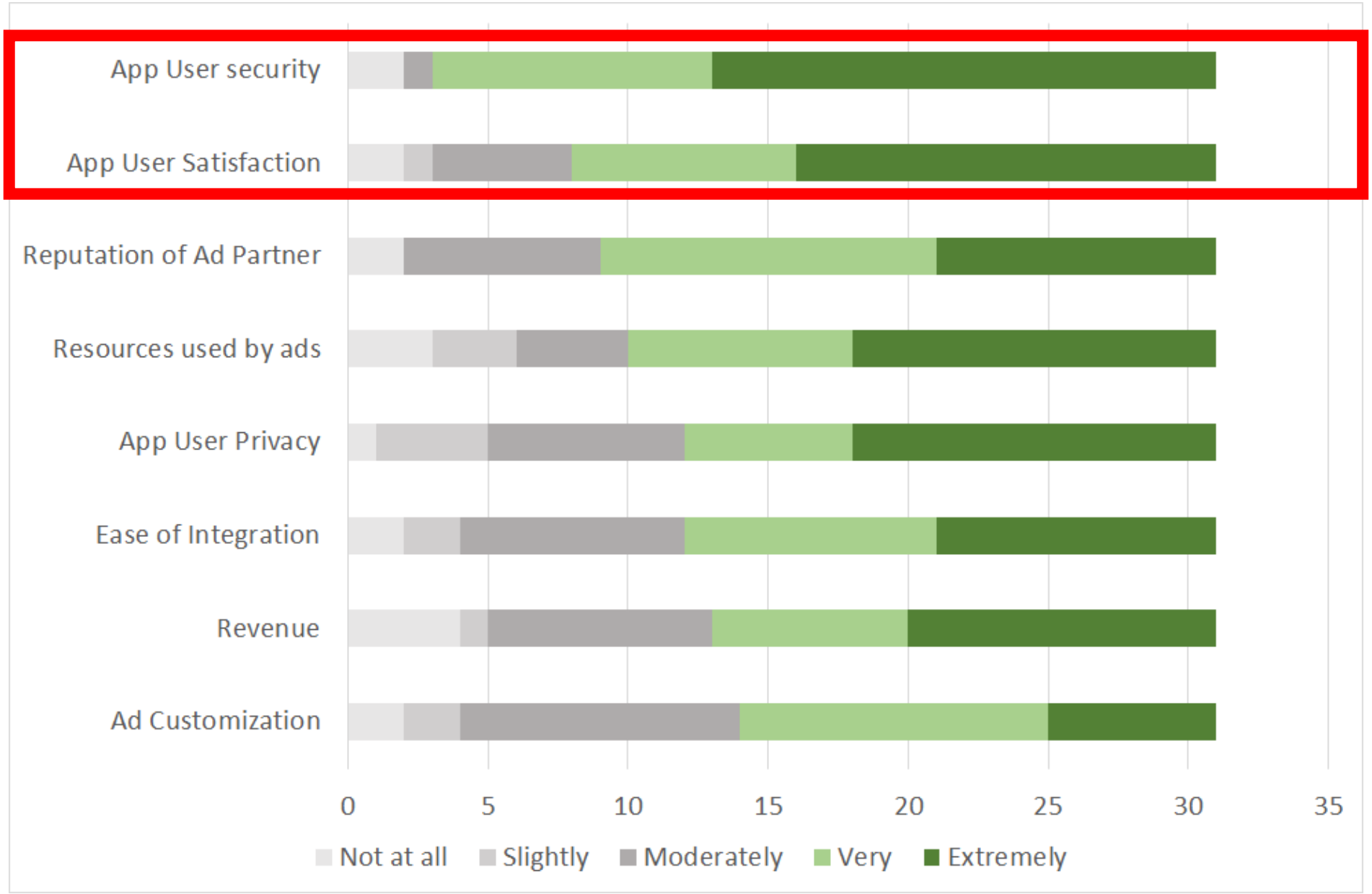
Looks Ok

Try it

Works why not

Rarely change ad network, unless broken.

App developers claim to value users (Survey)



But other factors valued when choosing an ad network (Survey and Interview)

100% of participants who switched ad networks did so for revenue

Interviews: Ease of integration emphasized the most

Tension

Developers want better user security and user experience…

…but need money and ability to implement ads easily

Areas of Focus

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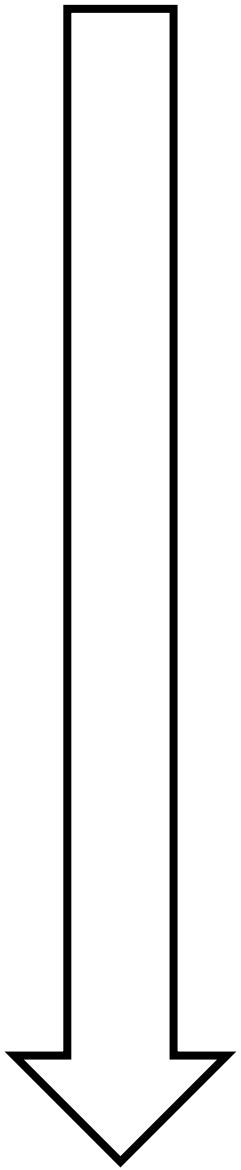

Stick to defaults (Interview)

Even when it goes against their financial interests or their wish to have privacy preserving apps

For example, contradictions between showing targeted ads but not maximizing the data that is sent.

Areas of Focus

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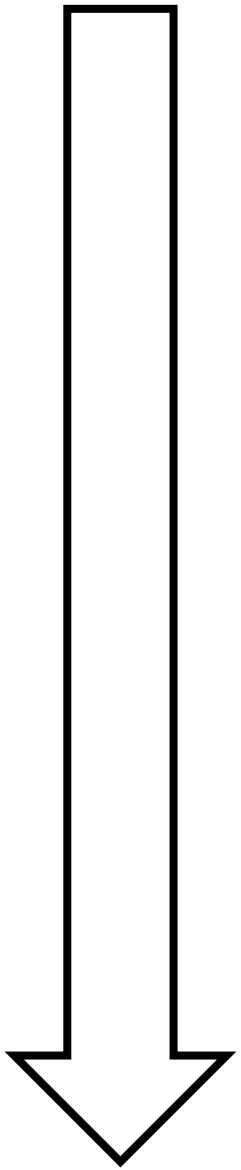


Advertising network responsible for fixing consumer risks
(Survey and Interview)

50% of survey said ad networks ‘completely responsible’ for fixing consumer issues

In interview, express little agency and responsibility

Summary of Findings

Use advertising mostly out of resignation

Don’t spend too much time researching what advertising networks to use

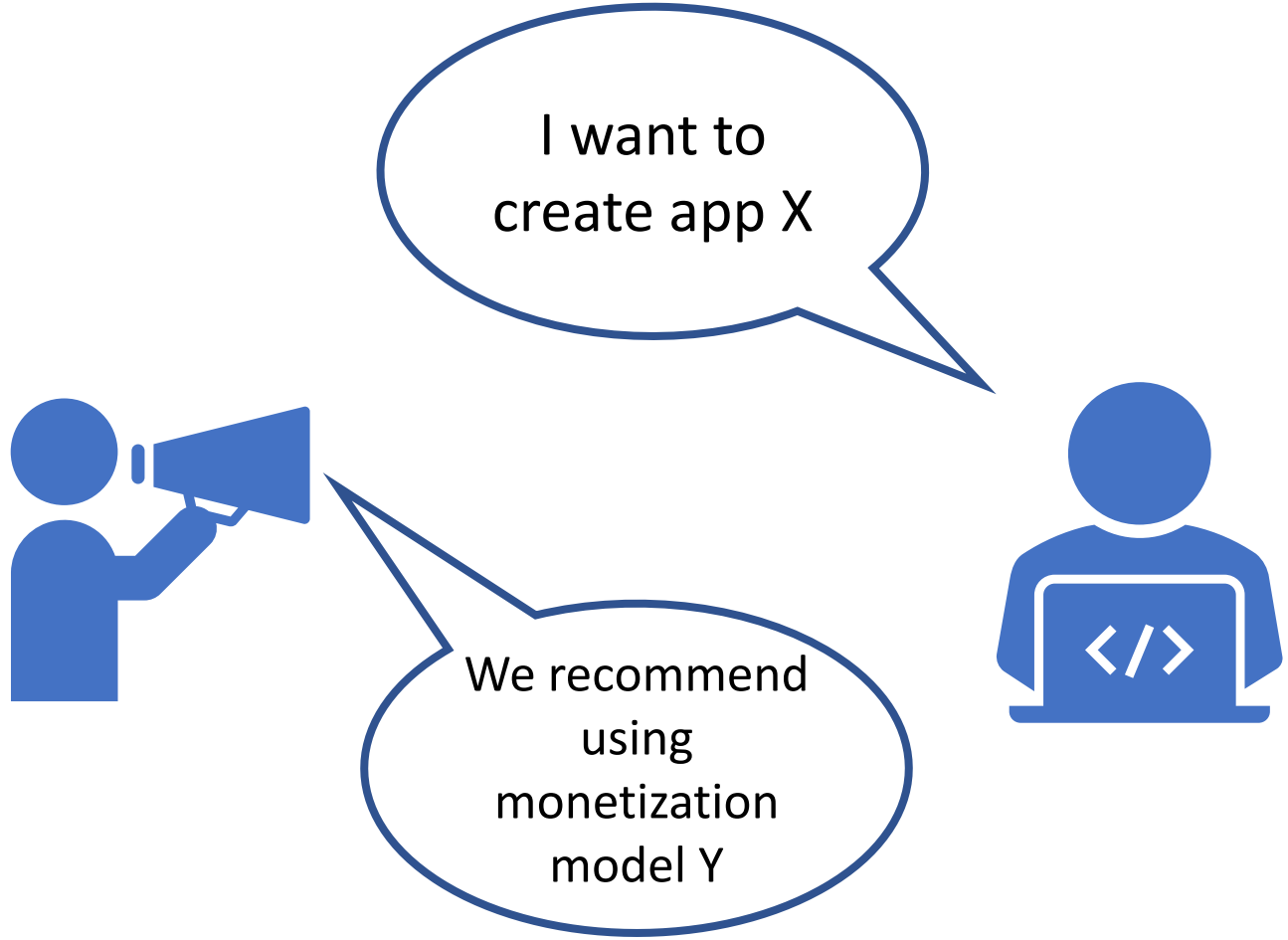
Stick to default settings even when it goes against financial or privacy preserving interests

Believe it is not their responsibility to fix issues with advertising networks

Opportunities for future work

Support Developers in Choosing App Monetization Models

More information on monetization models needed



Rethink Ad Network Defaults

Mandate ad networks to change defaults to consumer-friendly settings

Positive Responsibility

Classes

Incentives

Mobile App Developers…

Use advertising out of resignation and belief of necessity

→ More accurate information about monetization models needed

Stick with default settings

→ Mandate ad networks to have consumer-friendly defaults

Think it is ad networks responsibility to manage risks

→ Encourage positive responsibility through classes and incentives for developers

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