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

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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

Through SDK provided by ad network

Put Ad Here

Receives data from app

Ad Network
Can control:

- Category of ad
- Data sent to ad network
- Targeted ads or not
Ads are great!
... or are they?
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?
Mixed Method: Survey and Interview

Survey
- App experience
- Advertising network usage
- Behaviors & Attitudes

Interview
- In depth probing regarding rationale of behaviors.
App developers who had monetized their apps through advertising

49 for survey; 10 for interview

Mostly small independent app developers
Findings
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?
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)
Areas of Focus

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Website and Forums Important (Survey)

- Official website
- Online discussion forums
- Colleagues
- Professional Network
- Friends
- Online blogs/magazine articles
- Official Documentation

Legend:
- Not at all
- Slightly
- Moderately
- Very
- Extremely
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
Developers want better user security and user experience...

...but need money and ability to implement ads easily.
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?
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

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?
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

I want to create app X

We recommend using monetization model Y
Rethink Ad Network Defaults

Mandate ad networks to change defaults to consumer-friendly settings
Encourage Developer Responsibility

Positive Responsibility

Classes

Incentives
Mobile App Developers...

Use advertising out of resignation and belief of necessity

Stick with default settings

Think it is ad networks responsibility to manage risks

More accurate information about monetization models needed

Mandate ad networks to have consumer-friendly defaults

Encourage positive responsibility through classes and incentives for developers

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