UNIVERSAL ACCESS POLICY (UAP)
STAKEHOLDERS TENTH and FINAL REPORT

ON

THE STATUS OF IMPLEMENTATION OF THE GOVERNMENT'S UNIVERSAL ACCESS POLICY

JANUARY 2019

Executive Summary

This Tenth Universal Access Policy (UAP) Update Report provides an update to our stakeholders and the citizens of Vanuatu on the status of implementation of the Government's UAP. It builds on TRBR's Ninth UAP Update Report of May 2018 and is the final report for the UAP project. This Report highlights the continued progress that has been made in respect of UAP implementation and, particularly, to successfully building on to the secured industry commitment and cooperation in meeting the UAP requirements and the key Government objectives, to bring benefit to the people of Vanuatu; in accord with the intention of the UAP, as well as the economy of Vanuatu.

The Telecommunications, Radiocommunications and Broadcasting Regulator (TRBR) continues to appreciate, recognise and acknowledge the commitment of the *Players* and industry at large for their achievements to date, and as presented in this Report. TRBR also recognises the valuable assistance, cooperation and support from the Australian Government through its Governance for Growth (GfG) Program which has significantly contributed, through financial support, to its success via the deployment of telecommunications and internet access into remote and underserved areas of Vanuatu; particularly in respect of the Computer Lab and Internet Community Centres (CLICC) programs.

The significant milestones achieved over the course of the UAP Agreements by the industry and the stimulus arrangements funded from the UAP Fund, have enabled TRBR to make further important additional and progressive steps towards meeting the UAP objectives.

TRBR has, importantly, taken a considerable proactive and guiding approach and lead role through the process of UAP implementation over the last few years; particularly in the negotiation, finalisation and signing of the UAP Player's Undertakings outlining commitments to the implementation of the UAP through the upgrading and rollout of new services, and the provisioning and deployment of equipment and materials for the UAP Information Communications Technologies (ICT) school and internet community centre programs.

TRBR is pleased to reiterate that, based on the current UAP infrastructure deployed by the *Players* as well as TRBR's modelling of mobile coverage, <u>the population coverage rollout has met the UAP obligation target of 98%</u> with industry bearing the full burden and with no Government financial input. TRBR is also pleased to advise that the UAP obligation in regard to the upgrade of 2G services to 3G services has also been substantially completed with over 97% of sites upgraded. Finally, the TRBR is also pleased to advise that the UAP obligation of all government schools, health clinics and other institutions be covered by high speed broadband has also been achieved.

TRBR has completed the rollout of the CLICC, the Tablets for Students (TFS) and the Internet Community Centres (ICS) programs. The Monitoring and Evaluation (M&E) exercise provides information on the performance of this program and recommendations for future improvement. Overall the M&E shows a positive outcome; with students and the community being provided with basic skills training and students using the technology as part of the school curriculum. Demand for use of the sites is high, and is anticipated to increase considerably as E-government services are developed and rolled out.

TRBR remains confident in, and is committed to, its methodology and approach to achieving the Government's UAP objectives by working collaboratively, cooperatively and constructively with the operators, stakeholders and other relevant parties and will keep the Government fully informed of all developments.

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1. Introduction

As part of TRBR's obligation in accordance with the UAP, TRBR is required to report to the public on the progress of the UAP Implementation. Through this the TRBR's Tenth and final report on UAP Implementation and since TRBR's Ninth UAP Update Report of May, we are pleased to inform you that the 2013 Universal Access Policy agenda and associated UAP programs such as the CLICC, TFS and ICS have been completed and that the TRBR will move focus of TRBR strategic projects to that of enhancement of telecommunications services. This Report provides information on the monitoring and evaluation exercise for the CLICC and TFS project as well as update on closure activities undertaken by TRBR and the *Players.*

Key outcomes of the last six month period include:

- Discussions on enhancements to areas that have fringe coverage;
- Discussions on further development sites for broadband internet in unserved areas;
- Discussion on improvement of Quality of Service
- Completion of the monitoring and evaluation activity for the CLICC and TFS programs;
- Continued assistance, where warranted and/or requested, to various Ministries such as the Ministry of Education, Health, Agriculture, and NDMO providing expert advice and support to enable more effective use of the CLICC sites (see Section 3.8 of this report);
- Continuous TRBR awareness programs on the benefit of using Internet Services/CLICC sites.

These are significant milestones in the multitude of steps required in the implementation of the UAP and the facilitation of internet/ICT across Vanuatu to meet the Government's objectives.

This report is the final report on the UAP implementation activities with resources now committed to investigating the next generation of policy for the further development of telecommunications access to remote areas of Vanuatu.

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2. UAP Telecommunication Service Undertakings

The 1st of January, 2018 marked the end to the Government of Vanuatu's Universal Access Policy (UAP) implementation. The Policy was developed and approved by the Council Of Ministers (COM) in December 2013 with the objective of expanding telecommunications services to the underserved and unserved areas of the country. The Telecommunications, Radiocommunications and Broadcasting Regulator (TRBR) was tasked as the implementing authority for the UAP rollout.

The primary objective of the UAP required that by 1st of January 2018, 98% of the Vanuatu population shall have access to the following telecommunications services:

- Voice;
- Narrowband data services, including text messaging;
- Upgrade the mobile networks from 2G to 3G technologies; and
- Broadband Internet services that shall enable a download speed of at least 2Mbps and upload speed of at least 1 Mbps[1].

A secondary objective of the UAP was to ensure that all Government offices and schools had the ability to access broadband data and internet services and that services offered outside Port Vila and Luganville were of comparable cost as that available in Port Vila and Luganville.

The conclusion of this strategy can be summarized as follows;

- Over Vatu1.6 billion expended on capital infrastructure;
- Twenty one (21) new sites implemented in remote and regional Vanuatu;
- 98.8% of the population covered by mobile voice and data services;
- 97% of sites upgraded from 2G to 3G;
- Five (5) large population centres (Santo, Malekula, Pentecost, Efate and Tanna) covered with 4G+ services;
- High capacity broadband internet services, provided by High Throughput Satellite (HTS) available across the archipelago at prices that are affordable;
- Mobile 3G data services are averaging speeds greater than the UAP policy specified (2/1Mbps) at 5/1 Mbps;
- All schools, health clinics and government offices have access to data services if required;

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- All citizens have the same access to promotions and plans as that available in populated centres.

The TRBR acknowledges the *Players* commitment and dedication through their Undertakings towards upgrading all existing sites to support 3G services and cater for future LTE services, as well as extending their services to the people of Vanuatu. It is an indication of the *Player's* support and commitment towards the Government's UAP and its implementation.

It is also important to note that through Telsat's arrangement with Kacific Broadband Satellite a provider of High Throughput Satellite (HTS) services. TRBR is pleased to report to you that Vanuatu is now covered with high speed Internet Broadband Access. It is now a matter for responsible Government Department Officials to contribute with discussions on options of connecting required communities.

2.1   UAP Player Rollout

In June 2015, the TRBR entered into an agreement with Telecom Vanuatu Limited (TVL) and Digicel (Vanuatu) Limited (Digicel), the *Players*, to undertake the UAP rollout which would see each operator forgo payment of the Universal Access Levy. Both TVL and Digicel agreed and commenced planning for twenty one (21) new tower locations across the country and the upgrade of the network to support 3G technologies. TRBR provided some latitude for changes and alterations to assist the *Players* in meeting their commitments, whilst providing some flexibility to the *Players* in rolling out their infrastructure in the most cost effective manner, particularly where terrain and/or land disputes impacted on construction, or where other issues may arise that impact on the *Players* ability to deliver but, at the same time, ensuring that the *Players fully* met all of their obligations.

By December 2017 the two main *Players*, Digicel and TVL fulfilled the majority of their infrastructure rollout as per their Undertakings. A total of twenty one (21) of twenty two (22) towers were implemented by the *Playe*rs. By June 2018 both *Players* had completed UAP site implementation and had implemented a further ten (10) new commercial sites. Further the *Players* augmented their networks to support communications in the areas that the evacuated citizens from Ambae were relocated too, particularly Maewo. Both *Players* have done this at their own cost with limited

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[1] Discussions with operators in 2013/14 resulted in a change in definition for the speed able to be achieved
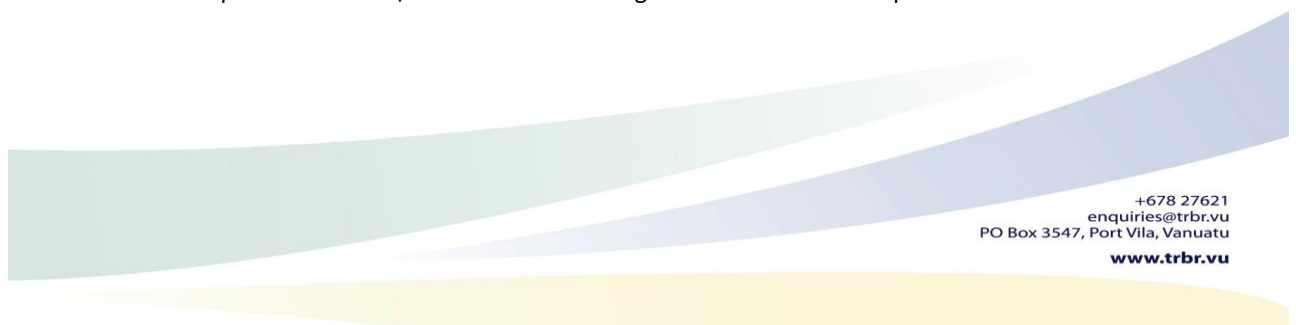
support from Government and no access to relief funds to assist this infrastructure supplementation.

2.2   *Population Coverage*

A key UAP requirement is to ensure provision of coverage to 98% of the population of Vanuatu following completion of the UAP Undertakings. Based on the studies undertaken during the course and at the completion of the UAP implementation, the UAP achieved this result with 98.8% of the population covered by mobile voice and data. However, coverage is continually changing due to population shifts, as evidenced by the Ambae evacuation, and ongoing implementation of new sites outside the UAP.

Whilst the TRBR can measure population coverage on an ongoing basis, the value of this exercise would need to be considered as the incremental coverage beyond the 98% would bring in diminishing returns, making any further coverage uneconomic to the operators and would require some form of subsidy from the government to offset the loss making of these areas. A focus on enhancement and infill and the utilization of new technologies and collaborative practices, will bring far greater value moving forward.

To reiterate, coverage prediction is not absolute, but a best estimate of the likely coverage. Likewise, physical coverage is not absolute due to a myriad of factors that can affect coverage in an area but, like any radio-based network, coverage is going to vary in quality and availability. This could be because of your device, how close you are to the nearest mobile tower, or how many people are using the Network where you are. Most importantly, local conditions such as mountains, hills, valleys, and foliage as well as concrete structures will affect reception even though coverage has been predicted within that area.

To summarise, the coverage activities have highlighted a number of issues:
- Community names and locations were not as originally advised at the commencement of the UAP rollout;
- Coverage is available in the majority of villages in locations surrounding UAP towers;
- The geographic nature of Vanuatu has more of an impact on coverage, particularly in lower population communities, than has previously been

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accepted (the issue of shadowing is of particular interest although coverage is available once outside the shadow area);

- A number of village locations are located in shadow areas;
- A number of villages have now been abandoned;
- New villages have been established in areas that were not considered under the original UAP Agreements;
- Population numbers in rural areas are decreasing making the economics of large single use towers unsustainable.

UAP sites have provided coverage in areas where there was no coverage previously. With the availability of coverage, positive impacts have been observed and experience by the villages, some of which are:

- People may now make calls from their own village or a short distance away (depending on the surrounding terrain;
- This is a significant improvement over no coverage or having to walk a significant distance (more than 5 kilometres);
- Coverage has facilitated the efficiency and effectiveness of getting something done. For example, in the case of organising transport to collect produce for transport to markets in Port Vila, messages were delivered to the driver by being passed on from one person to another, with the outcome that in many cases that the message never reached the drive, leading to a loss of income and spoiled goods. However with coverage, people can call the driver direct, check their availability, obtain information on when the ship is arriving, inform the driver to pick up the produce and make arrangement for transport at the final destination;
- Coverage has facilitated the reduction in business cost. Schools may now call stationary shops and place their order, and their order is delivered to them, without spending any money on transport;
- Communities are now more informed. Access to social media in particular Facebook have enabled the communities to engage both nationally and internationally. This has indeed empowered communities with decision making and business opportunities and therefore increased economic activities;
- Communities may now have their voice heard in national developments or any development related to their community through use of social media and information sharing;

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- Coverage provides the opportunity for loved ones to stay connected through voice calls of via social media applications. Group accounts through Facebook are being created for discussions on particular family matters enabling a consensus resolution to issues arising.

2.3 Coverage of Government Facilities

The third major component of the UAP program was to ensure that all government facilities, such as schools, offices, health clinics and other government institutions had available to them broadband internet services. It is not physically possible to cover all government sites via the mobile network, operator provided dedicated data links or via any private government network, so a complementary solution was required to satisfy this UAP obligation. This solution utilized the Kacific HTS VSAT service and was implemented by the TRBR as part of the CLICC program for educational and also health purposes via the Naviso telemedicine trial.

Overall the solution works and provides broadband services to those locations which cannot be reached by any other means. The TRBR as part of its enhancement activities, continues to utilize these services via local operators where alternatives do not reach.

2.4 Implementation Experience and Issues

Both *Players* have had numerous issues to overcome during the rollout of infrastructure, and this impacted not only the rollout of towers but also to added significant extra financial burden to the *Players* financial outlay. These issues are summarised as follows:

1. Both *Players* experienced significant delays to their rollout due to land ownership disputes. These disputes, whilst now resolved or still under dispute, significantly slowed progress on the infrastructure build and added cost to the build, delaying the economic return and the social benefit associated with this build;
2. Extraneous land disputes impacting key network sites impacted progress as these activities divert focus to resolving an issue that, although impacts the

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UAP sites, has a greater impact on the continuance of service to a larger number of operating sites;

3. Commercial disputes with local labor whereby demands for more money and other benefits above and beyond what had been contractually agreed continued to impede works at sites and increase costs for construction;

4. Acts of extortion or blackmail from various communities in order to extract a greater financial benefit or some other benefit such as vehicles and free phones/credit;

5. Threats of violence towards personnel engaged in the infrastructure build impacting on the completion of UAP sites;

6. Theft or the removal of equipment from sites impacting infrastructure build delaying completion and increasing costs;

7. The ineffectiveness of local law enforcement agencies in assisting and upholding the law as identified in the Telecommunications Act;

8. Increasingly difficult terrain requiring a significant amount of pre-work with road construction and clearing prior to civil works commencing. This has led to *Players* modifying site location in order to reduce the capital cost required for establishment;

9. Escalating costs for logistics (specifically transport and local labor) impacting Return On Investment (ROI) in marginal localities.

Despite these issues, the *Players* have commented that the establishment of these UAP sites has provided them the opportunity to improve their services through increased coverage, upgrade to 3G technologies and implementation of 4G technologies. Furthermore some sites implemented would not have been considered for commercial rollout, but with the UAP, it has been discovered that they do have high numbers of subscribers attaching to the service and subsequent revenue growth to support the ongoing operation of the tower.

2.5   Financial Commitment

All *Players* have had to commit significant financial contributions in order to complete the UAP sites as per their UAP Agreements. It is estimated that each new UAP site cost in the vicinity of VT50 million ($USD450,000) whilst each site upgrade to 3G technology cost approximately VT3.7 million ($USD35,000). The overall financial contribution of all *Players* is approximately VT1.6 billion (approximately $USD15 million).

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Whilst a significant proportion of this expenditure is on capital equipment such as towers and telecommunications infrastructure, there is also a direct contribution to the local economy through shipping, transport and local labour engagement. In some cases the *Players* are seeing a return on this investment, however many UAP sites in low population centres are likely to operate at a loss to the *Player* in the medium term.

3. UAP Programs

The UAP programs were announced in 2014 as part of an initiative between TRBR, OGCIO, Ministry of Education and Training and the Australian Government under its Governance for Growth (GfG) program. These programs have now been completed and handed over to the responsible authorities. The programs were:

- Computer Laboratories and Internet Community Centre (CLICC);
- Tablets for Students (TFS);
- Internet Community Services (ICS).

In order to finalise these programs the TRBR has undertaken a monitoring and evaluation exercise as part of its obligations under the CLICC program to the Australian Government's Governance for Good (GfG) program, the original funders for the CLICC and TFS project.

3.1 Monitoring and Evaluation

TRBR was the recipient for a research grant through the GfG to undertake this Monitoring and Evaluation (M&E) task. This M&E was undertaken as an independent assessment of the CLICC and TFS projects. The field work took place during March and April, with the final draft available in November 2018. The evaluation was carried out within the development context of Vanuatu's National ICT Policy, UAP and the MOET's ICT policies. The M&E task explores the educational impacts of the programme experienced at the school and system levels, and the socio-economic impacts experienced by the surrounding communities.

The following paragraphs provide an edited summary of the outcomes of the M&E task. The full report can be found on the TRBR's website.

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Technology Provision

Measured over a 22 month period, the average availability of broadband was around 75%. Only 4 of the 11 study sites enjoyed fully available Internet at the designed capacity throughout the programme. The main reasons for outages were cyclones (especially Cyclone Cook), a land dispute that kept a cell tower offline and a one-off platform change for VSATs resulting in a 4-month outage. This may well illustrate the realities of rural broadband upkeep in Vanuatu, but one would also expect a trend of growth and consolidation by the operators. Therefore, the 75% figure achieved may be considered reasonable and with expectation of ongoing improvement.

Equipment issues created barriers and reduced benefits. Incorrect configuration of the hardware components at some schools, particularly of the gateway servers, was exacerbated by difficulty of coordination between multiple contractors. Although the labs equipped with PCs and laptops were very reliable, those with the nComputing thin client systems all suffered from reliability issues. In combination with broadband outages, the result was that some centres were never fully operational throughout the programme.

The findings show that reliable equipment and prompt technical support are imperative. The facilities build high expectations for the school communities, and when the Internet or computers cease to function, innovation is thwarted, needs go unmet and the investment individuals make in using the technology can be wasted.

Educational Benefits

In regard to utilisation of the facilities by secondary school students the evidence shows that, providing the equipment and Internet was working, the computer labs were heavily utilised by students for scheduled ICT classes and research. The labs enabled schools to broaden their ICT curriculum. For primary schools, the main utilisation by students was for scheduled classes in basic computing, with only the senior years allowed supervised Internet access. There was general agreement that this was advantaging students when they progressed to secondary school.

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One of the most critical issues is that a significant number of teachers remain without basic ICT skills. This is not just a concern for the CLICC/TFS, but more generally for the education reform process. Even in the senior colleges where ICT use is more advanced, there were teachers who were not benefiting or passing on the benefits of the ICTs to their students which calls overwhelmingly for more ICT training for teachers.

The need for teachers and students to be able to evaluate quality online resources is an educational imperative, and should be made a priority because of the wider societal implications. Guidance should be provided for schools and the role of school libraries should be revisited and linked to the ICTs. There is also a critical need for educational content curated especially for Vanuatu and structured around the curriculum. The open resources provided in the CLICCs are a start, but are too general and unsuited for younger ages.

Community Benefits

Whilst utilisation by the community is low, there were a wide range of reasons given for using the facility, with some key benefits cited by farmers, health workers, business people and community developers. Access to up-to-date disaster information (e.g. cyclones) and communicating with family members overseas for seasonal work was cited as important benefits for communities. In a few cases people had obtained employment as a result of computer training at the centres.

One issue is that the CLICCs are neither truly embedded in their host communities, nor are they acting unambiguously as outlets for government and other e-services. Community usage seems not to be happening to the extent that the stakeholders expected and intended by design. Rather than becoming multi-purpose, open access spaces for learning, research, computing and information for everyone to use, the CLICC facilities often seem to have become more limited in their use as computer labs mainly to support dedicated IT classes.

It was found that communities lack awareness of the Internet and potential benefits. The issue is described viz: One principal asked, "*What use is marketing (of the CLICC) if people don't know the need*?", another village Chief put it like this; "*You can grow cassava to eat, you can grow kava for money,*

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but what about the Internet?". This perception is most commonly heard in remote rural communities, but is still a concern in provincial towns and for some groups in particular, including women. A more engaged approach is needed to help those communities explore their needs and learn actively about how the ICTs can benefit them.

Sustainability

It is clear that there are grounds to confirm the basic financial sustainability of the programme. The broadband plans established during the programme are perceived as affordable by schools and as better value than mobile plans. Furthermore, the plans are being continued by the ISPs and are now generally available for schools.

However, the centres have struggled to sustain equipment, services and staffing capacity (supply sustainability) and in generating demand and providing meaningful benefits to the communities (demand sustainability). These are the areas where improvements are needed.

The relationship between fee structures and sustainability is different for secondary and primary schools. Secondary schools have a large "internal market" and the levies charged seemed to be in excess of what was needed to cover costs. For primary schools, a good business plan was shown to make a difference. However, they face different challenges in generating demand because of their different socio-economic contexts. Therefore, it is essential they formulate their business plans in collaboration with the school councils (and thus the communities).

Cross Cutting Issues

Gender issues loomed large. Women have less say in how the ICTs are accessed and managed, female teachers were often the ones who were not benefiting as much as their male colleagues, and social coding regarding the computer labs more often suited men's preferences. According to informants, women would be the least likely to perceive benefits and relevance of the Internet to their needs. Girl students may use the facilities as much as boys, but there may be opportunities to go further in addressing specific educational challenges faced by both girls and boys.

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Resourcing is always a political affair, and there was observed evidence of political interest relating to the CLICCs at some of the research sites. It may be that resources like this may be leveraged by individuals for personal political benefit, and a renewed programme should be alert to this. One way to mitigate against such risks is through an improved monitoring regime.

Regarding the dangers from ICTs, schools and communities generally perceive pornography as the main risk and which needs addressing with a reliable central filtering solution. Issues such as fake news, disinformation, cyber security, privacy of information and cyber bullying are not generally understood explicitly and perhaps this points to a need for more community-based awareness raising and links to the general need to promote information literacy.

Overall two key recommendations have been made, with a further 35 recommendations grouped under these key recommendations. Decision makers and those involved are encouraged to read the full body of the report for a deeper and more nuanced understanding, however stated here the two key recommendations;

- **Key Recommendation 1**: As a top priority the Ministry of Education should consider introducing a minimum ICT competency standard for teachers. Teachers ICT skills could be made a Ministry Key Performance Indicator (KPI) and tracked with OpenVEMIS, as part of overall professional development. Those in need of training would then be identified and selected for training, and targets for teachers with the ICT competency can be set for schools. A basic ICT skills training course that includes ICT in teaching and relates to all content areas must be incorporated into mandatory teacher education as part of the qualification process. The same course should be made available by distance learning through the CLICCs and other outlets. Once the basic competencies have been addressed, training in teaching with technology is required.
- **Key Recommendation 2:** The stakeholders of any renewed programme need to invest more in the communities to identify and prioritise local needs and identify key programming linkages. This must be a participatory process, for instance with community mapping. This would require coordination with the programming partners including NGOs and government departments (e.g. health, agriculture, women's development, business development) and the Provincial Education offices. The aim should be to provide a few leading applications in demand from the community, whilst also supporting open-ended capacity building, digital capabilities and encouraging innovation.

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3.2   ITU Emergency and Community Centre

The ITU project to support Emergency and Community Centres has now recommenced. Discussions between government and various agencies concerned are continuing to identify appropriate locations for services.

4. Reporting

This is the final report to the public on the implementation of the projects associated with the 2013 UAP.

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