Nikesh Lalchandani
Innovations Accelerated Pty Ltd
PO Box 304
Miranda NSW 2228
nikesh@iaccelerated.com

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Secretariat
Payments System Review
The Treasury
Langton Crescent
PARKES ACT 2600

Dear Secretariat,

Thank you for the opportunity to provide a submission to the Payments System Review.

My name is Nikesh Lalchandani, and over the course of several years I have had the privilege of developing and evolving Australia's core payments systems, either through my 11 year role at CBA in roles as Head of Payments Architecture, Head of Payments Innovation, and in other banks, including roles in all four majors, and Neo Banks such as Volt Bank and several others, as well as working with industry bodies in the establishment of payment strategies, systems, and standards. These days I am an independent consultant with Innovations Accelerated and advise banks and NBFIs on these topics and assist fintech startups. I am also the author of a major work on the topic, a 500 page treatise, ***Payments and Banking in Australia: From Coins to Cryptocurrency, How it Started, How it Works, and How it May be Disrupted***.

In the paper that follows, I make the following points.

1. That **payment access is an important service to the economy** and business, facilitating trade and access to banking like no other service. The review, properly executed, has the power to impact commerce and money beyond any inquiry before it, providing access to banking services far beyond open banking and the consumer data right.
2. That the current systems are inefficient, duplicated, and prevent open and fair access, and **there is an opportunity for rationalisation to one system**, perhaps NPP, penultimately though, the "card based networks" which fundamentally act on pulling money need to resolve with the other networks, generally used to push

money – this will be the toughest challenge for several reasons, and without external action at a regulatory level, it just will not happen. It is a big investment, but will have enormous benefits.

3. Australia has played an important role in the development of money and payments at the international level from the early colony of New South Wales to cards and electronic money in recent times. We should not view this influence and arrogantly claim others will follow, or subserviently adopt underdeveloped and siloed international standards, but rather **leverage Australia's ability and respect to shape a new world of international payments** through either bilateral or multinational collaboration. Payment systems are far too important to be left in the hands of limited interest corporates, institutions or networks.
4. Following up on this point, the payments problem is no longer a domestic one. Digital, online, electronic, **we need to see the problem as global**, and now step up to solve the broader international problem through the development and evolution of domestically connected international rails (new or existing) that should facilitate accessible, real-time, safe P2P, B2C, B2B etc payments that will bring a level of efficiency that a truly global market needs.
5. The final point I hope the enquiry will consider is an ambitious one, but in this age of disruption, what is ambitious today is common sense one or two years later, so please do not let this point go unmentioned: fundamental to payments is money. Our payments systems are built on how money works. **A more pressing debate than payments is the role and mechanics of money**. This debate includes the mechanics of credit. The government should take an opportunity, nationally or internationally to rethink money and monetary policy in the age after Bretton Woods with a view to establish a better system that is more suited to the current age. The potential for such a change to benefit Australians, and humanity is unfathomable.

An expansion of these points follows.

My submission's purpose is genuinely seeking to improve the payment networks from multiple perspectives, most importantly with the goal that it advantages the individual through better accessibility to trade and lower costs.

# 1. Payment access is an important service to the economy

Even a look at the history of Australia alone, the efficiency and effectiveness of access to currency and payments has been central to the smooth operation of the nation. Trade was essential to Indigenous Australians as evidenced in Songlines. We learnt an early lesson through a failure - the Rum rebellion, Australia's only coup d'état. Issolated from a world, that itself was suffering monetary issues, we solved the problem ourselves, by opening up commerce and early centralised technical developments – from foreign exchange (Coin Proclamations) and Governor Macquarie's ingenious Holey Dollar imprint. These two principles have continued in different ways, to this day, and ideally should be what the review focuses on: (a) opening up payments (b) technical enablement.

Open banking and the Consumer Data Right, when focussed at individual access to data was always going to be limited without looking at the flow of payments. This is the real power, and data behind banking. To be able to move money at will, is the critical service that individuals and businesses need.

Fundamentally we may argue that it is today possible to move money from any Australian entity to another, but the reality on the ground is that there are some inefficiencies in the process. The New Payments Platform (NPP) has failed to deliver a reliable real time service. While the core network is highly reliable, in a survey by Innovations Accelerated showed 35% of payments intended for NPP failed for the following reasons:

1. The sender thought the transaction would be sent by NPP but was sent by Direct Entry 1-3 days later
2. The service was "temporarily" unavailable according to the sending bank
3. The payment was the first payment and held for 24 hours
4. The payment was stopped without explanation by false-positive fraud detection algorithms
5. The recipient could not auto-reconcile the payment and returned the payment after a successful send message had been received.
6. The recipient did not enrol and the payment was misdirected.

By stabilising and standardising on a system of payment, it will give confidence to a market that it is possible to reliably pay, and introduce new real-time goods and service fulfillment to the market at a more efficient level.

Ideally the features of an ideal payment system (this list has been in circulation in the payment systems development within banks and between them) are:

1. Real time notification that a payment has been sent and received, such that it is a guarantee of settlement, simultaneously issued to a payer and payee. Make no mistake, the lack of real time payments is an inefficiency in the system that remain an impediment to better service and productivity.
2. Reduction of bank systemic risk in individual payments implemented technically (e.g. real time settlement) or through policy (e.g. if an intermediary were to financially fail, could the payment by legally held to be final?)
3. Accessiblity for any entity to make and receive payments.

4. High and low value support (from micropayments to institutional payments).
5. Legal accessible recourse to reverse a payment through something like a ePayments Code, that acknowledges and holds final a fair transactions.
6. The ability to push money, or pull money. In the event of a manadate, the support for revocation of the mandate
7. The inclusion of rich information: eInvoicing, eReceipts, payment advices etc.
8. Fraud protection that provides consumer confidence, and genuinely reduces fraud
9. Proper identity authentication of payers and payees (to facilitate AML/CTF).
10. Access to initiate payments and receive notifications of a payment through an API-like system outside a bank.
11. Delivery vs Payment (DvP) integration, especially as seen in PEXA (property) and Austraclear, CLS etc.
12. Fundamentally, that the core cost of making a payment should be low or close to zero. The transfer is data, yet the cost of payments is disproportionately larger than for any other data transfer, reflecting a pre-digital era.

## 2. Rationalisation of Payment Systems

Fundamentally, a payment is a simple instruction to move money from one bank account (or wallet) to another. In the table below, some of over 20 regulated payment mechanisms exist in Australia. Simplistically, while it may be possible unify them all into one, some of the problems are as follows:

(a) the settlement path. Often overlooked especially in International Payments is the role of settlement. By separating the clearing from settlement in time, this introduces a systemic risk: institutional failure could result in payment failure. This risk is often overstated by central banks, but becomes a real issue for large payments or where the settlement period extends beyond a day. Most systemically important settlements regulated by the RBA are either real-time or deferred net settled by a business day.

(b) International payments – in SWIFT can become quite complex, possibly unnecessarily so, with the use of cover payments etc. There is a danger that too much information is attached to a payment. The use of secondary means of data transfer (e.g. email, tiny URL, or extended payload may alleviate the issue)

(c) Card payments. The use of Personal Account Numbers (PANs) in cards as the mechanism to debit money dates back over 70 years to the origin of cards, and PCI compliance is an artificial issue that can be fixed through modern cryptography, as we have seen with EMV, tokenisation, and online with 3-D security. Despite this show-stopper, card payments have evolved in their sophistication to become the ubiquitous mechanism of consumer payment for the Internet age. While eftpos Australia has attempted to maintain a domestic competitor to the schemes (Mastercard, Visa, Amex etc) the effort has been lagging in recent times, and we are behind. My experience is that the Banks don't want it, and the demand centres from merchants that are attracted to nothing else but the low fees – interestingly, not much lower if at all than international debit cards.

Let's now look at the different payment types in Australia, current pros and cons and a reasonable recommendation for simplificiation.

*Table 1 Commentary on Payment Types and Future*

| No | Payment | Discussion | Recommendation |
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| 1. | Cash | A legacy of a pre-digital age, cash can be used as an anonymous payment. Can facilitate tax evasion. Works in person only Post AML/CTF, society has sacrificed the need to be anonymous. It is bizare that Merchant Surcharges are imposed that encourage the use of cash, despite government inquiries requesting the end of the merchant surcharge. The ATM network in a low cash economy is becoming inefficient, and they act as a barrier of entry for neo banks. Cash out at EFTPOS is rarely used and merchant support is patchy. | Strategically Governments should continue to look at discouraging the use of cash. |
| 2. | Cheque | Another legacy of the pre-digital age, cheques retain one advantage – it is safely possible to send a payment by mail or in person without knowledge of | All measures should be taken to end cheques – setting an end date and allowing businesses to |

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| | | the payee's account number. Banks continue to prop up the benefits of cheques – it is now possible to deposit them online. Dividend payments are still paid by cheque as a default. | find alternatives, that do exist. |
| 3. | Direct Entry | Direct Entry was Australia's first digital interbank payment system, and entered popular public use with the emergence of Internet banking. Due to batch settlement, time of receipt of funds is inconsistent. It never emerged as stand-alone point of sale payment mechanism online or in store | NPP can replace direct credits today – and this needs to be pushed hard. Direct debits require the NPP mandate service, that the government should also push, with the mandate of these two, this will end Direct Entry, and simplify the network. |
| 4. | BPay | Allowed essentially direct entry payments to be easily addressed by consumers (using a biller code and a check digit CRN) and reconciled automatically to the payer (corporate biller). The delay in getting a payment through in the real time age is a nuisance. However the system has a number of advantages today over NPP. The simple "CRN" reference system means that NPP remains relatively inconvenient. | NPP should rationalise the two reference fields, and allow "billers" to accept the old BPay biller ID as an address field, and check digit validate (or real time validate) the reference details. This will allow NPP to subsume BPay |
| 5. | Cards networks | Here, the scheme card networks (Mastercard, Visa, Amex etc) and the domestic eftpos network are clearly | The establishment of a simple universal domestic rail (either eftpos eHub or NPP |

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| | | favourites, and it obviously it is beyond the scope of this review to effect changes. The big schemes are unclear however on what their strategy is: ISO8583 versus ISO20022 versus modern APIs. Online payments are getting very complex and chatty, and it is clear that the "pull" mechanism has outlived its applicability, yet it remains the most popular consumer payment mechanism in the world. Tokenised payments today result in a very obtuse and chatty interaction in payments.<br>Apple's indirect interchange charge is unfair and anticompetitive in a country where Apple has a monopoly, and the ACCC decision to support Apple, while it may have made technical sense at the time, has emboldened them in an anticompetitive practice that no other phone platform has seen necessary to emulate. Today, everyone (Apple user or not) contributes to the world's first $2 trillion company. | ISO20022 extended for **cain** messaging) will make integration in Australia easier for FIs and merchants. Mastercard, Visa etc can continue to support a gateway to their global networks. This pattern could be emulated worldwide, and potentially could be driven by the schemes themselves through collaborative forums such as EMV or PCI. Interchange should head to a low or zero charge. As mentioned above, Merchant Surcharging should now be banned at least on debit cards on or off a mobile phone. |
| 6. | SWIFT/RTGS | The cost of sending a SWIFT message (6 euro cents) contrasts with the consumer charge – I recently spent $50 to send $20 overseas, only to lose the payment, folding at the opportunity to spend $60 more | SWIFT's implementation of NPP can unify SWIFT, RTGS and NPP rails in Australia.<br>Governments should look to negotiate |

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| | | for an investigation. Anticompetitive FX rates, and unnecessary charges contribute to the poor experience, and failure of domestic governments to act contributes to alternative systems that in turn compromise AML/CTF. | interconnection of domestic low value systems to ensure better AML/CTF compliance, alignment of CRS/FATCA reporting. This could for cooperating countries bring the cost down of these payments and make payments globally safer and more efficient. |
| 7. | Superannuation Payments | Australia's role in the establishment of now globally ubiquitous ISO20022 is not widely known, but we were central, and the use case was for superannuation payments and funds payments. Ironically our own ATO turned its back on this system in favour of building its own standards/hubs. | The Superannuation payments should be rolled into NPP. |
| 8. | eConveyancing PEXA | Again it is ironic that at the same time work was starting on NPP (which at the outset proposed to solve the DvP problem) a proprietary monopoly solution, that would be privately owned was created to facitate payments for property. Ironically the PEXA solution did not really allow real time property transfer, eConveyancing, but simply solved the systemic risk of bank failure during a property settlement, a problem that was | There is scope for the RBA to design a generic DvP solution (extending NPP) that consists of two stages "lock" and "release" (or "return") where the conditions that enable the release of funds are issued to a vetted party. Failure of the transaction can enable a return of money. This solution will not just benefit one property settlement |

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| | | never in scope based on original heads of government mandate. That said, there is a common deficiency in the payments systems outside RITS where a DvP solution is not available unless custom designed. | provider, but others, it will facilitate competition, and extend DvP to car settlement and other use cases. |
| 9. | Austraclear, Chess, CLS etc | There are and will be a number of special cases of settlement – where systemically important payments need a better solution. | Other institutional settlement systems could be rationalised into one core DvP or PvP solution, with access granted by processes and standards set by the RBA. This capability could help the market achieve T+0 settlement. |
| 10. | Beam-It | In the early days of the scoping of NPP, a proposal to use the AS2805 (card) rails was tabled, and eftpos put in a proposal. NPP chose a more robust SWIFT led ISO20022 path, this was the right decision, however a number of banks decided to rather than invest in backing NPP (seeing a cost blow out), to develop their own real time network. This path defies belief. The amount of attention and investment spent on developing Beam-It would have been better suited to making NPP more accessible, and shareholders should be informed of the amount of wasted investment that was | Now that Beam-It has been subsumed by eftpos, the innovation, a P2P payment mechanism, should be dropped in favour of domestic attention put back on NPP. |

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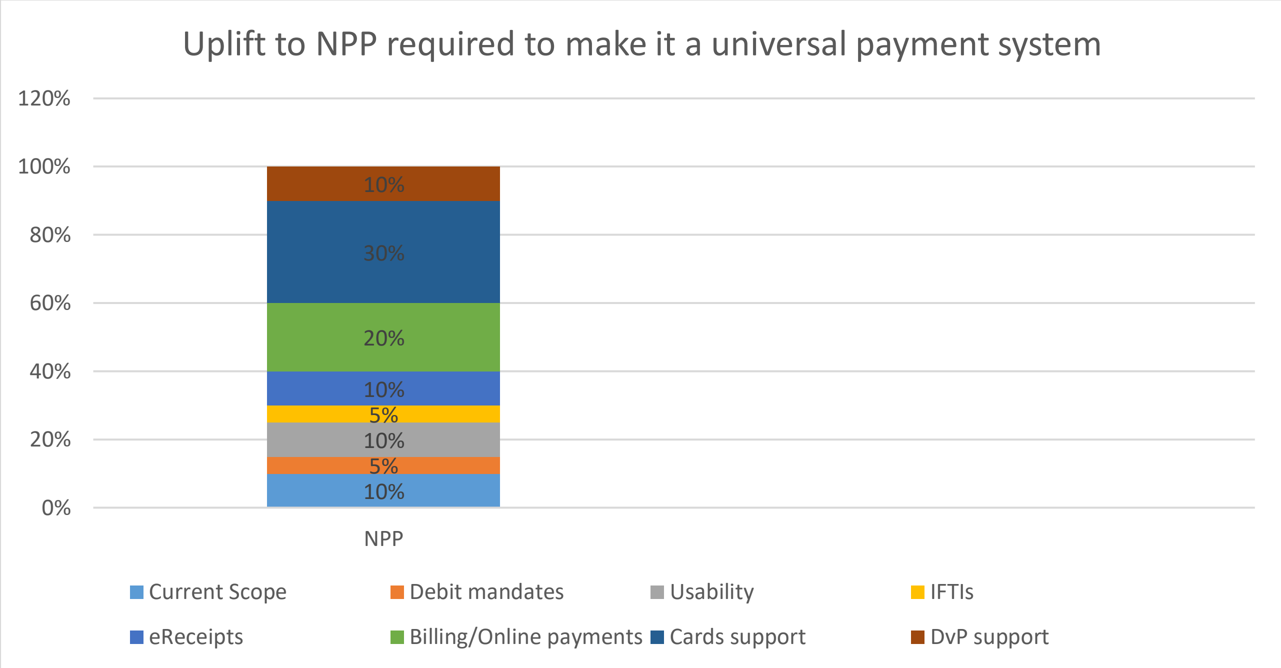
| | | agreed to be poured into this payment solution.. | |
| 11. | NPP | NPP while theoretically sound lacks commercial attention to make it work. Compare NPP marketing and attention with BPay and Beam-It. Osko is a good start, but the industry should go much further. A survey reveal few know or understand NPP. The cause may be private bank executive spite, or simply competitive organisations failed to see the benefit of investing in something that gave no competitive benefit. One big risk with NPP remains the institutional reliance on SWIFT. In a cashless society, Australia should develop a banking and payments system that works if links (including the Internet) to the rest of the world were to fail. | The NPP roadmap should be accelerated and marketing and usability assistance should be provided to make it more seamless with Internet Banking, easy to use for consumers (e.g. simple data entry, CRN validation), and help decommission alternate rails in Australia. Debit mandates, superannuation, tax information, eInvoicing, eReceipts and payment advices should be collaboratively expedited. |

While it is the best candidate in theory, The complexity of uplifting NPP cannot be understated. NPP is clunky, unusable, unloved, inconsistent and the current release is 10% of where it needs to be to really take on alternate systems. The journey to strengthen it is important, and should be supported and funded.

*Table 2 Uplift required to NPP to make it universal in Australia*




## 3. Leverage Australia's ability and respect to shape a new world of international payments

As mentioned the early colony's challenges with money and banking were reflective of a global problem. Our proximity to the UK, Asia, and the US gave us some unique opportunities to innovate. Our leadership on the now ubiquitous card payment rails (ISO8583) with AS2805, and fast adoption of debit card technology, real time messaging, touchscreen PEDs, contactless payments and even today our innovation and regulation of cryptocurrency makes us respected leader in the field. As mentioned we shaped the early ISO20022 standard. We have often been at the forefront of globalising unilateral initiatives – we had a big say at Breton Woods, we were an early adopted of AML/CTF after 9/11, and even before then led the US with our strict FATF implementations. CRS in the wake of FATCA, and early adoption of EMV, 3D Secure etc mark Australia as a leader. RTGS, our domestic payments card rails (eftpos) are similarly emulated globally, and we were a driver of real time banking.

The point is this – while we should never assume we are the best or allow arrogance to shape our approach, the big players in the world will listen to us. We have the opportunity to shape the world.

There are a few avenues for this: the OECD, G12, SWIFT, MasterCard/Visa and our direct intergovernmental ties with some trading partners, the UK, Europe, India, the US, New

Zealand, the Pacific Islands, and China that could enable bilateral solutions. We should take a “think globally, act locally” approach.

## 4. We need to see the problem as global

We oscillate in our approach between insular and leading the world. The truth is somewhere between … so solving our own local problem in isolation is futile when we consider: (a) the challenges we face are faced everywhere; (b) the world has become a global marketplace and we need to acknowledge the role card payments has had in the retail segment specifically on the Internet – it allows us to trade like never before; (c) Governments have a role in making the world safer. By taking ownership of the payment rails globally, no longer do we have this strange situation of leaving compliance to individuals and organisations. The $700 million fine to CBA and larger fine to Westpac was actually a failure of our payment systems. By requiring that every payment goes through AUSTRAC, the issue of non-reporting would not exist. When we consider the errors were simple omissions, by large corporates – we can see the scope for failure with less resourced institutions. Statistically, knowing the industry as I know it, if these fines are repeated at their likelihood, the penalty would exceed the market capitalisation of the ASX. The fines were paid by shareholders – who profile as a broad base of citizens and taxpayers (thanks to superannuation and widespread share ownership). So what was the point of this exercise: the government run by the people fining institutions owned by the same people over an issue that could have been dealt with by either?

Much like people getting checked at immigration ports, the government should be the one who validates identities of payers and payees – and governments working together should fight terrorism financing and money laundering. Some things are too important to leave to private enterprise. We know what a simple payment looks like – governments should own the international rails.

If indeed we do see the development of a single universal payment rail, there are three options:

1. SWIFT and ISO20022: extended to support card payments. SWIFT remains the international institutional payment system of choice, but it has fallen behind in the Internet age.
2. Card rails extended to support P2P payments. While spending money is easy, accepting money remains difficult. Accessing Amazon’s multiple marketplaces requires almost independent applications to each jurisdiction. Each with its own requirements. Many US based marketplaces require Australian entities register in the US with ITINs etc. There is still a long way to go before a small farmer in the Sub-

sahara can sell their goods to an individual buyer in Bendigo. Enabling a payment system that easily supports such transactions is key.

3. A new Global Sovereign Interconnected Consumer Electronic Payment Scheme (GSICEPS) that connects different country low-value payment networks together to form a global payment system. Not as crazy as it sounds. China UnionPay, India's RuPay, New Zealand's SBI, Faster Payments in the UK and RTP/TCH in the United States are potential connectors. There have been initial discussions between banks.

During the review phase itself, if so desired, a feasibility study into the potential for some bilateral solutions could be initiated, and I would be happy to assist if required.

# 5. A more pressing debate than payments is the role and mechanics of money.

There are many payment challenges and solving them is important as we have seen above. However all the technical problems and solutions are founded on the substratum of the operation of money as it is today.

Our understanding of money is going through a big shift with the move away from cash. The use of information and electronic money (and reporting) has enabled the government to target benefits to be spent for certain purposes (Cashless Debit Card), and to enlist private enterprise in providing benefits to the public (Jobkeeper, and the ATO cashflow boost). None of this was possible in the Great Depression. We will continue to learn new ideas.

While Bitcoin has largely failed as a payment mechanism (it is slow and does not as Satoshi promised, bypass banks – quite the contrary) it has phenomenally shifted the philosophical paradigm on what is money and what could a ledger be?

The use of money is often seen as three things: **store of value**, **medium of exchange** and **unit of account**. The move to electronic money, the use of electronic shared ledgers, whether they be on databases or blockchain, and the move to a fiat currency have loosened the first two needs (the store of value and medium of exchange). Perhaps unit of account is not as one-dimensional as we have it today. $1 million in the Australian property market is not worth as much as it is in the consumer market.

Money in the economy, over 90% of it in fact, is privately issued by banks. This Broad money is loosely controlled by governments, however since the earliest days of the colony, the government has strengthened control of how banks can lend out money. From promissory notes without a sound promise, to Basel III – lending has become a more complex art (it can never really be a science). Better monitoring of how money is used can make it easier to provide more credit where it is required: for example in developing the means of production, or in paying low income workers.

In the future, our accounts, what we produce and what we consume, could be recorded on ledgers (a future blockchain-like solution), in a shared field of human experience we currently call the Internet.

In the near future, better control of money could be done by restoring the primacy of Money Base – central bank issued money. A Central Bank issued Digital Currency could allow the tracking of money across the economy: immediate collection of GST, and PAYG tax, real time tax liability calculation, benefit pay out etc.

Since the GFC and the FCS, banks need to be able to report the position of their customer's accounts to the Australian regulators (RBA/APRA). In 1910 (the creation of Australia's central bank) it was impossible to store a ledger in one place. Today every account of every Australian can be stored in memory no bigger than that of a smart phone. What if every individual had an "ESA" – they accessed it via open banking through a private bank, but the ledger was central. Banks could still issue money, but it would be tracked by the central bank. The payment system then becomes internal transfers across these ESAs. It is really not a big step from what we have today, but makes more things possible.

Monetary policy as envisioned by Bretton Woods has broken down. The interest rate lever has largely been spent in controlling monetary policy in a world of high consumer debt.

So thinking about payments in this context, as we sort out what money is in the future, is a very different challenge to the one we started with.

Nevertheless we must solve both payments and money, I simply say let's start thinking about the later before we get too bogged down with the former.

## Conclusion.

A global interconnected payment network controlled by governments, in Australia using ISO20022 could be the solution that unifies and simplifies payments – there is a lot to be done to get there especially if that solution is seen as an uplift of NPP which is currently only 10% of the solution, but the journey is both necessary and essential if we want to advance Australia and the global economy.

Innovation in payment has and should continue to take place, but the core rail provides the accessible infrastructure that makes everything else possible.

I would be happy to informally discuss any point (or others) raised in this paper.  In the meantime, I look forward to observe the progress of the review, and hope for a progressive outcome.

Yours sincerely,

Nikesh Lalchandani

Principal Consultant