

Regulating Australian Telecommunication Operators on a Telephone Exchange Capacity Basis

By

Syamantak Saha

Data Engineer, Digital Economist

Founder : Zapaat Internet Search Engine

20th February 2022

Table of Contents

I. Background.....	3
II. Exemption in Consideration.....	3
III. Effects of Previous Exemptions.....	3
a. Increased Service Providers.....	3
b. Marketing of 5G and Associated Services.....	3
IV. Issues with 5G Marketing	4
a. Data Buffering and Loss.....	4
b. Potential Health Impacts.....	4
V. Technological Risk	4
a. Telephone Exchange Requirements.....	4
b. Australian Telephone Exchange Systems.....	5
c. Modern Digital Telephone Exchange Systems.....	6
VI. Observations on Proposal for Exemption.....	7
VII. Regulative Implications	7
VIII. Conclusion.....	7

I. Background

A telecommunication operator in Australia has requested that certain regulatory exemptions that apply for its operational ability in Australia, be extended such that the business can continue to operate and provide a competitive '*superfast broadband services*'.

Indeed, the promise of a 'superfast broadband service' is a true Australian aspiration, for which Australia is open to competition based on technological prowess of competing entities, such that it most benefits the Australian consumer. Whilst the generationally established telecommunication operators in Australia, may have set and standard methods of technological operations, if a new competitor may provide a real and true 'superfast broadband service', certainly this should be in the benefit of the Australian economy.

II. Exemption in Consideration

The particular exemption requested to be granted is Section 577A of the Telecommunications Act 1997.

The objective of this section is to ensure that Telstra is not in a monopoly position in the Australian market, for providing effective telecommunication services. Previous exemptions were granted, presumably, based on Telstra denying its monopoly and its associated chances of doing so if required or requested, that would prevent access to state-of-the-art technology in telecommunication services for all Australians, as maybe provided by a competitor.

In such spirits to encourage unhindered competition in the Australian market, and to provide latest technological advances to all Australians, such approvals may have previously been granted.

III. Effects of Previous Exemptions

a. Increased Service Providers

As an impact of such previously granted exemption, there have been several new competitors in the Australian market, who provide such telecommunication services, including broadband and mobile wireless connections. Such providers would have based their service supply on such network capacities that were developed based on not having to rely on Telstra as the only provider of access to telecommunication networks and associated services.

b. Marketing of 5G and Associated Services

5G is the latest telecommunication standard, that provides data rates of upto 20 Gigabits per second, and an average of 100 Megabits per second.

Accordingly, the standard of Australian consumer is set to such standards in the expectation of '*superfast broadband services*'.

Services dependent on such superfast broadband, such as streaming services business, gained financial and economic momentum, based on the marketing of availability of such telecommunication infrastructure in Australia, albeit, enabled through such exemptions that have been granted.

IV. Issues with 5G Marketing

Whilst 5G frequencies and associated NBN network speeds were availed for providing such latest superfast telecommunication services, however, it was not without some critical issues.

a. Data Buffering and Loss

Often, when a subscriber is using latest 5G or NBN services, data may be buffered, causing data loss, when attempting to use such superfast broadband services. This is evident when using live internet streaming services, such as online television, radio and even with video conferencing, that utilize such declared superfast data rates to supply such services. Repeated data redundancy and data loss, would cause continuous retransmission of data, which would relatively overload the Gigahertz frequencies, if used in a wireless environment, due to such unresolvable transmission interferences, as would be caused by an incompatible PABX system.

b. Potential Health Impacts

Superfast broadband that often would include 5G gigahertz frequencies, would potentially be dangerous for life-forms, and birds and animals may indeed incur illness or become extinct, having similar impacts on humans. Especially with the Covid Pandemic, where the root cause of infections is still unclear, a potential risk factor could certainly be derived to be such newly introduced Gigahertz frequency in the environment, that is being applied on human habitations, and eventually having such biological impacts.

V. Technological Risk

a. Telephone Exchange Requirements

In order to establish the practicality of superfast broadband services in Australia, a synchronicity of the proposed and applied network technologies should be compared to the basic infrastructure that it is dependent upon. As an automobile can only go as fast as the speed limit, and the capacity of the road, driving a superfast vehicle on a road that is not with such capacity, would certainly become dangerous and potentially fatal.

Similarly, if the underlying telephone exchange is not capable of collecting and processing the served high-speed data rates, the end benefit of such marketed superfast telecommunication would remain unachieved.

Importantly, the telephone exchanges in Australia, are not digital and are indeed of a previous generation of hardware, prior to such digital advancements.

b. Australian Telephone Exchange Systems

Current telephone exchanges consist of PABX systems, that are mostly based on an analogue system, with some implementations of electro-mechanical systems, however, not still of a full digital exchange capacity.



Image 1 : Example Australian PABX



Image 2 : Example Australian PABX

c. Modern Digital Telephone Exchange Systems

Modern telephone exchanges consist of a non-analogue system, without any electro-mechanical systems. Indeed, with the advent of computerization, electro-mechanical PABX telephone exchanges were replaced with computers, consisting of similar hardware and electronic motherboards as is with modern computers. A consistency between the computer hardware ensured that the proposed superfast data rate, is competent enough to process the applied data with its associated high speed.

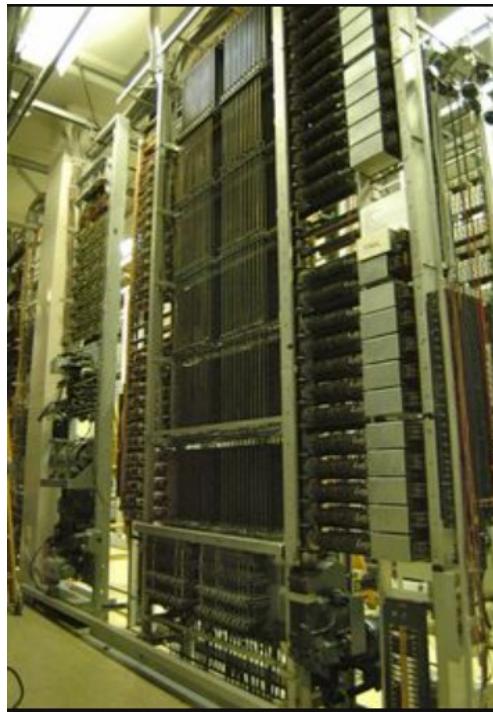


Image 3 : Modern Digital Telecommunication Exchange



Image 4 : Motherboard Component of a Modern Digital Telephone Exchange

VI. Observations on Proposal for Exemption

The exemption is being requested to provide a superfast broadband service, without any competitive hindrance from regulatively prescribed Australian telecommunication provider of Telstra.

However, the practicality of being able to provide the expected superfast broadband service, such as the marketed 5G services, is unreasonable, as the incompatibility of service capacity exists between the proposed fast data rates and the ability of the Australian PABX telephone exchange.

Hence, a core objective for the proposal becomes impractical for any further consideration.

VII. Regulative Implications

Subsection 15 Section 577A of the Telecommunication Act 1997, specifies that the Minister does not have to approve the request, if it is frivolous, vexatious or not made in good faith.

Whilst the proposed telecommunication service providers claim to bring advanced telecommunication services to the Australian market, whether the operator, is claiming negligence on behalf of comprehending and appreciating the technology differences and limitations using a PABX system, in comparison to current available fully digital system, should certainly be considered on grounds of being intentionally recklessness when operating such high-risk engineering systems.

Accordingly, further applications of the laws, based on damages incurred due to previous exemptions, may still apply.

VIII. Conclusion

Based on the practicality and reasonableness of expecting to provide a superfast broadband connection within Australia, based on the technology state of current Australian PABX systems, such expectations could not be delivered in good faith, as without the upgrade of the existing systems, a true and full superfast broadband connection would remain unachievable.

Accordingly, any exemption based on such expectations of superfast broadband delivery should not be considered any further.