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1+ Click buy options for Digital Ads suited to Consumer-facing Micro- and Small Businesses in India

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Abstract

In India, there is a likelihood that most of the customer-facing micro and small businesses (CFMSBs) do not own e-commerce websites. These businesses could be grocery stores, restaurants or artisanal bakeries - many of which would like to switch to Digital Advertising of their products or offers, and also drive conversion inside such Ads. The consumers could then pick-up the products ordered, or alternatively other methods of coordination can decide last-mile delivery. In this paper, we propose 3 feasible '1+ click conversion' methods, with the term '1+ click conversion' indicating a few additional clicks, mostly on account of digital payments settlement specific to India. The 3 methods we propose are:

- A. Display advertising in mobile app followed by deep linking to any UPI payment app for conversion,
- B. Display advertising on mobile web followed by deep linking to UPI payment apps
- C. Display advertising using HTML5 in desktop web while at the same time using a within-Ad conversion opportunity.

In each case, we also identify the technically feasible changes in App, browser or Ad ecosystem required for such '1+ click conversion' methods to be implemented.

1. Introduction

Enabling a digital path in advertising and payments for India's many consumer-facing micro and small businesses (CFMSBs) is imperative to raise their revenue and job-creation potential. Such businesses could be grocery stores, eateries or restaurants (called 'hotel' in Indian parlance), artisanal bakeries or fresh produce sellers. Many semi-urban consumers who are willing to purchase the products from these small merchants presently follow the traditional in-store mode of purchase – though it is also the case that payments are increasingly settled digitally via payment apps or credit/debit cards.

A typical digital option for businesses would be to introduce an e-commerce website, but according to a survey by a website hosting firm^[1], around 63% of very small businesses in India do not own a website. This is most likely on account of a shortage of website design skills, and uncertainty of revenue from self-run e-commerce portals. Some CFMSBs join platforms as sellers, e.g. Amazon, Flipkart (e-commerce), Swiggy, Zomato (food delivery), but are concerned of the 20-30% deduction from revenue that platforms engage in.

The ongoing COVID-19 pandemic has on the one hand made it difficult for consumers to physically present themselves to purchase products from stores/outlets, on the other there is hesitancy in handling currency notes or even plastic money in form of debit/credit card.

The pandemic's shock also extends to CFMSBs in another way, since they have no means other than a branded location presence to persuade consumers in their locality.

There is thus an opportunity for CFMSBs to retain and expand their sales using a combination of digital advertising and digital payment modes, preferably within '1 click' in the format of Amazon's famous 1-click-buy. This will help raise revenue for small merchants in the current pandemic and also position them well for post-pandemic outcomes. A leading consultancy firm's survey on global consumer sentiment during pandemic^[2] says that "appetite for online shopping and convenience will continue to grow after the lockdowns are lifted".

This paper addresses the above stated problem of CFMSBs, and suggests feasible improvements in the current e-commerce purchase flow to implement a nearly one-click buy – which we call a '1+click buy' - or similar quick-payment mechanism to reduce the friction in the ecommerce micro-conversion funnel and thus improving the conversion of a typical consumer. Note that a '1+click buy' is called thus due to additional clicks or inputs required in India, e.g. credit card CVV code and an OTP (one-time password), spread over 2 screens of inputs. Similarly, an input code in addition to the thumbprint is required in UPI apps too.

This paper primarily proposes three technologically feasible methods in which CFMSBs can both advertise their products and improve sales by driving 1+ click conversions:

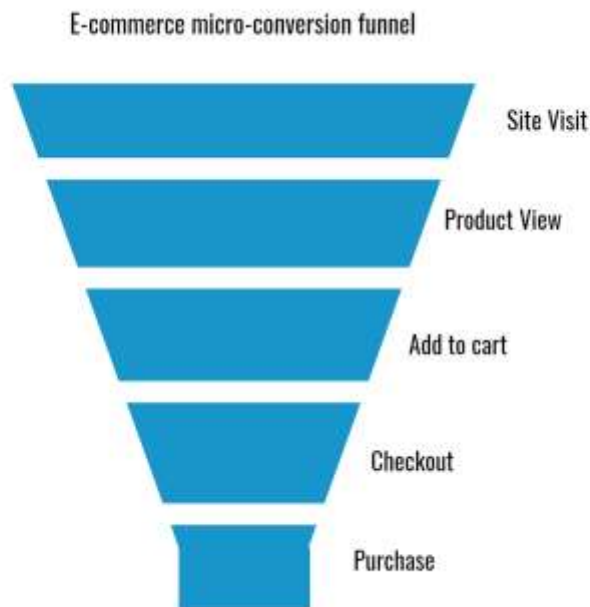
- A. Display advertising in a mobile app followed by deep linking to UPI payment apps
- B. Display advertising in mobile web browser followed by deep link to UPI apps
- C. HTML5 creatives for display advertising in desktop web followed by browser-autofill buy, without leaving the current content that is being browsed.

We will also discuss motivating statistics on the current ecommerce conversion funnel actions as well as growth in adoption of digital payments in India in the later part of this paper.

2. Current e-commerce purchase flow

There are numerous steps involved in making a single online purchase, that not all customers who intend to buy a product, then begin with clicks or information, yet would end up purchasing the product. It is this phenomenon that caused Amazon to introduce its famous '1-click buy' feature, though this works only if a consumer is logged into the portal (or is browsing products in its Amazon's smartphone app). In the strictest sense, it is not '1-click buy' in geographies like India due to further regulatory inputs such as credit card CVV and OTP.

The below diagram shows a typical e-commerce micro-conversion funnel.



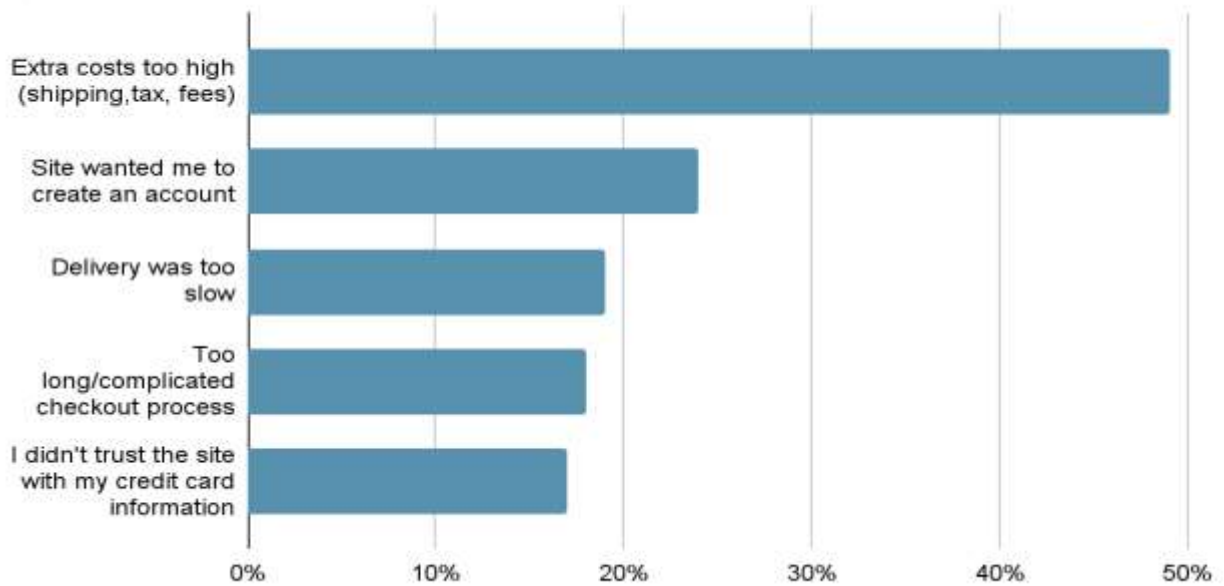
Our aim is to target consumers for whom ‘Product View’ and ‘Add to Cart’ are avoidable, since experience with the product already exists and customer is in essence being retargeted either with a product he was browsing about, or by a product from a trusted vendor.

Statistics published in a report^[3], says that the global average cart abandonment rate per device is 77.24%:

- Mobile Phone - 85.65%
- Tablet - 80.74%
- Desktop - 73.07%

Also, according to a study^[4] published in Dec 2020, the average documented shopping cart abandonment rate is 69.80%. The top five reasons for cart abandonment are as shown in the below graph.

Top reasons of cart abandonment



The above graphic reveals that many customers are not willing to sign-up for different websites and many are finding the checkout process complicated and long. A typical checkout process, different from '1-click buy', in an e-commerce platform comprises many steps.

Checkout Process



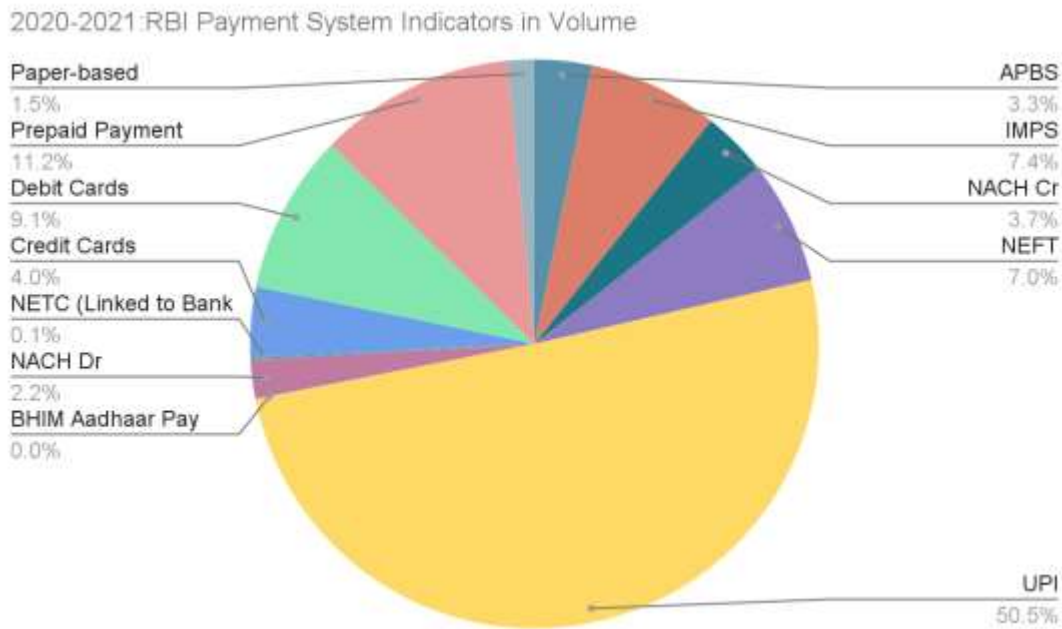
Diagram 2: E-commerce checkout process

This is where the importance of '1-click buy'^[5] or similar quick-payment options become obvious. Optimizing the conversion funnel and providing a quick, hassle-free checkout experience, by reducing the points of friction will certainly result in more conversions, better revenue and long-run sustainability for CFMSB ventures.

3. Adoption of digital payment modes in India

According to the “2020 India Mobile Payments Market Report”^[6] by a financial information and analytics firm, in 2019 Indians made more than two transactions using either card or mobile phone for each ATM withdrawal. The report also says that grocery stores and small merchants are increasingly adopting digital payment.

Here is the statistics from the annual report (2020-2021)^[7] of Reserve Bank of India:



The report says that in India, "the share of digital transactions in the total volume of non-cash retail payments increased to 98.5 per cent during 2020- 21". Also 50.5% of the total volume of transfer occurred was through UPI payment mode.

The statistics from the same report with regards to UPI payment mode alone in the last three financial years is a clear indication that consumers in India have adapted to the digital mode of money transfer as these are quick and convenient.

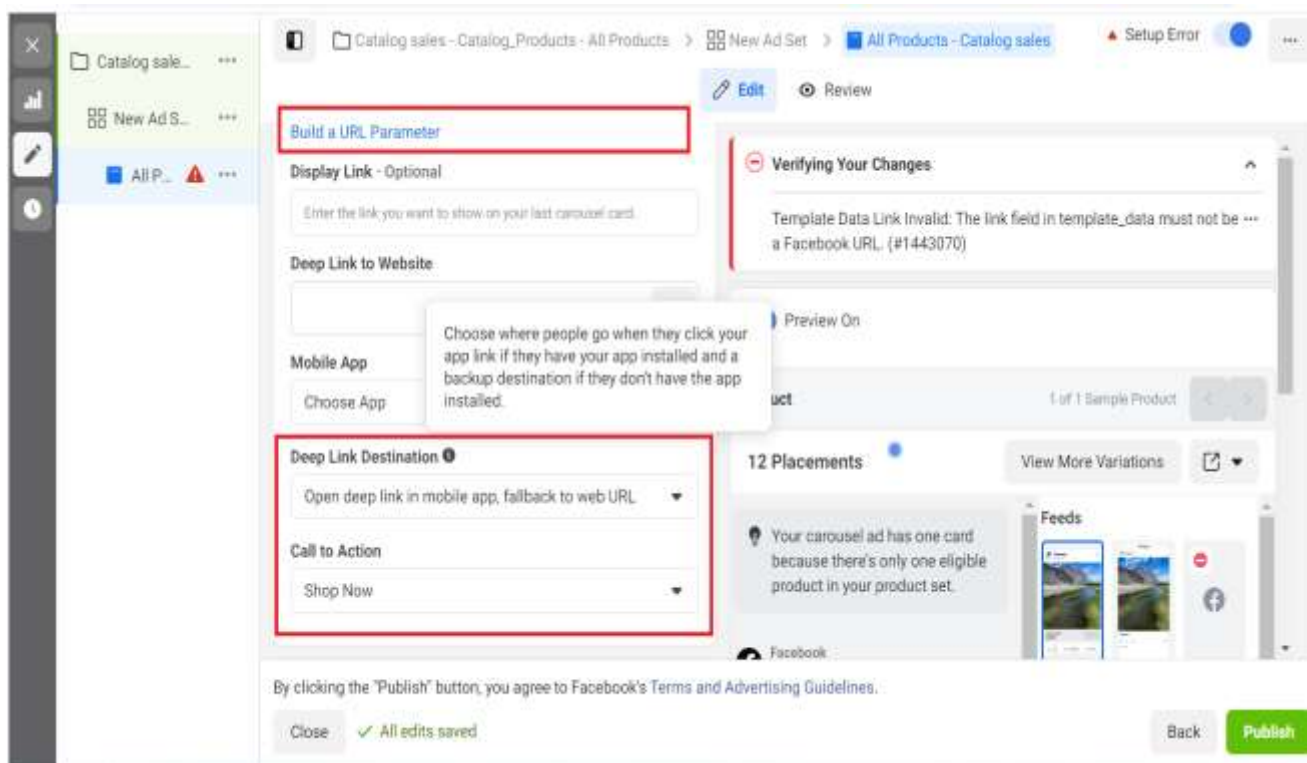
Payment Systems	Volume (Lakh)			Value (Crore)		
	2018-19	2019-20	2020-21	2018-19	2019-20	2020-21
UPI	53,915	1,25,186	2,23,307	8,76,971	21,31,730	41,03,658

Both 'Demonetization' (Nov 2016 – Jun 2017), where higher-denomination currency notes were in short supply, and the COVID19 pandemic, where there is hesitation in handling currency, are likely to have given a fillip to the movement to digital cash.

4. Use Case 1: Advertising on Facebook app with deep linking to UPI app

To expand customer reach, CFMSBs can create a Facebook page and advertise their products to consumers in nearby localities, since such targeting based on GPS coordinates is possible. Current ad formats^[8] supported by Facebook are display images, videos, carousels with links to the products or apps which land on the product's page on the advertisers website or app. Also, there are different call to action buttons^[9] available on Facebook for different ad campaigns.

Presently, Facebook Ads Manager offers an option to deep link^[10] to another app from the creative of an Ad. This enables a seller to show an advertisement of a product and when the user clicks on the ad, the smartphone will launch another app which can contribute to the user's purchase experience.



4.1. Deep Linking of UPI App

UPI apps like Google pay, accept the following parameters^[11] for a transaction:

- "pa": "your-merchant-vpa@xxx"
- "pn": "your-merchant-name"
- "mc": "your-merchant-code"

- "tr": "your-transaction-ref-id"
- "am": "your-order-amount"
- "cu": "INR"
- "tn": "your-transaction-note"
- "url": "your-transaction-url"

We can use the relevant/mandatory parameters to create a static URI, similar to the following:

`upi://pay?pa=your-merchant-vpa@xxx&pnyour-merchant-name&am=your-order-amount&cu=INR&tn= your-transaction-note`

Here the transaction note can be used to mention the product ID, so that when the CFMSB representative gets notification, they are informed of the product that the consumer has ordered. Note that our proposal assumes the presence of a UPI app, e.g. Google Pay, PhonePe, on the consumer's smartphone.

The customer-facing small business can create a Facebook page and deploy an advertisement for a particular product, and while setting up the advertisement use the deep linking option to deep link the ad to UPI app, with the CFMSB's payment account (usually a mobile number), amount for the SKU/product and a product code.

Once the customer sees the advertisement in his feed, he performs the below actions to purchase the product:

1. Clicks on the call to action button on the advertisement
2. This opens the Google Pay app populated with the payment amount
3. Settle the payment in Google Pay



Note in 1. above that call-to-action is not available solely in Ad, it can also be made available as a post on the timeline of the CFMSB brand's Facebook page so that consumers

can engage in a purchase even if they have not seen the ad on their algorithmic feed. Also note in 2. above that consumer is able to view information in UPI app such as whether the receiving account is trusted, e.g. the vendor may already be in the consumer's contacts due to past transactions, or messages exchanged.

For the customer-facing small business,

1. He/she will receive a Google Pay notification with
 - Amount Paid
 - The Product code in the transaction note

4.2. A comparison with Facebook Shop and Checkout Methods

It is necessary to clarify whether FB's existing e-commerce platform represents better infrastructure for CFMSBs. In May 2020 Facebook rolled out a feature called Shop^[12], which will enable a vendor to list and sell their products. This feature is available on Facebook and associate social network Instagram. It supports the following 3 checkout methods^[13] once a product is selected:

- Checkout on Facebook and Instagram: supported only in US jurisdiction
- Checkout via your own website: this option applies for vendors with a website
- Checkout with messaging: this involves directly contacting the customer through either FB Messenger or WhatsApp messaging platforms and then asking the customer to settle the payment in a convenient payment platform.

In the above, Option 1 cannot be used by the customer-facing small businesses in India and Option 2 cannot be used by the vendors who don't own a website. Option 3, the only viable option in this particular case, involves multiple manual steps to complete a purchase – including by the CFMSB's representative. It is also likely to be poor in privacy-terms since CFSMB is contacting consumers using knowledge of their WhatsApp mobile phone number. We return next to further improvements to our proposal of settling a '1+ click buy' using deep linking with UPI apps.

4.3. Recommendations for features/APIs: Facebook

1. Adding a feature in Facebook to select the quantity of the product/SKU as a drop-down list, radio button or a quantity increment button against the advertised product. This quantity can be populated as a part of "*transaction note*" in the deep link URL, by appending it with the *Product ID*.

For example, the usual "product ID" may be 478, but our method would be that if you want 1 unit of 478 then code is 47801, 2 units 47802, or 9 units 47809. This begins with FB Ad that hosts inside the creative a 'radio button' of the type: 1 unit, 2 units, 4 units, with a separate deep-link becoming active in each case.

2. Extending the template tags^[14] to create dynamic deep links to UPI app.

Presently, the deep linked URL is static and cannot be composed at run time based on selections made by the consumer in the Ad. This can be changed according to the following proposal. For example, variable `{{product.name}}` - to represent one among many SKUs in the Ad's carousel - can be substituted in "*tn= your-transaction-note*" and `{{product.price}}` can be passed as the value for "*am=your-order-amount*". The same effect can be had with a user-friendly utility in Facebook Ads Manager to build a deep linked URL, similar to *build URL parameter* for Website URL.

4.4. Recommendations for APIs: Google Pay

1. Adaptive Cards are a term used for programmatic objects inside an App that have pre-populated elements and can be activated in a few clicks (or after a few inputs are received). In a sense, the deep-linked URL seen in Section 4 above was an adaptive card within Google Pay. We propose that Google Pay (or any UPI app) implement Adaptive Cards^[15] for the following purposes:
 - a. To send an automated acknowledgement message: When a successful payment occurs, an automated reply can be sent from the CFMSB account to the customer saying "Order for <SKU> has been successfully placed"
 - b. To ask for the delivery address and contact details: This card can be used to fetch the address and contact details for delivering the product, if required as an option beyond pick-up. Time limit till pick-up can also be conveyed in card, besides a secret passcode to enable pick-up.
 - c. Option to Refund: There should be an option to refund the amount to the customer from the Business Account. This option could be useful when the order cannot be delivered, as the product is sold out or due to any other unforeseen circumstances.
 - d. Option to deep link to Facebook app: A card to the effect of "Continue with Facebook browsing" after collecting the delivery address details of the customer. Such cards could be a pre-condition for any deep-linked Ad URL.

5. Use Case 2: Quick buy in Mobile Web with Display Advertising^[16] and Deep linking

This use case is a minor variant of Section 4's proposal. Display advertising happens to be the most common way of advertising on the web platform to attract customers to a particular product, website or app while the user is browsing the content of another website (often called the publisher). These ads are shown on different websites with a small image or video that showcases a product and within such an ad's creative will be a link to the landing page, where complete product information is shown to the user. Users will have to follow the steps described in the earlier section of this document to complete a purchase.

As before, enabling a deep linked URI in the display ad^[17] can launch the UPI app with the purchase details populated as parameters, as mentioned below:

```
upi://pay?pa=your-merchant-vpa@xxx&pnyour-merchant-name&am=your-order-amount&cu=INR&tn= product-ID
```

So, when the user clicks on the ad the UPI app will get launched with these information pre-filled and he can finish the purchase in nearly one-click.



Recommended features of Google pay using the Adaptive Card, mentioned in section 4.4 are applicable even in this use case. The Mobile Web is more universal than specific apps such as Facebook, and presents an opportunity to advertise to viewers more diverse compared to social media users. Retargeting such consumers using past website-browsing history, wherever applicable due to availability of 3rd party cookies, also presents suitable opportunities. For example, all readers of articles related to Kozhikode city on a major Malayalam daily's mobile website could be targeted with a banner ad from an artisanal bakery with UPI-app -based conversion and possibly delivery.

5.1. Recommendation of API/feature in Android OS for Use Case 2:

Android slices^[18] can now be used to display a small portion of a screen of another Android app (call this App 2) – within the present app (App 1) that consumer is using – but without needing to launch the actual App 2. This technology, however, is currently integrated only inside the Google search app and Google assistant. Once the rollout of this technology becomes wider, app-to-app transfer for conversion is likely to be easier.

We give an example of booking a taxi ride using Google Assistant and Android Slices:



Extending this feature in such a way that it can be integrated with host apps and even browsers (with a new method to deep-link URLs such that they can invoke slices rather than App 2) will enable the customer to remain in the currently browsing app or browser and purchase a product using the slices of UPI app.

A similar feature is that of Android Instant App^[19], which enables users to launch a lightweight experience of an app by clicking on the specific instant app URL. We can embed the Instant App URL of an Android app for example Zomato or Swiggy in a display ad. When the user clicks on the display ad of a food item from a particular restaurant, the instant app analog of the food delivery vendor will get launched with the product details loading first. The user then has to add the product to cart, and check out the item to ultimately finish payment from the instant app, using the payment gateway.

This will help CFMSBs to get more orders via their existing registrations on food delivery platforms like Swiggy and Zomato. Note that in the strictest sense, this feature does not apply to our '1+ click buy solution' family, as it does not per se reduce the number of steps involved in the checkout process.

6. Use Case 3: Quick Buy in Desktop Web by using Display Ads with form input

6.1. A brief primer on Programmatic Display Advertising

When a consumer visits the page of a publisher, there will be ad inventory available on the publisher's page that is sold in a few 100s of milliseconds to one or the other brand that wishes to target that user, using information available such as cookies or logged-in experience in the publisher's portal. The publisher sends a request to the Ad Exchange for such display ads in their right formats (e.g. Banner, Skyscraper). This Ad Exchange conducts the real time bidding among the advertisers and the Display Ad's material – called the creative - of the winning bid is served by Ad Server to the publisher's page. All this is done in 100-200 milli-seconds and programmatically without any human intervention, at least not on a per-impression basis. The same procedure of programmatic display advertising is applicable for use case 2 mentioned in section 5.



Ad servers can provide advertisers with useful data^[20] on any ad campaign, such as:

- Impressions served
- Advertisements clicked
- Click through rate (CTR)
- Cost per click (CPC)

Many ad servers also have ability to track the post click activities, such as:

- Downloads
- Sales
- Leads
- or any other advertiser's site-based action that can be measured

With the usage of 3rd party cookies to the extent possible, the ad exchanges and ad servers can track users. This information – of earlier, unrelated website visits – continues to be used to re-target the users with advertisements for the specific products they may have been interested in but were deterred due to price, time to buy, or lack of reviews.

Display ad creatives naturally contain a description and an image of a product, perhaps a call to action or an offer code, but they may also contain a format for user to input values by typing these fields in using a keyboard. When one clicks on a display ad, the user gets redirected to the advertiser's landing page to which the display ad is linked. At the same time, if any inputs are entered by the user these too can be passed as a parameter to the landing page (e.g. leads to be contacted later). As a reference, we provide an industry use case^[21] with such inputs being sold as an ad template by an advertising platform.

6.2. Proposed Solution in Desktop Web

Proposed solution is to enable users to buy a product within a display ad without having to click through to the advertiser's website. The display ad proposed is one with multi-screen forms^[22], where the user fills in payment information for settling payment, and optionally the contact information for the product's delivery. Note that even here, an always-logged-in experience that many consumers may have vis-à-vis, say, Amazon, applies to populate the fields in the ad with information such as default card number and delivery address.

For the Ad Server to obtain complete information, the SKU of the product displayed in the ad can be set as a custom parameter^[23] in the display ad URL. Conversion within a display ad has the advantages for the consumer of not requiring to click away from the present content, where attention may be strictly required. This may also be considered a good outcome for the publisher, since the consumer will stay within the publisher's site and visit more pages where the consumer's attention can be monetized using other display ads. Note a similar behaviour in many apps having captive browsers, so that users will close after browsing the information linked-to, and then return to the app, rather than be lost to more tabs of information.

To describe the basic ad type we envisage, there can be input fields to fill in the following details:

A) Shipping Info

1. Name
2. Email
3. Mobile Number
4. Address
5. City
6. State
7. Zip
8. Country

B) Payment Info

1. Name on Credit/Debit Card
2. Card Number or UPI ID
3. Expiry
4. CVC/CVV
5. OTP

Appropriate change in regulation may permit the Ad Server, designated as FinTech intermediary of the advertiser's brand, to infer A. above using B. This is because the advertiser's portal may already have an account for this consumer with a default delivery address, and the consumer can be uniquely identified using information given in B. Note that this would require privacy assurances that consumer is not being made personally identifiable to either Ad Server or Publisher, who do not share the same relationship as between consumer and CFMSB.

Another multiplier of ease is to allow auto fill^[24] from the browser's saved data. This method is already used presently by consumers to fill credit-card data on trusted websites. In India's regulatory environment, users will have to enter CVV/CVC manually and then click a call-to-action button in the display Ad, say "Proceed". This should send this data to the Adserver in a secure protocol (this is already part of Ad Server tech, e.g. Google AdSense). The Ad Server, in turn, should initiate a secured transaction with the bank or card partner, and the OTP will be sent to the registered Mobile Number of the consumer.

The second form in this multi-step form – still within the display Ad - will be shown to the user with an input field to enter OTP, and a further call-to-action button, say "Finish Purchase". When the consumer enters the OTP, this will also be sent to the ad-server and the payment is completed using the ad-server's fintech intermediary role. Upon receiving the success response from its own payment gateway API, the ad server then populates product SKU, payment success indicator, and delivery information into the merchant CRM – an arbitrarily small system if needed for CFMSBs, say within Google Pay as in Use Case 1 earlier. Now the consumer will be shown the thank you page within the ad, viz. a message such as "Your order is successfully placed". Note that this contains 4 screens of information in 1 display ad, possibly only in the HTML5 protocol of Ad creatives.



In case of a failure response from the payment gateway, the user will be shown an in-ad next screen with a message saying “Payment has failed”. Throughout this payment transaction, mandated security protocols need to be followed. According to the security blog^[25] of Google, they have adopted the “HTTPS everywhere” mission in 2015, and the majority of their mobile, video and desktop display ads are encrypted. We also noticed another advertising platform which has announced^[26] SSL advertising solutions for publishers.

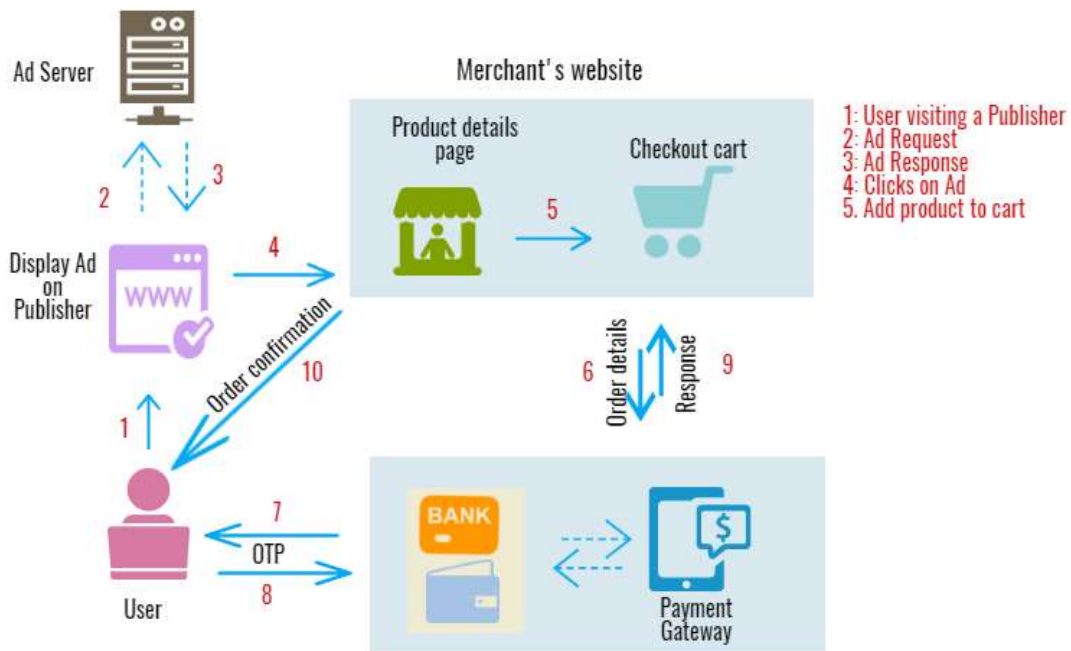
HTML5 ads are like mini web pages, which are popularly used to show media rich ads. An HTML5 ad creative should be uploaded as a zip bundle which can have an HTML file and other supporting files like javascript, css, json, images, videos etc. On the publisher’s page, these ads are served into structures known as iframes or SafeFrame^[27] to make sure there are no security risks to the publisher's page while the ad code is being executed.

A sample HTML5 banner ad in Adform’s HTML5 Banner specification help article^[28] gives a glimpse of the activities possible in an interactive ad. When the user visits the publisher’s webpage, this HTML5 ad will be served to the available ad slot. The user should be able to auto-fill the delivery address and payment information from the browser’s auto-fill data. A relaxation on Same-origin policy^[29] might be required on some browsers.

1. Improvements suggested in the existing advertising ecosystem:

Enabling ad servers with the ability to perform payment transactions. For this the e-commerce merchants, many of them CFMSBs, will have to register their payment account details – though not their e-commerce websites - with the ad-server.

Current information flow in e-commerce is as depicted in the following diagram.



We reiterate the differences in our proposed solution that place Ad Server in a powerful role requiring moderation: when the customer fills in the data into the retargeting Ad and clicks on the “Proceed” button, this information is sent to the ad server, instead of the merchant. Ad server sets up the transaction for the payment using a favoured payment gateway provider. One Time Password for transaction will also be provided to the payment gateway via Ad-Server (since it is entered in display-ad). Finally, even the payment transaction success/failure notification will also be privy only to the ad server, not to the merchant.

2. Paytm’s JavaScript integrated payment demo and developer documentation can be found here^[30]. If this solution can be modified so that it can be accommodated inside an ad, the purchase can be made directly from the ad without contacting the adserver.
3. Further, in India, due to campaigns like Visa Safe Click^[31], no OTP is needed for transactions amount upto INR 2000. This will reduce the multiple screens expected for conversions within display-ads that we are proposing.

7. Conclusion

The 1+ click buy solutions that we propose can be adopted in mobile and desktop devices, as well as in the advertising infrastructure. Ads of products or services from CFMSBs can be delivered to such devices, using the respective digital advertising platforms mentioned

in the 3 solutions. Such 1+ click buy solutions will enhance the consumer's purchase experience, replace the typical tedious checkout process, and would result in more conversions for the CFMSBs that will help convince a large portion of India's middle-rung of business regarding utility of digital methods.

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