Are there any challenges being faced in making payments for access to Wi-Fi hotspots? Please elaborate and suggest a payment arrangement, which will offer frictionless and secured payment for the access of Wi-Fi services.

This problem posed by the regulator presupposes that only commercial provision of Wi-Fi is possible- and the consultation paper too ignores the possibility that a scalable public Wi-Fi model could be provided free or through community models. More critically, the low uptake of paid public-Wi-Fi models is pegged to lack of mobility and inconvenience of existing payment systems. The evidence provided in this context, however, does not point to this conclusion- and in fact, seems to skirt past the important issue of willingness to pay and existence of cheaper alternatives through mobile broadband, and free public Wi-Fi models. Further, providing regulatory support only to a particular payment infrastructure i.e. United Payment Interface- as the paper suggests, seems premature and rests upon an unnecessary conflation of the payment and authentication problems identified.

Is there a need to adopt a hub-based model along the lines suggested by the WBA, where a central third party AAA (Authentication, Authorization and Accounting) hub will facilitate interconnection, authentication and payments? Who should own and control the hub? Should the hub operator be subject to any regulations to ensure service standards, data protection, etc.?

More centralization should certainly not be encouraged as it slows down adoption if the central agency has to be approached by each provider, and is particularly detrimental to smaller providers.

SUMMARY OF FINDINGS/ RECOMMENDATIONS

1. **Assess the competitive environment and other barriers affecting willingness to pay for public Wi-Fi.**

2. **Leave the ideal payment approach to market forces, and refrain from recommending a particular technology/ business model**

3. **There is a weak case for mandating identity-based authentication in a public Wi-Fi model. Further, conflating that issue with the payments challenge is unwarranted.**

4. **More centralization should certainly not be encouraged as it slows down adoption if the central agency has to be approached by each provider, and is particularly detrimental to smaller providers.**

THE RESEARCH

Challenges Identified By The Regulator, TRAI and evidence provided:[1]

1. Interoperability of payments between users

"Concept of public Wi-Fi will have real meaning when any entity is able to share its data with another user – who could perhaps be its neighbour or a casual visitor - and the former is suitably compensated for this sharing. This compensation could be in the form of money credited on a payment platform or credit in terms of minutes and or data download, which s/he can use in some other Wi-Fi network."

Evidence provided to this being a concern for users: None

2. Mobility of payment solution

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[1] TRAI Consultation Paper, *CP on Proliferation of Broadband through Public Wi-Fi networks,* July 2016

"there is no centralised mechanism for payment across networks, making it a cumbersome process for a user to pay for the usage of each hotspot as s/he moves from one place to another"

Evidence provided:

i. At Mumbai airport Wi-Fi services are being provided under the brand name of Ozone-GVK and RZone by the ISP Ozone. After the *freemium* the user has an option to upgrade to paid service. During the discussion M/s Ozone informed that not more than 10% of the users upgrade from the free to the paid service in any month."

ii. "Similar situation has also been reported by BSNL for Varanasi Ghats. It was informed that on daily basis there are 400 to 500 users using free Wi-Fi, however, the figure drops to 70-80 after the free usage period."

This data only indicates an unwillingness to pay among users which could be for a variety of reasons.

> iii. "During the survey on slow off-take of data usage through public Wi-Fi, consumers informed that (a) mechanism of payment is cumbersome
> (b) even if you buy voucher and there is balance of data, it cannot be used on some other hotspot and this effectively makes data costlier to them."

This survey data is not referenced by the regulator. On first glance, it appears that these granular issues of inconvenience such as leftover balance does not explain the larger unwillingness to graduate to paid models.

3. Digital divide

"Available modes of payment cater only to a very small section of population who have access to electronic modes of payment."

4. Data security

"Online transactions on public networks risk the theft of financial information of the user."

Evidence provided: none

5. Physical voucher

"Physical vouchers also suffer from logistic problems and associated distribution costs."

Evidence provided: none

6. Possible regulatory "solution":

"One of the possible modes that could be put to use to achieve this purpose is the Universal Payment Interface (UPI) of the National Payments Corporation of India (NPCI)."

Reasons:

1. A number of banks have already been registered in this system 2. Offers a safe payment option to make payments through the user's bank account, without in any way exposing the bank account.

RECCOMENDATIONS/ISSUES FOR CLARIFICATION:

Points 1-5 do not make the case for a single payments provider. Instead, they explain, at best, that a digital solution is preferred to a physical one (although the challenge of digital divide contradicts this) and that data security must be ensured.

The primary justification for a singular UPI/NPCI based payment system is its ability to be "scalable" and "viable". However, preliminary research shows that the payment system which is tied to an authentication system is unlikely to spur further investment in Wi-Fi. In Europe, Italy was lagging behind Germany in Wi-Fi hotspot deployment because on onerous demands on hotspot providers. The government decided to de-regulate authentication requirements and it is now leading public hotspot deployment. [2]

Access by foreigners and tourists was identified by TRAI as a major challenge due to authentication requirements. The alternative of scratch cards was offered, but this alternative currently exists and there seems to be no incentive for companies that provide Wi-Fi at spaces like airports to do so. This brings us back to analysis of willingness to pay or other barriers that are preventing the proliferation of this market.

CONCLUSIONS

This suggests that bundling the issues of authentication and payment systems is not necessary, and as a result, preferring a "single payments solutions" provider over another seems to be a case of over regulation in a market where the business case is still developing. Further, post-demonetization, the payment wallet market itself is burgeoning and it is likely that more efficient payment solutions will develop- which can be used for public Wi-Fi models and will address the issues of inconvenience and mobility identified above.

Further, centralization should certainly not be encouraged as it slows down adoption if the central agency has to be approached by each provider, and is particularly detrimental to smaller providers. Instead, each network should be allowed freedom to deploy its preferred authentication/technical/payment platform. Operators should be encouraged to connect with one another to extend connectivity, rather than needing to go to a central authority for each agreement.[3]

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[2] *Raffaele Mastrolonardo,* A new dawn for wi-fi: Why using a public network in Italy no longer means showing your passport, Sept 6th 2013
[3] The Mojolab Foundation Response, to TRAI Consultation paper, referenced above at Fn.1.