Pacio
Latin noun, alternative form of pactiō

Pactio
Latin from pacīscor ("agree, stipulate"), from pacō ("make or come to an agreement")

Pronunciation (Classical): IPA: /ˈpak.ti.oː/ (Thus the Pacio pronunciation is Pak.io)

Noun with principal meaning: The act of agreeing or covenanting; an agreement, covenant, contract, bargain, pact, treaty, truce.

Synonyms: agreement, contract: pactum

(From WordSense.eu)

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1 Vision

Pacio’s research\(^1\) shows that accounting and management deficiencies are costing the world the order of $25 trillion annually in crime, opportunities lost, and excess expenses. It is estimated that this large figure will increase still further to $29 trillion by 2028 without help from Pacio.

The knowledge and experience of the Australian founders of Pacio and the Pacio Team have enabled Pacio to see how to reduce these costs hugely, thereby providing trillions of dollars in annual economic benefits to the world. The key elements, as described in this paper, are:

- **Triple Entry Accounting (TEA)**\(^2\) to supersede the 500 year old Double Entry Accounting system, which despite its universal use to record business and governmental activity, is subject to manipulation (fraud), and needs expensive regulators, intermediaries, and trusted third parties eg banks, and auditors to function. TEA will reduce the fraud, costs, and intermediaries need.

This will make secure asset protection and generation available to everyone, including those whom the current systems fail such as indigenous people and other discriminated against groups

- The potential of TEA to help has been recognised\(^3\) yet it is not in use because the means to do so has not been available. Pacio is fixing that.

Kelly Richmond Pope in ‘A forensic-accounting expert on how to treat the fraud epidemic’ published in The Economist on 19 May 2023 said that the way to treat the $5 trillion fraud epidemic was to encourage more insiders to spill the beans. Pacio sees introducing TEA as a far better means of fighting fraud than that, as explained in the [Triple Entry Accounting Better Fighting Fraud than More Whistleblowers](#) blog.

- The management system TARI\(^*4\) integrated with TEA and process mining (described in [The Next Big Thing in Business Automation](#)) operating in real time can massively improve business and national productivity, and thus help generate the wealth needed to tackle the world’s challenges.

- The Tender distributed ledger technology (blockchain) system being developed by Pacio to implement TEA and TARI on a world scale will also enable low cost safe transfers of money or any digital asset using just a phone with no intermediaries involved, to the benefit of all, especially the currently unbanked, making mobile money a reality for everyone.

These Pacio systems will become an integral part of the evolving world.

Helping to prevent fraud and cybercrime will assist in maintaining confidence in the digital age, and in seeing that the benefits reach the total population. One example of that is the implementation of UBI (Universal Basic Income) schemes, which the advent of AI (Artificial Intelligence) and robotic systems will prompt in ever more countries. Secure, fraud resistant systems (based on TEA by Pacio) will be necessary for UBI schemes to work.

Another example is the trend towards a 4 day working week. TARI\(^*\) will help to make this possible for more businesses and people, as per [TARI\(^*\) Explains 4 Day Working Week Trial Results](#).

In total, the economic benefits to be provided to the world by TEA, TARI, and Tender amount to multiple trillions of dollars annually, which will help the world cope with the big challenges of climate change, ageing or declining populations, and the impact of AI and robotics on work and society.

By delivering these benefits Pacio can become a multi-billion dollar company worth hundreds of billions and generate thousands of % returns for investors. The [Pacio Business Plan](#) gives the details.

\(^1\) Pacio Business Plan Section 2 Accounting and Management Deficiencies Cost

\(^2\) Triple Entry Accounting is described in section 2 *Triple Entry Accounting - TEA*

\(^3\) See the Most Important Invention in the Last 500 Years

\(^4\) TARI\(^*\) is a Pacio management methodology described in section 3 *Target Average Rate Index - TARI*
2 Triple Entry Accounting - TEA

Pacio will enable Triple Entry Accounting or TEA to become the normal way of doing business.

Despite the success of double entry accounting over the centuries, it is far from perfect, being subject to fraud, estimated at US$5 Trillion\(^5\) per annum, and requires expensive, complicated support systems involving banks, auditors, and regulators to function.

TEA can provide the next leap forward by greatly reducing opportunities for fraud, reducing the need for complex supporting systems, and making business data accessible in real time for more effective use by accounting and management systems.

TEA achieves that by providing an immutable (no fiddling it afterwards) record of counterparty transactions – transactions between entities such as purchase orders, invoices and payments as a shared part of the records of both entities – a third entry to confirm each entity’s normal double entry records, thus “triple” entry accounting. This allows 100% automated checks by auditor or CFO or consultant or regulator or tax authority with no expensive sampling and fallible human operations required. The real time data allows for better business management in ways not possible before.

Pacio systems will handle all the details, make the data available in real time to those who need it, while making it all easy, affordable, and secure.

TEA via Pacio will help society to advance and to better confront the challenges ahead. Thus TEA is the “Most Important Invention in the Last 500 Years”. The Pacio article BlockchainTech: Can Triple Entry Accounting Save the World? expands on the story.

The potential contribution of TEA is recognised by researchers. The Pacio work on TEA is cited hundreds of times in a series of papers on Triple Entry Accounting by researchers associated with the Centre for Blockchain Technologies, University College of London. Pacio has posted a blog about their work.

Background to TEA

The TEA term was originally coined in 1989 by Yuji Ijiri as mentioned in the Most Important Invention in the Last 500 Years article, and the Wikipedia entry: Momentum accounting and triple-entry bookkeeping.

Other early references were Triple Entry Accounting in 1995, and Triple Entry Accounting in 2005 by Ian Grigg, who describes the concept as "The Receipt is The Transaction". That paper predates blockchain but introduces the "digitally signed receipt, an innovation from financial cryptography".

Triple Entry Accounting with its current blockchain meaning, building on Ian Grigg’s work, differs from the 1989 Yuji Ijiri momentum accounting meaning, and has replaced the initial meaning of the term. The blockchain meaning has become generally accepted usage since about 2014 with Triple Entry Bookkeeping With Bitcoin.

Why Not Blockchain Single Entry Accounting?

Some writers\(^6\) on blockchain based accounting have suggested that the immutable nature of blockchain transactions would allow single entry accounting. But that is not enough because single entry counterparty (inter-entity) transactions do not cover the internal transactions such as depreciation, payroll etc, where double entry accounting would still be applicable.

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\(^5\) The Economist 19 May 2023: A forensic-accounting expert on how to treat the fraud epidemic

\(^6\) Blockchain and the Introduction of Single-Entry Bookkeeping
Why Not Blockchain Double Entry Accounting?

Others⁷,⁸ have proposed blockchain based double entry accounting (DEA) as the panacea. Existing accounting systems normally do not allow editing of posted transactions, instead requiring a journal entry to be posted to make adjustments, so that a record of the changes exist. However, there is no way to prevent a person with access rights to the database making after the event fraudulent changes. A “blockchain” based double entry accounting system would prevent that.

However, that is also not good enough because it doesn’t provide inter-entity verification. It would prevent fiddling after the event, so is better to that extent, but the lack of inter-entity certainty means that fake invoice etc fraud is still easy and harder to detect since there can be no automated checks as with TEA.

Both TEA and DEA

Thus the ideal is have both TEA for counterparty transactions and “blockchain” (immutable) DEA for internal transactions. Pacio will enable both.

TEA Prerequisites

There are nine prerequisites for universal adoption of TEA:

1. Immutable (no fiddling afterwards) counterparty transactions – the transactions between entities e.g. supplier and customer - as a shared part of the records of both entities
2. Scalability and networking to be possible with all parties wanting or likely to transact business being able to use the system
3. A way for the TEA transactions to be made visible to anybody with a need or right to see them, but to remain private otherwise
4. A way for each party to a TEA transaction to be immutably identified via a globally unique Id
5. Standardisation of data or data description so that the purpose or meaning of a particular item of data is clear to all interested parties
6. Compliance with financial regulations
7. Transitional facilities for entities using TEA to work with entities which have not yet adopted TEA
8. Affordability so that all entities including the smallest micro businesses can use it
9. Ease of use so that all entities including the smallest micro businesses can use it, which in most cases will mean via their accounting software packages

Before blockchain/DLT technology there was no way to have immutable transactions.

Before Pacio’s Tender there was no way for blockchain systems to scale to meet world needs competitively.

Before blockchain/DLT technology there was no way to have a unique immutable universal Id.

Before Tender there was no functional source level data standardisation system in use. (XBRL⁹ is widely used but that applies at the reporting level, not at the source data level.)

Thus no generally available systems using TEA are yet in use. Some attempts are being trialled, but they are internal or limited in scale and do not meet all the above prerequisites so are unlikely to achieve widescale adoption in our view.

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⁷ Blockchain Is About to Destroy a Centuries-Old Industry
⁸ How Blockchain Will Write a New Era for Accounting Industry
⁹ XBRL (eXtensible Business Reporting Language) is a standard language built upon XML for reporting on or comparing business information.
TEA Service by Pacio

Pacio and Tender will enable TEA to become real by meeting all nine prerequisites via the TEA Tender apps and the TEA Service and API:

**Triple Entry Accounting (TEA) by Pacio**

1. **Immutable (no fiddling afterwards) counterparty transactions** – the transactions between entities e.g. supplier and customer - as a shared part of the records of both entities

   Immutable TEA transactions are stored using Tender.

2. **Scalability and networking** to be possible with all parties wanting or likely to transact business being able to use the system

   The Tender network of peer to peer nodes, up to billions of them on phones, computers, servers is scalable to millions of transactions per second, able to handle world needs.

3. **A way for the TEA transactions to be made visible to anybody with a need or right to see them, but to remain private otherwise**

   Tender allows TEA transactions to be made visible only to anybody with a right to see them e.g. both parties, CFO, auditors and accountants of one or both parties if applicable, and any applicable regulator, with options to allow viewing on a temporary or time limited basis, with security, access, and privacy managed as described in the Tender White Paper.

4. **A way for each party to a TEA transaction to be immutably identified via a globally unique Id**

   The Tender ID Manager App provides a globally unique ID encompassing Legal Entity Identifier (LEI) and other open systems as needed, extended to better suit operating businesses with support for Divisions and Branches.

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5. Standardisation of data or data description so that the purpose or meaning of a particular item of data is clear to all interested parties

Tender uses the Standardised Semantic Information Model (SSIM) for transactional data so that all data is standardised and semantic. For many business and accounting app cases, SSIM will appear as a TEA feature (or requirement) though Pacio is implementing it at the Tender level so that its great strengths may be enjoyed by any Tender app, not just those using TEA.

6. Compliance with financial regulations

Tender has built in KYC, AML, CFT, FATF, and GDPR regulatory compliance.

7. Transitional facilities for entities using TEA to work with entities which have not yet adopted TEA

Transitional options are built into the Pacio TEA app and the API equivalent. For example, if business A using TEA buys from business B not using TEA, the TEA entry would still be created, but be "signed" only by A. When B adopts TEA the entries could be found and picked up by B. In the meantime, B’s auditor or CFO or consultant etc could find them for comparison with B’s internal records.

The app also supports double entry accounting (DEA) transactions for the internal transaction not involving a counter party, or for when TEA use has not yet begun.

8. Affordability so that all entities including the smallest micro businesses can use it

Use of Tender is free as an open protocol so there are no transaction or other fees involved in creating and storing TEA transactions. The Pacio add-on services are affordable for even the smallest businesses, being charged according to volume, with the cost per TEA transaction a fraction of a cent.

9. Ease of use so that all entities including the smallest micro businesses can use it, which in most cases will mean via their accounting software packages

The TEA Apps and TEA API allow any app or software package, whether Tender based or not, to make use of TEA easily and to incorporate TEA in the app flow without any extra actions or knowledge being required of a user. TEA will be invisible to a normal business user.

The TEA app and TEA API equivalent make it easy and attractive for developers to use TEA transactions, with balance updating being handled either by Tender DB Apps, or the app itself, whichever suits the developer.

By these means Pacio and Tender will enable the progression to a TEA world.

**Stakeholders and Adoption**

Once the Pacio TEA service is available it will be necessary to work with and co-operate with many stakeholders including businesses who will adopt TEA; new app developers; existing accounting software suppliers such as SAP, Intuit, Sage, Xero etc; accounting standards setting bodies such as IFRS and FASB, regulators, tax authorities, auditors, and accountants including the “Big Four”.

Complete adoption will take years but Pacio plans to start the process via a simple to understand and use product – Pacio Invoice and Payment Service (PIPS) - which will use TEA invoices and transparently begin changing the business world over to TEA.
3 Target Average Rate Index - TARI®

TARI®, invented and developed by Accounting Professor, Dr Keith Cleland, and his IT partner Trevor Watters, Pacio co-founders, has been shown to significantly boost the bottom line of businesses, large and small, some dramatically so.

TARI® was registered as a trademark by Keith and Trevor under classifications 9, 35, 41. The TARI® trademark registrations were transferred to Pacio Core Ltd by Keith and Trevor as part of their intellectual property contribution made to Pacio as co-founders.

Pacio will provide a TARI® Service integrated with TEA to handle all the mechanics, to allow business apps to easily incorporate TARI® to improve their offerings and thereby provide real business improvement help.

Many programs can produce monthly accounts with budgets and variances, play around with ratios, and do cash flow projections, but no others can do what TARI® does, that is to see accounting from an interactive and holistic perspective - the woods through the trees!

TARI® can model (and re-model) the business, track it through time and change, and extract key data from day to day activities to aid immediate decision-making. TARI® can be likened to a GPS system guiding management to an improved bottom-line performance.

TARI® provides real time actual vs target feedback. With real time support for the calculation of the value added per unit of activity in each sale, apps using TARI® can deliver the information as the sale is being processed.

Pacio TARI® identifies and tracks the key activity fundamental to bottom-line profitability, measuring input, output and the added value result of the activity continuously and that will be in real time thanks to TEA which will provide real time activity and COGS (Cost of Goods Sold) data, nudging management to achieve improved results.

Apps using Pacio TARI® can handle all the normal processes of business – invoices, quotes, direct sales – plus via Tender have the ability to handle relevant IoT devices feeding in data at an enormous rate. This will all work automatically with the help of AI systems for front end applications to make it all easy, transparent, automatic, and business transforming.

Despite being in use for decades, TARI® has not yet reached the millions that could be gaining huge benefits from it, because of the need for manual entry of cost of sale and activity data that existing accounting systems don’t provide. Pacio will change that by adding real time support for cost of sale and activity data via TEA. That plus AI Integration (next point) will put TARI in a unique position of strength versus the apparent competitors.

Artificial Intelligence (AI) Integration

The advent of AI systems will also help TARI deliver its potential benefits for all by:

- Helping guide users in selecting the activity or activities to track for their business. (In the past that has sometimes been hard for users to decide upon without consulting help.)
- Helping provide specific meaningful guidance in real time as quotes or invoices are raised
- Providing real Customer Service, not the superficial ‘help’ of past website chat bots

Yes, AI will be a boon to TARI and TARI users, greatly helping them gain the huge benefits which TARI, correctly applied, can deliver. It will also be good for Pacio as Pacio will not need an army of consultants to provide set up and operational “consulting”, which instead AI will deliver at minimal cost to Pacio after development and training of the AI system used.
Process Mining

One efficiency improving process that Pacio TARI® makes available for all sizes of business is “Process Mining”. As the Economist10 put it “Software-makers are now finding ways to untangle the procedural spaghetti [of business processes with inefficiencies of between 20 and 30% of revenue] with the help of ‘process mining’. Its dull name notwithstanding, it is one of the fastest-growing areas of information technology (IT). It generated around $1bn in annual sales in 2022, reckons Gartner, an IT consultancy, and could treble in size in the next few years. Celonis, a German process-miner, recently raised $1bn at a valuation of $13bn, making it Germany’s biggest startup and its hottest tech success story since SAP, a business-software giant, was founded 50 years ago.”

Apps using Pacio TARI® can access all the required data, whatever the business size, and potentially make use of AI systems, to suggest process improvements to drastically cut those 20 to 30% of revenue inefficiencies. Without PacIo, SMEs could not afford to implement the concept.

Where could this lead?

The TARI® service will enable apps to be developed that provide real time guidance or business improvement, and thus real time management, as a better replacement for what is currently known as management accounting.

Results flowing from the application of TARI® to 700+ businesses engaged in Manufacturing, Trades, Services, Retail, Wholesale, Trucking etc, indicate an average improvement in unit output of 40+% boosting net profit by an average of 96%.

That is huge. The ‘Losses from Lack of Knowledge’ cautious (low) estimate in the Pacio Business Plan Section 2 “Accounting and Management Deficiencies Cost” is 10% of GDP or $9 trillion in 2023 when world GDP is expected to be $90 trillion. Widespread adoption of TARI® can prevent trillions of those losses occurring and thus dramatically improve national productivity and wealth.

Despite the successes and the glowing testimonials from people who have used TARI®, it has not achieved the scale it deserves, because current accounting systems do not store or provide the cost of goods and activity data that it needs on an invoice or quote basis. (TARI® has been implemented as standalone software, but not as an integral part of a general accounting package.)

Pacio will fix the missing data problem by including cost of goods and activity data in all relevant accounting records via TEA. This automation in real time via TEA will make TARI® and “process mining” workable in daily operations for all businesses for the first time and will be of great significance for management accounting and business.

Some of TARI®’s successes are described in Keith’s latest book Improving Profit | Using Contribution Metrics to Boost the Bottom Line published by Apress Publishing New York. Much more about TARI® is available through the many other books and papers published by Keith, as listed at TARI Info.

3.1 Business Health Check (BHC)

Business Health Check (BHC) incorporating some of the proven TARI® concepts was launched in December 2020. It is described in detail in the BHC Specification.

BHC provides unique insight into the performance of a business and points the way to improved results – simply and easily, yet often with dramatic results.

BHC works for businesses of all shapes and sizes whether manufacturing, distribution, trade, retail, services, professional, trucking etc.

The magic is achieved by just the analysis of sample invoices, according to TARI® principles.

10 “The real next big thing in business automation” The Economist 23 March 2023
The BHC app asks the user to input 6 representative invoices for a one-off analysis. Based on TARI® and applied research\textsuperscript{11} over the past 40 years, that simple analysis provides substantial benefits that:

- determine the potential of the business based on its current resources
- point the way to an improved bottom line

Some Testimonials to the effectiveness of invoice analysis as implemented by BHC are given \url{here}

The \url{BHC landing page} describes the benefits BHC will provide for business.

BHC is not yet a full implementation of TARI® as it lacks monitoring and tracking. Those will follow once TEA services are available to provide fully integrated and real-time TARI® capability that earlier standalone TARI® systems requiring manual input were unable to offer.

\textsuperscript{11} Applied research by Dr Keith Cleland, Emeritus Professor of Financial Management, IBR Global MBA, Steinbeis University Berlin
4 Tender

Pacio is creating an open Distributed Ledger Technology (DLT) network and applications platform named Tender, which is a common good, able to scale to millions of zero cost transactions per second to support apps involving transactions, especially those with a business, management, communication/interactive, or multiple party focus.

Tender will enable better currencies; better payment systems; better data management; better privacy for people and entities; better identity management; better communication (no spam); reduced cyber crime (reduced online bullying and ransomware etc); better compliance with regulations; better content management; better monetisation of original work; better games; and better more fraud resistant accounting (Triple Entry Accounting or TEA) plus better management systems including TARI® for the world’s businesses and entities.

Tender will provide ubiquity and inclusiveness with the ability to run on any device from smart phones up meaning that most people in the world will be able to take part in the Tender network, transparently in most cases with Tender and apps just being there and working without fuss.

Summary of Tender Features

- scalability to world needs of trillions of transactions per annum with transaction finality in seconds in an environmentally friendly way, built using Distributed Hash Table (DHT) technology developed by Holochain without mining or staking, running on any device from a smart phone up. That allows for up to billions of nodes with each node adding capacity, thus the scalability.
- zero cost transactions permitting micropayments and money streaming for any currency
- distributed/peer to peer operation – no central servers allowing control and exposure to hacking
- no mining or staking (= low energy use) with no negative incentives

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• public permissionless DLT operation like that of public blockchains such as Ethereum to provide data immutability and strong security with privacy options built in via the Holochain agent-centric approach allowing storage of private data on own device(s), to assuage the fear of entrusting private data to a public network

• tools and support systems for running apps which define what transactions represent, with the data embedded in transactions defined in a standardised way via SSIM\(^\text{12}\) to facilitate effective business and financial use. In Tender everything is done via an app and transactions. A transaction does not have to be financial in nature e.g. it could be a message like an email, or a social media post, an image, a video, whatever...

• supports any number of both fungible tokens, including any kind of currency, and non-fungible tokens (NFTs), all defined by their apps, with no intrinsic token (no Tender token and no gas fees)

• includes as one currency an integrated fungible cryptocurrency also named Tender (TDR) which can optionally be used by Tender apps that charge a fee, typically a micropayment

• built in KYC\(^\text{13}\), AML\(^\text{14}\), CFT\(^\text{15}\), FATF\(^\text{16}\), GDPR\(^\text{17}\) regulatory compliance – Tender plays by the rules to work better for every legal use. It is not on some ideological mission.

• integrated digital self-sovereign identity for people and entities as a key part of meeting compliance requirements, and enabling financial and TEA transactions

• recovery options for loss of a device

• optional validation time for transactions to allow recall (revocation) of monetary transfers made in error to overcome a concern of many about blockchain transfers

• a creator (Pacio) but no owner as it is an open network, a common good

• network effects make Tender a win win for all people using it

• ubiquity and inclusiveness as the ability to run on any device from smartphones up means that most people in the world will be able to take part in the Tender network, transparently or unconsciously in most cases with Tender and apps just being there and working without fuss

Tender is described more completely at the Tender [web site](https://tender.finance) or in the Tender [White Paper](https://tender.finance) or in deck form:

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12 SSIM: Standardised Semantic Information Model. See [The Case for SSIM](https://www.tendereconomy.com/the-case-for-ssim)
13 KYC: Know Your Customer, a finance industry regulatory requirement
14 AML: Anti-Money Laundering, a finance industry regulatory requirement
15 CFT: Countering the Financing of Terrorism, a finance industry regulatory requirement
16 FATF: The Financial Action Task Force which develops standards for financial transactions
17 GDPR: General Data Protection Regulation, a set of EU regulations

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5 Pacio Products and Services

The Pacio products and services will be:

- Triple Entry Accounting (TEA) apps and services
- TARI® service – including Business Health Check (BHC) upgraded and extended to full TARI® including AI integration and process mining
- The Tender network services and apps, some free, some for which a fee is charged
- The Pacio Integrated Business Suite (PIBS), a suite of fee based SaaS (Software as a Service) systems to provide business, accounting, and management tools for the decentralised digital age, launched progressively starting with:
  - Pacio Invoice and Payment Service (PIPS) – incorporating TARI®
- Other Tender apps to follow
- Other PIBS apps and services to follow
- Consulting, training, certification etc
- Data value in conjunction with users

The Pacio services apply worldwide and will be designed to allow for internationalisation as to language and local or regional regulatory differences.

5.1 TEA and TARI® Products and Services

The full TEA and TARI® apps and services described in sections 2 Triple Entry Accounting - TEA, and 3 Target Average Rate Index - TARI® will be rolled out progressively from 2025 onward.

As part of this, Pacio will continue the evolution and development of the SSIM Database of Facts shown in the Tender diagram as required for full TEA and TARI® use

5.2 Tender Products and Services

As described in the Vison and the Tender sections, Tender is an app platform with many unique features. Tender will provide scale and new opportunities - safely. Because of its scalability at low cost it can become a major app platform.

The goal is to attract many developers to build Tender apps as part of building a vibrant platform.

Tender will also provide the platform for PIBS – the Pacio Integrated Business Suite – so in a sense all PIBS apps are Tender Apps, but because they form such a key part of the Pacio Vision they are discussed separately in section 5.3 Pacio Integrated Business Suite.

5.2.1 Initial Free Core Apps and Services

As shown in the Tender diagram in the Tender section, Tender will include free core Account, Transaction, ID Manager, Time, and Transfer apps.

The Tender API service will provide access to these apps for non-Tender apps.

These apps and services are described in detail in the Tender White Paper.

18 SSIM (Standardised Semantic Information Model) and its Database of Facts are described in the Tender White Paper
5.2.2 Initial Pacio Tender Fee Based Apps and Services

The initial Pacio fee based add-on apps and services for Tender will be:

**My Tender**

The optional My Tender app by Pacio will provide greater account, transaction, and app settings security by backing up account data on a number of geographically widely dispersed nodes, while making it easy to block accounts on a lost device, and to recover the account, transactions, and apps settings data.

Private transactions stored only on the device, with just headers stored in the DHT, would not be recoverable in the event of device loss unless the app and account have specifically opted to use a backup system such as My Tender to store copies.

My Tender will work with Tender IDs and guardians as described in the Tender White Paper to facilitate recovery including in the case of the death of a user.

The proposed fee is the TDR equivalent of US$0.01 (one cent) per device per day.

**Create Token App**

The Create Token App allows a user to create a Tender token of any type - utility, security, fungible, non-fungible, for a fee.

The process involves defining the token properties including its name and instantiating the token.

The fee is partly to discourage frivolous use. The user/entity which creates a new token should do so only if there is intent to put the token to use via an App.

**The Tender DB App**

The optional Tender DB App to maintain the Database (Tender DB) which is a distributed NoSQL database of Tender data which allows for far faster and better reporting than is possible via the DHT and data stored in the source chain on user devices. DHT/source chain data does not include indices so normal database queries are not possible unless performed in a brute force very slow way.

The database is queried for reporting purposes via the Query App.

What is stored in the Tender DB and what can be seen by whom is defined by the app creating the data, in accordance with its privacy settings.

The Tender DB allows for cross app querying and reporting subject to app/user permissions.

Full CRUD (Create, Read, Update, Delete) database operations are supported. This means that if the world’s view of an app’s data is only via this database and the Query App, then GDPR’s right to be forgotten can be fully implemented.

Use of the Tender DB is optional. An app could, for its own data, do things its own way. However, use of the Tender DB provides an easy readymade solution for app developers which permits fast and flexible cross app reporting, subject to permissions.

The Tender DB and the two apps provide capability similar to that provided by Infura for Ethereum, but with greater flexibility and privacy control.

The database holds:

- state for app chosen variables
- balances for app chosen variables e.g. for fields updated by business transactions e.g. money (debits, credits), inventory, activities, hours etc
- public transactions
• private transactions an app choses to publish, optionally in homomorphic\textsuperscript{19} encrypted form

A small (microcurrency) fee eg the TDR equivalent of US$0.001 payable to Pacio by the app (app developer) per create or update operation will apply. Whether the app charges the user of the app or not is an app choice.

Read (query) operations will be free for casual use of say up to 1,000 per day, but be subject to a fee for higher volume use.

5.2.3 Subsequent Tender Apps

Pacio will develop some further non PIBS Tender apps, but the number of apps developed by other developers is expected to far outstrip the Pacio ones.

Tender apps developed by others will cover virtually every field of human endeavour and interest. One ever growing list of potential applications is maintained at [Pacio Info](#). (Navigate to the Tender -> App/Market Ideas node to see the current list.)

Some of these apps by others will provide revenue opportunities for Pacio by way of consulting or joint ventures.

Some of the other applications or fields in addition that will benefit from Tender and potentially the Pacio PIBS apps are:

• Business apps of all types e.g. supply chain management, inventory management, invoicing, quoting, payroll, ecommerce, financial reporting, auditing, business and management apps incorporating TEA and/or TARI\textsuperscript{®}....

• Banking
• Sovereign Money – CBDCs (Central Bank Digital Currencies)
• Universal Basic Income (UBI) schemes
• Crypto currencies
• Stable currencies
• Utility tokens
• Security tokens
• NFTs (Non-Fungible Tokens)
• Fintech apps of all kinds
• Legal services including smart legal contracts as per [Trillions of Smart Legal Contracts May Be Expected Annually Says Senior UK Judge](#). Just one trillion contracts per annum is 32,000 per second plus more for the interaction with those contracts. That is “easy” for Tender but 2,000 times greater than current Ethereum capacity.

• Publishing
• Streaming Video and Audio Services
• Tokenisation of assets of all kinds including derivatives
• Work - re remote working and how work is paid for
• Multicurrency-exchanges
• Ad-networks / earn-to-read

\textsuperscript{19} From [Wikipedia](#): Homomorphic encryption is a form of encryption that permits users to perform computations on its encrypted data without first decrypting it. These resulting computations are left in an encrypted form which, when decrypted, result in an identical output to that produced had the operations been performed on the unencrypted data. Homomorphic encryption can be used for privacy-preserving outsourced storage and computation. This allows data to be encrypted and out-sourced to commercial cloud environments for processing, all while encrypted.
- Crowdsourcing
- A Verified Linkedin
- A better Patreon
- VR apps
- 5G – many high speed 5G services will benefit from Tender’s high capacity but low cost
- Autonomous car apps
- “Adult” services
- Better (safer and private) social media
- …. 

5.3 Pacio Integrated Business Suite

Pacio is building the Pacio Integrated Business Suite (PIBS) as a suite of SaaS (Software as a Service) systems to provide business, accounting, and management tools incorporating TEA and TARI where applicable, for the decentralised digital age. The initial PIBS system planned is:

5.3.1 Pacio Invoice and Payment Service - PIPS

Pacio Invoice and Payment Service (PIPS) will be developed as a Tender based service and app that provides a much lower cost invoicing and payment system by offering Tender currencies as one payment option. It will have Business Health Check (BHC) built in and start the adoption of TEA – the transition to a TEA world – easily and transparently.

PIPS Market

The PIPS market is businesses issuing invoices including individuals such as remote workers.

The market is large – of the order of a trillion invoices per year. The market is already served by many systems, some of which are listed here, but PIPS’s features will make it attractive to many. Pacio needs to gain only a small market share to achieve the objectives of starting the transition to TEA while becoming highly profitable in the process.

PayPal invoicing is perhaps the best known competitor. Reviews here and here show that the most common complaint is the amount of the fee. Of course, the reviewers there did not know how much they were missing out on by not having BHC available to them! Nor that they could start to gain the security, privacy, and fraud protection benefits of TEA in the making!

Development Requirements

PIPS will require the following:
- Tender
- Tender exchanges or FIAT gateways provided by others who can manage the liquidity issues
- The PIPS App itself

Key Features of PIPS

- allows payment in Tender currencies as well as via PayPal, Square, Stripe etc providing much lower fees when Tender is used. The proposed initial fee for PIPS via Tender is 1% max $1 per invoice, versus from 2.9% to 4.4% plus a fee via PayPal. The PIPS fee can be further reduced as volume grows, in accord with the Pacio ethos of sharing benefits: help PIPS grow, and your cost will go down.
- incorporates BHC which will go to full TARI® progressively, with the need for separate manual entry of the BHC app reduced or eliminated
• allows for manual entry of old invoices or invoices processed by other systems re BHC, and in time, import from QuickBooks, Xero etc via their APIs
• flexible invoice templates easily adjusted for individual needs as per PayPal Invoicing etc
• globally unique Id to identify businesses and clients thanks to Tender Id
• meets KYC, AML, CFT, FATF, GDPR, and FATF regulatory requirements
• immutable invoice records which are TEA ready
• an easily digestible (invisible) step on the way to full TEA adoption

User Benefits
• Low fee as above if paid via Tender e.g. $1 vs up to $44.30 via PayPal invoicing for a $1,000 invoice, and an extra bigger saving on larger invoices, with only the low fee extra if paid via PayPal, Square etc to gain the other PIPS benefits
• Unique TARI potentially business transformative benefits included for free and obtained with little effort
• Available in countries at same cost where PayPal etc are either not available at all or are difficult/expensive
• The immutable invoice records provide part TEA benefits e.g. re fraud reduction
• TEA ready invoices mean that as a business expands or develops and adopts full TEA systems, the invoice history from PIPS can be picked up and used by those systems

Advantages to Pacio
Pacio is proceeding with PIPS as its second BIPS product because of the following advantages for Pacio.

Much less development effort is required than for full TEA systems so PIPS can reach market sooner and get Pacio profitable sooner. Just 1 million invoices a month or a market share of roughly 0.0000125% would give monthly revenue of $500,000 if at an average fee of 50c per invoice/payment. That would put Pacio in a strong positive cash flow and net profit position.

PIPS doesn’t have the political issues of TEA adoption = stealth TEA = TEA arriving without anyone caring much until suddenly we have a TEA world.

PIPS will help get other Tender Apps moving with Tender Id and Tender Transfer having many other uses.

PIPS will provide greater reason for and take up of the optional My Tender app.

PIPS is easier to understand than some other aspects of Pacio.

PIPS provides a clear path and focus for development of Tender and PIBS.

PIPS permits an easy no pain TEA start with progressive movement to full TEA.

Cons for Pacio

The market is very competitive.

PIPS puts Pacio into direct competition with accounting system suppliers that we will seek to have adopt TEA.
5.3.2 Further PIBS Products and Services

Further products and services will be added to PIBS progressively, prioritised according to demand. Some possible additions are:

- Specific accounting, financial reporting, and management requirements for individual markets, countries/regions
- Authenticated accounting and real time feed for oracles or apps
- Ricardian contracts (Internet of Agreements™)
- Extending the messaging aspects of TEA to provide a general messaging system that is designed from the start to be secure, private, and spam resistant, providing a potential alternative to email
- Internet of Things (IoT) interface
- Artificial intelligence interface
- Adding interoperable actionable event driven business documents/interfaces: This includes inter-person, inter-entity, and inter-app transactions.

5.4 Product Progression

The initial version of BHC (without monitoring/tracking or TEA integration) was developed and launched in 2020.

TEA and TARI services plus Tender will launch in stages starting approximately nine months after receipt of the funds being raised allows ramping up of development. An alpha version of the Tender Id Manager is available, though that was built using our own DHT as the Holochain one was not up to scratch at the time. (With the release of the rrDHT version of the Holochain DHT, we made the decision to switch back to using the Holochain DHT.) Some aspects of SSIM have been developed in prototype form.

PIPS (the start of PIBS), further Tender apps, and the consulting plus data value services will involve separate teams. Team building can start at about six months post funding when Tender development is well in hand, and its timing is clear.

6 Business Plan, Team, and Roadmap

The Business aspects of Pacio, the Team, the Competition, Marketing, the Roadmap, and Investment are covered in the separate Business Plan document.

7 Conclusion

In achieving its vision Pacio will deliver huge productivity and net profit improvements for businesses while helping economies function better and more equitably for the benefit of everyone.

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