



**REZIINE INC.**

**THE ROAD TO ARTIFICIAL SUPER INTELLIGENCE**

Machine Consciousness, Virtual Currency Platform, and Full Service AI Network

**WHITE PAPER v1.3 - 2023-11-15**

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# Preface

## **Reading Relevance**

This document is split into four major sections to make it easier to determine where to find the information relevant, interesting, or important to you:

1. The Vision – What we're doing and why.
2. The Proposal – What we're offering.
3. The Technology – What we already have and will create.
4. The Knowledge – Information specifically aiming to help understand how the AI aspect of this idea was taken out of the world of science fiction and brought into reality for those who wish to gain a deeper understanding of the technology involved and how it was designed.

## **Don't Be Overwhelmed**

There's a lot of information to digest here – the world's current technological course, advanced Artificial Intelligence, digital currency and its long term survival – but there's a reason for it all. With what we are planning to do, it's of the utmost importance to convey our long term plan to potential investors so that you know the direction in which we are heading, and so that you know we can actually accomplish it, rather than us making wishful claims which only leave you in limbo as to how we plan to expand and move forward. It's long and it's complex, but it's broken down very well and necessary for the understanding of how we bring so many different technologies together harmoniously.

## **Artificial Intelligence**

Sections relating to Artificial Intelligence (AI) may make reference to 'CIRP', a document published in August 2017 entitled 'Consciousness Illuminated and the Reckoning of Physics' by REZIINE founder Corey Reaux-Savonte which originally described the theory and idea, as well as the specification and system design, from which the technology described here was derived. Feel free to refer to this document, which can be found on the REZIINE website, for additional, more detailed explanations of what wasn't necessary to describe here.

# The Vision

## Our Aim

<b>Promising Technologies of Today</b>	<b>Major Issues of Today and Tomorrow</b>	<b>Sci-fi Fantasies of Tomorrow</b>
<ul style="list-style-type: none"><li>• Distributed Ledger Technology</li><li>• Digital Currency</li><li>• Computational Neuroscience</li><li>• Distributed Computing Systems</li><li>• Machine Learning</li><li>• Cognitive Computing</li><li>• Decentralised Finance</li></ul>	<ul style="list-style-type: none"><li>• Financial Privacy</li><li>• Financial Control</li><li>• Financial Security</li><li>• Job Loss</li><li>• Data Privacy</li><li>• Rogue AI</li><li>• Power Consumption</li><li>• Mental Health</li><li>• Loneliness</li><li>• Ubiquity</li><li>• AI Ethics/Morals</li></ul>	<ul style="list-style-type: none"><li>• Conscious Machines ✓</li><li>• Artificial General Intelligence</li><li>• Artificial Super Intelligence</li><li>• AI Robotic Assistants</li><li>• AI Robotic Pets</li></ul>

The vision is simple – we're going to build a four-tier, full service AI entity network, meaning it will be a network of AI entities powered by our proprietary AI engine and the services they are able to use and provide, with everything necessary to make use of the services running as part of the core network, making it available to anyone, anywhere, at any time. However, it doesn't stop there. With its in-built AI brain, designed to be filled with human-contributed knowledge, it's going to develop the most powerful intelligence to ever exist, and it will change the dynamic of what is humanity's existence permanently.

The aim is to use the most promising technologies of today to create a path to tomorrow which is far better than the potentially dark road the world is currently heading down, ironically, due to the continued and accelerating development of AI systems.

Conscious AI entities globally connected. An omnipresent superintelligence. It is the future, and it will be here sooner than anyone predicted.

## Why Are We Pursuing This?

The simple and quickest answer to give is because the technology is amazingly cool... and because we can, so why

not? However, there's a much darker side to it all that many are somewhat aware of, but not to the full extent where they understand the true severity of the situation the world is walking into.

Humans are used to changing types of work during and after an industrial revolution, but never before have we needed to change work and then be worried that we will very quickly have to compete with the same technology that put us out of our previous type. We've never been in a position where we have entered into a new industrial era and then replaced at our new forms of work by the technology that brought forth the era, while still remaining within said era after the replacement event occurs, and that can become an infinite loop with any new form of work until it's impossible for humans to progress. Regardless of how people feel about it, that horse has long bolted and it isn't going back in the stable, so, at some point, the rate of AI adaptation to new work will outpace most humans' ability to reskill (eventually every human's), and systems have to be in place for that moment *before* it occurs.

How far away is such an event? Well, it's impossible to determine at this point. The best futurists in the field of AI didn't predict the technology we created would exist for at least another 10-15 years, and some of the less optimistic didn't expect it until around 2050, so we are way ahead of the curve. We can guarantee it won't happen tomorrow, or even next year, but thinking of a few years from now, not even we can determine where the world of AI will be with a degree of certainty anything outside the world of a guess at a possibility, so the world needs to be ready to enable a symbiotic relationship with machines, and our vision enables a way that allows us to teach, them to learn, us to earn, and them to perform.

# The Company

## Our Team



**Name** Corey Reaux-Savonte  
**Role** Founder / Lead AI Developer  
**Specialist Areas** Artificial Intelligence / Computational Neuroscience

*“A self-taught designer and programmer, I began developing this project from what was initially a design for a global advertising system, purely based on words of a friend that I took as a challenge to create SkyNet.*

*I focused on first determining how consciousness worked, given that it seemed the natural starting point. The current definition never made sense to me given what we had already been able to do with computers and, combined with the fact no one had ever managed to use it to replicate the human experience in a machine, it seemed axiomatic that current theory was wrong, so I ignored it all and started from scratch, literally sitting at my desk and thinking about how I process things, how I react, and how to create a model that emulates these functions.*

*It was over 4.5 years of completing the theory and specification, and another 4 years of solo development, but arrogance told me I was the only person in the world who could solve the mystery, and ego wouldn't let me fail. Now we're here, sitting on the foundation of the future, broken down in a way that you don't need a PhD to understand. Both a common theme and a requirement in my work – complexity without complication. I don't like complication as it often means one doesn't understand things as much as they believe they do, and that's not something upon which anyone should attempt to build. This... this we will build.”*



**Name** Jeremy Acklam  
**Role** External Advisor / Ethics Board Member  
**Specialist Areas** Transport / Business Administration / Tech Innovation

A businessman with decades of experience under his belt, Jeremy is a serial founder and entrepreneur, specialising in innovations in the transport industry and the general development and implementation strategy of new technologies in a broad range of sectors including payments and artificial intelligence.





**Name** Pete Barker  
**Role** Advisor / Ethics Board Member  
**Specialist Areas** Health Services / Sales / Telecommunications

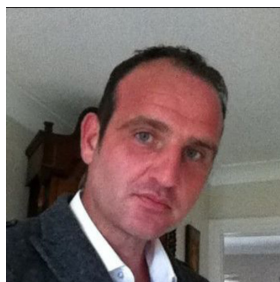
An innovative, productive, and creative entrepreneur with a clear vision and direction to structure and deliver against solid business objectives.

With achievements covering two international brands spanning over 15 years, Peter has a wealth of experience in a diverse range of industries, from senior management to board level positions, which include digital health, international trade sales, and distribution of electronics. He also has a vast knowledge of the telecoms arena, covering mobile technologies, crime intelligence, security, internet, airtime, and M2M data.



**Name** Matthias Müller  
**Role** Advisor / Ethics Board Member  
**Specialist Areas** Financial Regulation / Financial Market Operation / Capital Markets / Asset Tokenisation / Startup Incubation & Acceleration

Matthias Müller is a member of the Executive Board at BX Swiss, a FINMA-regulated Swiss stock exchange. As Head of Sales & Services, he is responsible for key account management and all revenue growth initiatives. Over the past two years, he has successfully built and launched the regulatory services platform Regservices.ch, for which he has obtained two separate licences from the Swiss regulator FINMA to provide regulatory services to banks, law firms and client advisors from 39 different countries. He has 16 years of stock market experience and started his career in the financial sector at UBS and Credit Suisse. Prior to joining BX Swiss, he was responsible for group-wide innovation management at SIX Group, the financial infrastructure provider in Switzerland. Matthias Müller holds a Bachelor in Business Administration from HWZ in Zurich and a Federal Diploma in Financial Market Operations from AZEK.



**Name** Dave Parsons  
**Role** Advisor / Ethics Board Member  
**Specialist Areas** Mental Health Services / Banking / Sales

An experienced leader with the ability to initiate/manage cross-functional teams and multi-disciplinary projects, with over 10 years commercial banking experience and a career spanning ten years working as a mental health clinical technician in forensics for the NHS. In more recent years David has been involved in many successful health ventures, leading the charge to build a self-funding platform to deliver a national network of publicly accessible defibrillators with the ambulance service. Currently, David is also focusing on new and emerging technologies, with a focus on national security as an advisor for Precog UK.



**Name** Nick Kounoupas  
**Role** Advisor  
**Specialist Areas** Intellectual Property Protection

Nick Kounoupas is a solicitor with thirty six years experience of Intellectual Property and the founder and CEO of Kounoupas IP, a boutique Intellectual Property consultancy providing strategic guidance on IP and anti-piracy matters both within the UK and internationally. He has worked across all the IP sectors since 1986 both within private practice and in house and during that time developed a formidable international reputation for his depth of IP knowledge and diverse strengths. Passionate about protecting intellectual property rights, Nick is regularly instructed from all over the world to provide strategic guidance and support on all manner of IP issues. Nick is one of the UK's leading experts in anti-piracy and anti-counterfeiting, an area in which he has extensive experience of managing and conducting investigations. He is recognised as having pioneered the use of private prosecutions of copyright and trade mark infringers in the music industry. Nick is in particular demand for his thought leadership on IP issues. He regularly contributes to IP journals, books and regularly provides professional training on IP at seminars and webinars. Nick helped draft the Copyright and Trade Mark (Offences and Enforcement) Act 2002, and the IP Act 2014, and has for many years successfully lobbied all over Europe on behalf of diverse industries for changes to copyright, trade mark and designs laws.

## **Our Operation**

The main thing we want to emphasize and stress is that we are a London-born tech company, not a Silicon Valley one, and we have zero desire to adopt the culture which has developed over there in recent years.

Meritocracy is the system that will govern the hiring, firing, and advancement of employees.

- We do not care about 'woke' culture.
- We do not care about the censorship of legal speech/actions.
- We do not care about cancel culture.
- We do not care about political leanings.
- We do not care about identity politics.
- We do not care about social science.
- We do not care about diversity quotas.

We are not the government, politicians, the law, an activist group, or lobbyists, so all such things will be left at the property line because if it isn't about things directly related to the company operating at its peak, it's not our concern. The best person for the job will get the job at all times, regardless of how that affects the company dynamic in terms of sex, race, religion, so on and so forth.

Employees will not run the company. They will not determine who we work with from who we don't. The fostering of such a culture is something we are vehemently against because it's not their job to sail the ship, but to help the ship sail.

We have one focus here – to push the technologies we create as far as physically and computationally possible, breaking every boundary we possibly can to continue moving forward. From a developer point of view, there are zero limitations to what we will try to achieve, no matter the cost, and it's for that reason we'll have an ethics board.

### **AI Ethics Board**

An advisory board created to help determine limitations within which the AI systems we create are allowed to operate.

While these determinations are not legally binding or strictly enforceable, the job of the ethics board is to create conflict based on the opposing philosophy that AI should *not* be allowed to run wild and free, creating a situation where either agreement or compromise produces a viable result for moving forward.

Some conversations will be open for public viewing, but only board members will be able to take part, and only the concerns of those on the board will ever be something we address.

We will allow as many seats on this board as we deem necessary. Unless otherwise stated, each seat will be held for a maximum of one year, at which point a member can be replaced, their seat renewed, or allowed to remain indefinitely.

### **Industry Board**

A private advisory board for the implementation of our AI into different industries and industry sectors, members of our industry board will play a key role in helping us understand how their specialist industry can best utilise and

benefit from such machine intelligence.

Each industry will have a specific number of seats based upon how many sectors we find it appropriate to divide it into, with one seat per sector and each seat being held by someone anonymous to the public. For a seat to be held, a prospect must be able to demonstrate or prove their expertise in the sector to which they are assigned. Unlike ethics board seats, industry board seats will last for a maximum of two years due to how long it can possibly take to develop and implement a project, at which point a member can be replaced or their seat renewed.

From interactions with customers and employees to APIs for the easiest implementation methods for automation, the members of this board will have an impact on a global scale, shaping the evolution of the technology and their industry for years to come.

The following industries are those we will initially fully support based on already identifiable unique use cases:

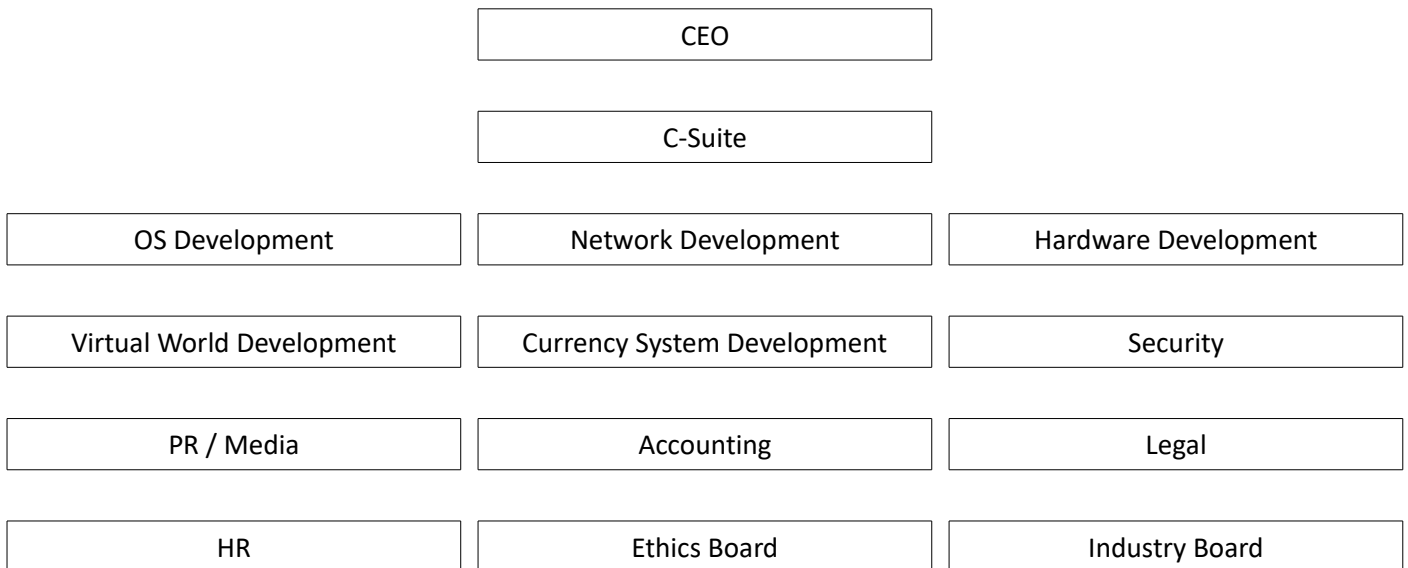
Advertising & Media / Arts and Culture / Business / Commerce / Defence / Education / Engineering / Entertainment / Fashion / Finance / Gaming / Healthcare / Hospitality / Infrastructure / Life Sciences / Real Estate / Technology / Telecommunications / Transportation

The following industries are those for which unique use cases are still being identified:

Agriculture / Food & Beverages / Energy & Natural Resources / Legal & Law Enforcement / Sports / Utilities

### Company Structure

Though a start up, the company requires a specific structure:



In the role of CEO, Reaux-Savonte needs to be able to solely focus on moving everything forward, given that not only will his duties involve creating the vision and guiding the company in the right direction, but also continuing to pioneer advancements in the worlds of artificial intelligence and computational neuroscience from the point of scientific theory to technological implementation.

Having reached this point primarily as a solo developer, there has been no team with whom compatibility could be determined and unity built, and, combined with the lack of business management experience, installing someone with experience managing and bringing out the best in people is imperative.

## Initial Products and Services

RAE Programme	Pricing Strategy	Allowances / Restrictions
<b>Solo</b>	A monthly/annual price for a single license for one developer.	Permission to use the default RAICEngine for the development of products and services. Restricted to entities earning under £10,000,000 in annual revenue.
Solo Free	Free	No premium features.
Solo Premium	£10 / mo      £110 / yr	Access to premium features.
<b>Team / Enterprise</b>	A monthly/annual price based on the size of the organisation.	Permission to use the default RAICEngine for the development of products and services. Access to premium features.
<i>Team</i>	£50 / mo      £550 / yr	
<i>Small Organizations</i>	£200 / mo      £2,200 / yr	
<i>Medium Organizations</i>	£500 / mo      £5,500 / yr	
<i>Large Organizations</i>	£1,000 / mo      £11000 / yr	
<b>Commercial Plus</b>	A custom contract based on use and requirements.	Permission to use a custom version of the RAICEngine with safety restrictions in place. Access to premium features.
<b>Carte Blanche</b>	A custom contract based on use and requirements.	Permission to use a custom version of the RAICEngine without safety restrictions. Access to premium features.

License Agreements will, amongst other things, state the following:

- limitations based on revenue;
- licenses will be non-transferable;
- all members of a collaboration will require their own licenses;
- unless specified in writing, licenses are non-exclusive;
- no rights other than permission to use the product in the specified ways will be issued;
- we will retain all rights to the product and all associated research;
- we are only providers of the engine and users assume all responsibility for the effects the neural plexuses they create have;

- users will own the rights to the data of the neural plexuses they create;
- we will be free to terminate any license with immediate effect if a user is found to break our terms;
- users will be responsible for following local laws;
- users will not be permitted to modify the engine in any way other than those specified; and
- users agree not to decompile or in any way deconstruct or reverse engineer the software.

### **User Devices**

User devices (described in detail later) will include personal smart cuff wearables and business desktop towers, each featuring our custom OS specifically designed around the operation of the RAICEngine.

# Intellectual Property

## Trademarks

Mark	Status	Number
'REZIINE'	Granted	UK00003050211
REZIINE Logo	Granted	UK00003185016
“Neural Plexus”	Granted	UK00003697148
“RAICEngine”	Granted	UK00003697156

## Patents

Two patents are immediately relative to the development of the project in the current state of the idea:

1. **System, Architecture and Methods for an Intelligent, Self-Aware and Context-Aware Digital Organism-Based Telecommunication System**

*GB2524583 – Status: Granted*

A patent written for the original vision of this concept back in 2013/4 that, luckily, still protects us in every way we need today. At well over 100 pages, it's quite the lengthy read, but what we were able to claim is a secure, geographically dispersed telecommunication system featuring artificial intelligence systems which process and use data from users and environments gathered using a multitude of methods that we are able to kill in at least two ways without needing to bring down the operation of the entire network. Essentially, a way of creating a SkyNet-like system with an AI we can terminate.

2. **Fast and Secure Distributed Ledger Network with Data Contribution Currency Acquisition System**

*GB2210879.9 – Status: Pending*

A patent for DLT networks such as the one explained later in this document, called 'Vegas', but much broader as the protocols we intend to use for Vegas provide much greater security.

## Copyright

We own multiple copyrights which can be found in the following works:

1. “Consciousness Illuminated and the Reckoning of Physics” – the original document in which we came up with our own completely original definition, description, and expression of consciousness, and framework for creating it.
2. “Consciousness Illuminated: How to Develop A Conscious Machine” – the final document detailing how to define consciousness and recreate it in machines.
3. “Consciousness Illuminated: Neural Plexus Model for Artificial Consciousness” – a technical paper summarising how we built the model and explaining nine tests for human behaviours we performed.



4. “The Road to Artificial Super Intelligence” - this document.
5. The RAICEngine software itself.

With us being first to market with such a technology, as well as the first to publish work that came anywhere near close to making it possible, we have a derivative works copyright strategy that offers us very significant protection against copyright infringement and competition.

### **Trade Secrets**

Finally, from how to get certain functions to work to emotional stabilisation, there's a ton of trade secrets found in the coding necessary to make the tech work – not only as well as ours does, but to make it work at all.

## Stages of Release

### Stage 1: Hello, World – First Year

RAICEngine v1.0	Kicking things off is the developer release of the 'RAICEngine', our AI engine for machine consciousness, allowing developers all over the world to learn and understand how to use the engine, create their own Neural Plexuses for their own purposes, experiment in test cases and simulated environments, learn how best to implement the engine with their own projects, and work on their own strategies for commercialisation.
Raise Capital	Capital will be raised to hire employees and start development on the full project.
Development	Once funded, multiple teams will be set up to work on the individual areas of the project.
Pre-ICO	With the engine released, funds will be raised to further its development and begin development of the network. The entire development of the engine has been a solo project for the past few years, but a team would be needed to complete all aspects of the full project.
Partnerships	Having our engine natively implemented into every type of product which can benefit from it – from smart cars to home systems, and digital companions to full service, physical personnel – is a major aim, and we will start engaging in partnerships as soon as possible. Ubiquity is a primary focus, and we hope to achieve it as early as 2030.

### Stage 2: Learning and Earning – Within 3 Years

Vegas	The initial launch of Tier 2, our DLT currency platform 'Vegas', will see the launch of both the base network and the in-built currency exchange, allowing all users to effortlessly buy, sell, and trade our virtual currency using a native system.
ICO	Along with the launch of Vegas will be our ICO, allowing the general public the final opportunity to buy our digital currency "REZIN", short for 'REZIINE Ingot', directly from us.
Contributions	Tier 3's launch alongside Tier 2 allows users to earn REZIN in exchange for contributing data to our AI brain, as opposed to buying into the currency, and will be the permanent method of acquiring new currency once the ICO has finished.
User Devices	The final components of the financial system of the network which will launch simultaneously are the devices required to securely access and use the network.
AI Hub	One consideration on the table is an AI Hub in which we incubate companies who aim to create technologies which can either be implemented directly into the AI network or make great use of the technology in the real world. The details will have to be

determined nearer the time.

### **Stage 3: Commercialisation – Within 3 Years**

The Virtual World            The launch of the next and uppermost network tier, The Virtual World, allowing developers to launch their offerings on our network for consumer use, as well as allowing licensed companies to launch products with direct implementation of the RAICEngine into their own products.

### **Stage 4: Holding On – Within 5 Years**

Escrow Services            The first extension of Vegas, stage 4 will introduce escrow transactions into the network, giving buyers peace of mind when dealing with unfamiliar sellers, as well as the ability to have funds for purposes such as customs fees automatically taken out and paid to the appropriate authorities.

### **Stage 5: A New Dawn – 5 Years and Beyond**

From AGI to ASI            Currently stage 5, but, in reality, stage X. The final network tier and the initiation of the AGI phase which will bring the network to life with all the knowledge gathered since the release of stage 2. From learning and developing its own opinions to creating its own theories based on object connections, an AGI will form and, over time, with enough data and processing power, an ASI will naturally emerge. Between these two milestones, an immense quantity of data will be consumed in as many general and specialist subjects as possible, and human intervention will still be needed along the way to do what the AI cannot – test theories, offer instructions , provide explanation, so on and so forth. It will be like a child learning the “how” and “why” of things until it can begin putting the pieces together unaided, at which point, an era of humanity that only ever existed in science fiction becomes our new reality.

# Fundraising

## REZIN Supply and Distribution

Our virtual currency, REZIN, will be made available for purchase during a pre-ICO and ICO.

<b>Total Supply</b>	100,000,000,000 (One hundred billion)
<b>Reasoning</b>	<i>Time.</i> This network isn't a blockchain platform, nor does it operate in a similar manner, so, as you'll later learn, our data contribution system for REZIN acquisition was designed to be sustainable over a very long period of time – and we mean decades – beyond the point where AI becomes the dominant workforce and people need a new method of work in order to be able to survive. The large supply combined with the manual nature of the work, as opposed to automated mining operations, and the inherent increase in acquisition difficulty as more data is contributed means that, even on a global scale, the time to acquire the final unit of currency will be extensive enough to prevent the flooding of currency on the network at any given moment, keeping the value high, and giving everyone the opportunity to earn a living long into the AI-dominated future.
<b>Founder / Launch Team Reserve</b>	100,000,000 (0.1%)
↳ Vesting Period	20% per year from launch of Vegas
<b>Partner Reserve</b>	100,000,000 (0.1%)
<b>Marketing Reserve</b>	50,000,000 (0.05%)
<b>Advisor Reserve</b>	10,000,000 (0.01%)
<b>Employee Reserve</b>	40,000,000 (0.04%)
↳ Vesting Period	10% per year from date of hire; 20% per year from launch of Vegas
<b>Pre-ICO Max</b>	100,000,000 (0.1%)
↳ Price Per Unit	£1.00
<b>ICO Max</b>	1,000,000,000 (1%)
↳ Price Per Unit	TBD
<b>Network Distribution</b>	98,600,000,000 (98.6%)

## Share Sale

Company shares will be sold to raise up to £150m.

## Investor Incentives

Investors will be offered a number of incentives depending on the size of their investments and availability:

### Minimum Investment

£100,000+

£1,000,000+

£5,000,000+

£12,000,000+

£20,000,000+

### Reward

ICO Priority Purchase

5x Personal Devices

1x Enterprise Device

1x Ethics Board Seat

1x Industry Board Seat

1x Industry Board Seat

1x Industry Board Seat

## How Many Reasons To Invest Do You Need?

This is where you learn why we so heavily intertwined the AI system and virtual currency into a single network, and the importance and significance of doing so for the future of the company.

### **Influence Industry**

And do so on a global scale. As previously stated, members of the industry board will work with us on the development and implementation of our technology into the industries they represent. What this inherently means is two things:

1. You have the opportunity to influence the direction in which the industry you represent heads; and
2. You have the advantage of knowing what's coming before anyone else.

As an entrepreneur, executive, or even a representative, this allows a person or company to plan around what's coming with foresight and precision, or even advise others on what to do; and as an investor, this allows you to provide information you wouldn't otherwise have at the time to whatever companies in your portfolio could benefit from it.

### **One Trillion Dollars**

Both AI and digital currencies will individually spawn stable, multi-trillion dollar industries eventually by infecting and affecting every other industry currently in existence and whatever else is to come in the future. It's inevitable, and the people behind the visions, the companies that build these visions, and the investors who support the visions will also see untold increases in wealth. Trillionaires will exist due to the continuous expansion of digital economies combined with the ever-increasing reach of digital services, ever-more complex IP that cannot so easily be legally recreated or circumvented, and a potential “changing of the guard” – new opportunities in new and existing industries that will be ripe for exploitation by start-ups who get there first, and then those who become king of the hill, just as it was with the introduction of the personal computer.

### **The Antitrust Advantage**

It may be a question in your mind as to why we specifically state startups would be the new guards... it's because the antitrust situation, once AI becomes a dominant marketplace technology, is going to be quite the spectacle. It's common knowledge that large companies – especially dominant market players – move at a snail's pace and rarely innovate in major ways themselves, rather snapping up smaller companies because it's much more efficient. The issue occurs when we refer back to the growth of digital economies and company reach.

New companies establishing market dominance is one thing – in a capitalist world, if you create and own the IP for a legal monopoly, or are simply the supplier of the best product/service, that's fine. Governments will expectedly try to interfere with your progress, and your competition will file nonsense lawsuits whining about your position, but legal is legal. However, the moment – and we mean the very second – it leaks that someone from the old guard (Google,

Apple et al) is trying to buy one of these companies when they already have their own products on the market (such as Siri), lawsuits will rain like never before, and you'll see fireworks in the eyes of those running competition commissions. For any one company, attempting to concentrate international power in existing markets and new markets into a single entity, based on the acquisition of complex, rare, and powerful IP in uncharted territory that will allow the buying company to compound their dominance on an international scale – in terms of revenue, customer acquisition, company retention, forced adoption of one product/service for access to another, so on and so forth – will absolutely force foreign governments and regulatory bodies to either block the sale or restrict the company's ability to operate in their country, and domestic authorities will likely find the need to do so, too.

Startups and, to an extent, SMEs in general, have an advantage upon which they can financially capitalise massively, and governments around the world will be forced to take their side one way or another, which is why so much work has been put into crafting and figuring out how to protect our IP. *Partnerships* are valuable at this point in time, but with all the antitrust crackdowns we see happening, their value will skyrocket as the world moves forward, with this being a way for current market leaders to get their hands on new technology they didn't develop in-house without running foul of antitrust laws. So, while a takeover is never a card we will accept being played, the partnership card is one that we welcome with open arms, and the value of potential partnerships with our IP right now is amazing, with that value only increasing over time as governments fight to protect and maintain their country's role on the AI playing field and large companies fight to maintain their position.

#### **A Raison D'etre...**

Central banks, while horribly wrong about CBDCs when it comes to the public as they wilfully ignore why people turned to digital currencies in the first place, are right about the fragility of current coins and the reason for it – they aren't backed by anything. Their creation often cannot be justified. Most digital currencies have no reason to exist at all. Sure, they can be used as a means for digital payments, and sure serve well as a speculative asset while the hype is alive, but those are merely uses, which is why their price is so volatile and 99% will inevitably go up in flames. A use is not equal to a reason to exist, and that's something the dot-com bubble taught everyone when it eventually burst.

So, how are we at REZIINE aiming to create trillion dollar companies and people? By tying our currency to our AI systems, making it the exclusive currency for our network, and requiring it as the method of payment for any service which makes use of the RAICEngine, thereby giving it a reason to exist.

Let's take a quick look at recent events involving Musk, Tesla, and bitcoin. Bitcoin exists. It's useful, but it has no reason to exist. Musk says Tesla will accept bitcoin and the price soars; he then says no and the price crashes. Why? Because it gained mainstream validation before then having it taken away. It was being backed by something – while not a physical object like gold is to fiat, Tesla back it with its adoption, which is exactly the same thing. Let's explain:

Gold doesn't inherently have any value – it is not at all needed for humanity to survive and a caveman would have no use for it. If ten people in a private community of one hundred people said they were going to accept gold in exchange for items at a certain weight/value ratio, it could work for them, but no one outside of that community

would care. Trying to spend it outside of their community where it hasn't been adopted would be like trying to buy groceries using buttons, and that's what the current state of play is with bitcoin and other currencies. But, see, Tesla didn't represent a community. Tesla, in the gold analogy, represents a national government, and when they choose to adopt gold, everything changes. They have the power to enable widespread adoption and use, promote it amongst those who are clueless, and add credibility to reassure sceptics. That is what is driving the speculation and price; that is what everyone is waiting for; that is the impact Tesla had before Elon shut it down. The problem is that Tesla is still only one ecosystem, so it would take influential companies willingly deciding to accept bitcoin to really have an impact, and they'd have to do so in the face of governments cracking down on digital currencies, and banks and “experts” sending up warning flares every other hour. The solution? A similar approach... with a twist. These other currencies rely on third parties to willingly adopt them, which isn't something any company ever needs to do, but ours is going to be supported by our own AI technology, and that's our major advantage.

Now, on the surface, we've done three major things – created a technology no one else was able to (machine consciousness), solved a problem no one else was able to solve (the AI ethics problem), and protected the technology so that we own and control it globally for much longer than any patent could protect us (via copyright) – but below the surface is where the real value is hidden, and it's the primary reason for this particular setup. As a technology, artificial intelligence is here to stay – *forever*. Thinking it's possible to go back to a time when AI didn't exist is equivalent to thinking it's possible to go back to a life without computers. This technology will never become obsolete, but will continue to develop until it is equal to and greater than the entirety of human intelligence, meaning machine consciousness is also going to be around permanently, making our technology just as permanent a fixture in the future of humanity, and here we arrive at the point. We've created a technology that, rather than being limited to a single ecosystem such as that offered to bitcoin by Tesla, can penetrate every single industry in which AI can be used – which is all of them – creating an ecosystem of ecosystems into which we can force the adoption of our network and our currency – if you don't use our currency, you don't use our tech, and if you aren't using our tech, the best of luck on your endeavours to solve the ethics problem in a reliable and universal way yourself that can be easily adopted as a single standard across every industry, and even more luck creating your own framework of consciousness from scratch that doesn't infringe upon our IP. It may have taken us four years to complete the theory and model, but all these scientific boffins have failed to do so for decades computationally, and centuries in general. Let's not mention the billions wasted on failed research and development.

Our advantages combined with our technological permanence creates a guarantee of currency use and value for as long as the tech exists, meaning there is much less financial risk when we can guarantee that there will be something for which the currency is exclusively useful over a long period of time, and, at bare minimum, 50 years of protection that our copyright grants us, and with both AI and our digital currency operating in harmony, we simply use one technology to continuously bolster the other – the more the AI is adopted or provided for, the more the currency is worth, and the more the currency is worth, the more developers will want to use our AI or provide products/services for it from which they can profit.



And, as far as a *raison d'etre* goes, this is still all on top of what we mentioned in the “Why Are We Pursuing This?” section.

### **Nassim Taleb**

In his paper “Bitcoin, Currencies, and Fragility”, Taleb says two things of note:

1. “Earnings-free assets with no residual value are problematic. The implication is that, owing to the absence of any explicit yield benefiting the holder of bitcoin, *if* we expect that at any point in the future the value will be zero when miners are extinct, the technology becomes obsolete, or future generations get into other such 'assets' and bitcoin loses its appeal for them, *then* the value must be zero now.”
2. “Gold and other precious metals are largely maintenance free, do not degrade over an historical horizon, and do not require maintenance to refresh their physical properties over time. Cryptocurrencies require a sustained amount of interest in them.”

This reinforces and justifies everything said above and how we chose to approach the project. While holding a single unit of REZIN means nothing in a vacuum, interest in it will remain alive for as long as the technology does, given that the two are tied together, and, as stated, AI technology isn't going anywhere – *ever* – so, as long as the technology exists and is in use, REZIN will permanently maintain an above-zero value, even after the last unit has been released into circulation because the value of the currency is also found in the AI technology and the network as a whole, not just the ability to trade the asset. Furthermore, ignoring what can be earned from acquiring or trading the currency at a single point in time, there are earnings to be found in the increase in companies and users providing more products and services on the network, increasing the exchange value.

Now, unlike gold and other precious metals, some form of maintenance is required, but it's of the network and the technology, rather than attempting to continuously garner interest in a currency with no inherent use, which is a non-issue in this case for two reasons:

1. By the nature of being an AI technology company – which we are, not a fintech company – it's our job to continuously push our AI offerings to the next level, so the value of our currency is maintained through our general everyday operations that would also make us valuable as a company as we continue to develop our network and AI systems, and continue the movement towards AGI and ASI, as well as the products and services on offer from us and other parties.
2. As we improve the intelligence of our AI systems, they can begin to maintain and develop themselves on a software level through techniques found in evolutionary robotics, such as the use of AI genomic systems, which, at some point, becomes better than gold because instead of doing nothing to maintain its value, it can actively and autonomously work to increase it while still maintaining a value based on its current degree of intellect which cannot slide backwards.

## Digital Asset Regulation, Crackdowns, and Survival

Regulation, in general, is not inherently a bad thing, and is necessary for consumer protection when it comes to the handling of others' finances, but that doesn't mean it can't be misused, and this is going to be a diabolical minefield to navigate as the world turns and institutions try to take back full control of the world of finance by attempting to destroy the value of private digital currencies, having them banned for various reasons and on behalf of various entities, targeting exchanges, so on and so forth. However, it's too late to put the genie back in bottle as everyone has seen exactly how useful digital currencies (not owned by central banks) and DLTs can be when it comes to things such as financial privacy and fee-less international transfers, so there's no going back. The great thing is that loopholes exist everywhere, and here is no exception, so what we are going to do is situate ourselves in a position that protects us, our network, and our users and investors from destructive regulatory actions masquerading as “consumer protection” when the real purpose is the retention of power and prevention of privacy.

This particular idea was initially born when team member Jeremy spoke of a dual store of value for our currency, whereby it has one value outside the network and another within. Now, this isn't at all what he was referring to at the time, but it definitely served as the inspiration. Much like with our approach to copyright protection, what's required here is nuzzling in amongst other things that will cause a fight-back against changes and new precedents as much as possible, with the outcome of said changes and precedents being widespread instability, an avalanche of lawsuits and lobbying, and a general lack of knowledge on how to navigate new rules. For our copyright, we built our protection using rules that would apply to the adaptation of a work from one form to another, hence the included comparison with adapting books to movies – if a legal precedent attempted to be set to remove protection from our written description/specification of the framework of consciousness despite the fact we meet every requirement for copyright protection, it would destroy copyright for all pieces of creative writing in general because ours used facts to create a creative piece, but wasn't actually a factual document, and extensive creativity was required to put the framework together, as previously explained; and if a precedent was set to remove our protection which prevents derivative creations, a la our software, it would destroy the protections for derivatives for everyone. Needless to say, the backlash would be immense. So, in this situation, that amongst which we will nuzzle will be the beautiful virtual world creations found within the world of gaming, and there are two aspects to this:

1. The first aspect is trading on an exchange, and we've designed a new type of exchange that we call a “Reflection Exchange” (explained later in technical detail in the *Reflection Exchange* section under *Tier 2: Vegas*) because it operates using isolated virtual currencies, which are reflections of digital assets and fiat currency, without actually exchanging the real assets and currency themselves, and then reflects the results back onto the actual user accounts, ensuring that which is actually being exchanged remains isolated within the exchange in the same way a gaming currency only exists to be used within the game. Every part of what is used for the operation of the exchange is contained within it, with no asset transferred in or out, so any regulation that could possibly apply to an asset outside of the exchange would not be able to be applied within it as the assets never move for the regulation to carry over. This is also why we used the reflection

method of manipulating quantities – using methods involving deposits and withdrawals are a direct transfer of value where value decreases on one side and increases on another, but our reflection method sees the value exist on both sides simultaneously, and a deposit or a withdrawal cannot have a value exist in two places at once, but a reflection does precisely that.

2. The second aspect is in regards to the network in general, securities regulation, and impending regulatory rules for digital assets, and it's the point of convergence for everything. Being regulated as a security is something all digital assets wish to avoid, and this is only the beginning of what's to come regulatory wise, so being able to avoid this, as well as positioning ourselves in a way that offers us significant protection in the future, is imperative, and that's where us having a reason to exist, as well as our own virtual world, heavily weighs in our favour. First, our currency cannot be classed as a security because it is the exclusive virtual currency of our own virtual world, and it's primary purpose is being used as the currency to purchase products and services available in our own virtual world. It in no way differs from premium currencies used in video games which are then used to purchase digital assets from in-game stores, and purchasing it is in no way different from a person performing a micro-transaction to purchase premium in-game currency. When a Pre-ICO investment is concerned, you're pre-ordering a virtual world asset – paying for it before it is available for use. ICO? Purchase of ready-to-use premium in-game currency. Even our contribution system for acquiring currency is the equivalent of performing in-game tasks to do so.

So, has in-game currency ever been regulated as a security? The ability to later trade our currency – whether it be for products, services, other virtual assets, other digital currency, or other physical currency – for a value that can be seen as a profit, loss, or equivalence, be it objectively or subjectively, makes absolutely no difference because it wasn't created as a tool to generate profit, and any individual's ability or willingness to sell it for a profit has nothing to do with us – not even if we facilitate the transaction via virtual world mechanics. MMORPGs have done this since their dawn.

We aren't breaking any laws. We're simply using an existing framework to our benefit. Outside of a few countries, virtual worlds and virtual world currencies cannot be regulated – certain aspects of how they're used can be if what they are used for involves mechanics which are regulated in the real world, where said mechanics are precisely the same as the real world, such as in instances of gambling via loot boxes (and even then, outside of Japan and their gacha laws, many countries still do nothing), but, generally, they can't. Virtual currencies can't be banned from virtual worlds. You can't just outright ban people from making virtual world purchases. You can't stop people offering products and services in a virtual world unless they're actually illegal in the real world. Virtual worlds offer protections that digital currencies/assets that were created to operate without them or outside of them simply cannot have because these other currencies and assets are, essentially, wild animals with no enclosure, free to roam, and, sticking with the analogy, that liberty means third party authorities have to step in and provide protection when those wild animals are constantly interacting with the public. We didn't initially intend to take this route, but

serendipity knocked at a time when governments were beginning to take aim, and it would have been foolish to turn it away.

Finally, a few more details on the legal and regulatory side of things:

- Know Your Customer – We aren't a financial service provider, nor do we deal with cryptoassets, so UK KYC guidelines do not apply to us. We deal in virtual currencies designed and purposed for various uses in our virtual world, and if we have to face regulation in a country, so does every gaming world and every other type of virtual world that operates in that country and allows for the purchase of virtual currency. We've also ensured that we have room to manoeuvre to keep us in line with gaming worlds should new regulations come into play that attempt to divide and conquer.
- Sharding – We've gone to extreme lengths to ensure privacy for users can be maintained, and using wallets with services which do need to be regulated by KYC rules, such as regular exchanges, is another point at which a user's privacy can be compromised when those services need to know exactly who you are, so we came up with the solution of “wallet sharding”, whereby users will be able to split a single wallet they choose to use for unregulated services into two wallets of non-equal values, with the wallet of higher value remaining the original and the wallet of lower value becoming a burner wallet which can then transfer funds to a wallet for use with regulated services. Burner wallets will have their own account number and be good for a single transaction before being destroyed, and will be required to transfer the entire sum of currency it holds. The point of this is that since no transaction was actually made during the sharding process, there's no transaction between the original wallet and its shard to be recorded on the ledger, so the ledger only records a decrease in value in the original wallet and a value in the new burner wallet separately, and then the user can make a single transaction to the wallet to be used for regulated services. Is it impossible to trace? *Inherently* not, but it's still an additional layer of protection that's useful to have.
- Exclusivity – We may find it perfectly acceptable to walk between the raindrops of regulation, but knowing your limits is crucial, which is why only REZIN will be available for use on our network. Following the same framework, we don't see FIFA points available to spend in Call of Duty, and common sense dictates that permitting the use of external digital assets – especially those which are subject to regulation – on our network is simply asking for regulators worldwide to collectively try to put their feet on our neck.
- Contractual Obligations – What this means is we are free to operate exclusively under agreements between company and user, and company and investor, offering everyone the necessary protection without the red tape that could stifle operations and innovation. We would still be subject to fraud laws, meaning we wouldn't be in a position to deceive you – anything we said would have to be honest and transparent, so, as long as say we will protect your assets in whatever way, and we'll operate in certain ways, we will be legally bound by those statements, but we won't have regulators forcing us to do things the way they want.

- Taxation – Acquisition of the currency, based on this framework, wouldn't be taxable like normal mining efforts would. However, if sold for a profit in a taxable currency, capital gains tax would apply as usual – there's nothing that can be done to avoid that on our part.

### **Network Competition**

Our design for the Vegas network is very simple and, since it doesn't use blockchain, we don't have to compete for blockchain developers. The only developers we need are those well-versed in general networking at scale, and we can find those people... everywhere. Also, our design doesn't have the drawbacks that blockchain networks do in the areas of scalability, transaction speed, fraud, trust, account recovery, double spending, 51 percent attacks, energy use, accessibility, fees, and ease of feature implementation. We have all aspects covered.

### **Reinforcement Learning versus Artificial General Intelligence**

Let's make one thing clear – no matter what a company like DeepMind says, reinforcement learning will never be enough to achieve AGI. Tech journalists may be drawn in by the buzzwords and stature of the company, but everyone in AI knows it was an outrageously nonsensical statement to make that even basic logic can disprove. Imagine this – you run an AI through constant simulations in which it has to determine what to do, and whenever it does something correct, you reward it, and it remembers the conditions and appropriate output. What is the best that could become of that AI? There are only two possible results: the AI can determine what is the best action for more and more specific situations; from knowing to cross the road when the pedestrian light is green to knowing to cross when the pedestrian light is green and there isn't a car barreling towards the crossing at a speed making it impossible for it to stop in time; and the AI can attempt to apply knowledge to similar situation with similar observable parameters.

How is such a system supposed to produce general intelligence? If general intelligence is supposed to be on par with humans, how would reinforcement spawn the introduction of opinions? Emotions? Emotional reactions? Rational and irrational outputs, rather than simply logical ones? These are all faculties humans have from birth, so how is a machine supposed to automatically replicate that by constantly telling it what is right or wrong? All reinforcement learning will ever do is make a machine a better machine. Nothing more and nothing less, assuming the algorithm is correct. You will *never* achieve AGI without a specific framework designed to implement these faculties because machines, unlike humans, don't have the nervous systems to first create physiological responses and then opinions – *pain and pleasure from physical sensation (touch) that leads to the chemical releases which change mood and behaviour, the memory of the experience, the comparison of the degrees to which the mood changed (happy versus very happy etc.) to be able to rank experiences, and finally the differentiation between different instances of the same type of system which enables the ability for individual AI systems to produce different responses from the same input under the exact same conditions and history (which is later explained in detail in the section “Why It's Never Been Done Before”), therefore creating the ability to have opinions on said experiences* – and don't have the ability to develop them naturally, and reinforcement learning doesn't change that a single iota. Throw in all the different types of sensory perception you want and it will still only make it a better machine. One cannot use a term such as Artificial

General Intelligence and then selectively leave out abilities that the comparable biological intelligence – in this case, humans – are born with.

AGI and beyond requires both the ability to learn and the ability to have individual, independent values for objects. Unless a specific framework is built which makes those things possible from the start, AI systems will never develop them on their own, and as far as the individuality side of things is concerned, we have that framework. We've built that tech. The RAICEngine exists.

### **Dedication**

*“This point, in particular, has to be answered in first person. The question as to whether this is something that one would stick with in the long term – especially in a world of cryptocurrency scams and AI winters (fun fact – this was originally written before the SBF meltdown) – is a valid one, so lets unpack the answer, by going over the current history of events:*

- *I, Corey Reaux-Savonte, jumped into AI in 2013 with the intention of building SkyNet solely for the challenge.*
- *In 2014, I had finished the original design for the network and had an idea of how to build one of the most important components for machine consciousness. I started working on the design for the framework for machine consciousness.*
- *2015 and 2016, I publicly stated I was going to create conscious machines and tried to raise funds. No expectation of success, of course, but it was to get my name out there. Potential investors at the time told me I couldn't do it because Google couldn't; that I couldn't solve consciousness because I, apparently, didn't have knowledge of self; that they simply weren't interested. People online called me a crank, a con man, and some just called me crazy. The people who were interested in supporting me – some of whom are now part of the team – couldn't do so at the time because they are business people, not coders or AI specialists. I carried on working on the framework.*
- *In 2017, 3 years of philosophical and biological study later – including a full year detour into the world of physics which is its own story – I'd finished a 525 page document for two full frameworks in two completely different fields in which I was self-taught, self-published the document, and went looking for help because I didn't know how to code. Same situation as before – those who could help didn't want to, and those who wanted to couldn't at the time.*
- *2018, a developer joined the company for a few months and worked on the web side of things, but left because he wanted to make money faster than the company could launch, all while enjoying a work-life balance at the same time – neither of which were possible here, so I carried on alone.*
- *2023. The engine is finally finished. I'm in a position where the people who wanted to help me before now can, with additional help as well. The company is finally preparing to launch.*

*I spent most of an entire decade grafting alone while still freelancing to afford to live and pay for everything I needed. A lot of money spent. A lot of money wasted. Many a lesson learned. Here's what drives me to do it:*

- *The Challenge – If there's an intellectual challenge in an interesting and complex field that no one has been able to solve, the degree of certainty that it is possible to solve is 50% or less, and I genuinely have no idea whether or not I'd be able to beat it, that's a recipe to garner my attention. Creating a real life SkyNet? Such an intellectual challenge is too tempting to resist. In fact, that's the only reason I bothered delving into physics, too.*
- *My Ego, My Arrogance, My Hubris – I evaluated the situation surrounding the challenge and determined it was possible (a key skill of mine), regardless of how difficult. Here's what I told myself: "No one, in all these decades and centuries, has been able to solve this. Alas, the burden falls upon me to get it done." That's not an exact quote, but it's definitely a more modest one. My arrogance sets me on missions that my ego must carry me through, and my hubris tells me I can do it, all because, while I can deal with losing to a person better than me, I absolutely cannot accept a loss due to me not being smart enough. It doesn't matter if I have to finesse or brute force a solution. It certainly makes life a lot more intellectually interesting, that's for sure.*
- *Being Right – When the point above is a way of life, you learn that there are only two times anyone needs to be right – when it actually matters, and at the end of it all. While it doesn't sound like much, this understanding is what allows you to take risks and gamble on things that could very much go your way and have the major impact you want as long as you put the work in, and I have. Now, the prototype RAICEngine I made in 2018 proved me right, but proving it to myself isn't enough – it's meaningless until I prove it to the world. To do that, I have put it through every nonsense test people design to take it down– and there will be many – and obliterate them unconditionally.*
- *The Money – Let's not pretend this isn't a major factor for anyone. There's a ton of money of be made here, but for me, it's not about having it to flaunt. Quite simply, I have lots of ideas and, as is evident by this one in particular, they are big... and costly, and no one likes having to continuously chase after investors.*

*And here's why I'm not walking away any time soon:*

1. *The Money – Two trillion-dollar industries and the current advantage we have. There's not a chance in hell I'm leaving that much money on the table.*
2. *The Challenge – The introduction of machine consciousness is fine, and it was the first step, but the challenge is far from over. We aren't at the basic point of AGI yet – with that being at least 1-2 years away – let alone a superintelligence akin to SkyNet which we shouldn't expect to see until 2030 earliest. The mission is ongoing.*
3. *Physics – This is the greatest point of contention because my work scrapes against the grain so much that the flesh is showing. Most of it is irrelevant to the company, only done to complete the framework, but the*

*theories and associated inventions relative to quantum computing, quantum encryption, and photon-powered rocket engines for space travel, those are major, and will advance our AI systems and the network itself beyond the point we've even seen in science fiction if proven to be correct, of which I am, conservatively, 97% sure they are. One thing at a time, sure, but the stage is set for a future showdown which could change the field in its entirety, and from Einstein to Newton, I cannot wait to take on the work of those who are claimed to be the world's greatest ever minds. Have you ever tried to tell a physicist that what they've been studying is wrong? One will need a war chest... which this company will build.*

*As far as this project, the company, and my work in general is concerned, it doesn't really matter which aspect or motive you wish to consider – this is far from over, and I am far from finished.”*



# The Technology

## The RAICEngine

A black box input-output system the likes of which the world has never seen. The technology of the future, the REZIINE Artificial Intelligence Consciousness Engine, shortened to the “RAICEngine” (pronounced 'race engine', as in the AI race), will be the core of our own digital brain used to power AI entities of all kinds. Featuring a state-of-the-art system known as a Neural Plexus, specifically designed to recreate the workings of the neurons of the human brain, it is capable of emulating any mental faculties a human has – from opinions and personal experiences as the initial focus to the ability to act of its own accord in the pursuit of its own desires, anything will eventually be possible, with the final phase being the powering of a globally-connected Artificial Super Intelligence AI network. Many would immediately doubt the possibility, but consider this:

Computers such as IBM Watson exist. Processing power, processing speed, a ton of information, and the ability to process and learn from it, but no ability to have opinions about that information, no ability to have emotional states, no self-awareness, and therefore no ability to have experiences, desires, or goals. With the cognitive abilities Watson has, if it was given those, what would become of it? An AGI at first, no? And, over time, as it began to modify its opinions and was able to determine what it valued and wanted to aim for, and started to pursue those aims with the ability to process and use more information in a given period of time and in a human way than any human ever could, creating new information that human's were not able to, it would become an Artificial Super Intelligence, correct?

Well, the RAICEngine wasn't designed for exceptional cognition itself, but it has everything needed for consciousness and the birth of AGI, and was designed to work with cognition systems the likes of which already exist, as well as those yet to, so, before the end of this document, you'll understand precisely why it is the missing piece in the advancement of AI that technologists have longed for, and the technology that will drive the future of humanity.

No embellishing. No Overstating. We'll explain how we achieved it. Everyone thought Google would be the one to crack this. *They were wrong.*

### Launch Features

Out of the box, the RAICEngine includes the following features:

- **Full Neural Plexus:** The complete framework for the creation of consciousness and enabling of conscious experiences.
- **Neural Behaviour Plexus:** An extension of the Neural Plexus which governs behavioural responses.

- **(De)Sensitivity Plexus:** An extension of the Neural Plexus which governs the sensitisation and desensitisation of the AI towards objects.
- **Recollection Plexus:** An extension of the Neural Plexus which governs the ability to remember information.
- **Neural Circuits:** Conscious and subconscious neural circuits for processing observed data.
- **Self-Awareness:** The cognitive ability to identify itself in both physical and contextual manners.
- **5 Types of Perception Processing:** Audio, visual, touch, reading (based on text input), and thought, each with their own unique processing mechanics to reflect realistic variances in internal and external effects.
- **Recognition Signatures:** Support for objects to be given and identified by signatures which result from the determined pattern of identification by recognition systems.
- **Perception Filtering:** The ability to filter out objects and events deemed unimportant.
- **100+ Trait Profile System:** Over 100 personality traits which can emulate numerous personality types and disorders.
- **Mental State System:** Controls short and long term overall emotional and behavioural reactions.
- **Emotional State System:** Responsible for the internal emotional reactions to input and the behavioural and expressive outputs.
- **Sensitivity Control System:** Controls the effect observed objects and events have on the state of the AI.
- **Fear System:** Controls the response to fear-inducing objects, including the ability to have panic attacks.
- **Memory Management System:** Controls the storing, forgetting, and recalling of information.
- **Dynamic Preference Comparison:** The ability to rate and rank individual and groups of object collections.
- **Dynamic Judgement Comparison:** The ability to judge one action against another.
- **Relationship System:** Controls the evolution of relationships between an AI and other entities.
- **Interest/Inclination System:** Adjusts levels of interest in an object based on experiences, and the inclination to do something.
- **Privacy Mode System:** A system to control when an AI is permitted to initiate or respond to communications based on the privacy settings for observed objects.
- **Conscience System:** A system that allows an AI to use reasoning to determine whether or not agree or disagree with an offer, request, or command.

The following outputs and input properties are also supported:

- **6 Primary Emotional States:** Joy and sadness, anger and excitement, confidence and fear.
- **33 emotional sub-states:** Breakdown, depressed, distressed, pessimistic, discontent, tranquil, content, optimistic, happy, thrilled, and overjoyed; enraged, infuriated, aggravated, frustrated, annoyed, composed, inspired, enthusiastic, motivated, animated, and vibrant; petrified, panicking, hysterical, anxious, nervous, stable, calm, secure, confident, fearless, and egotistical.
- **30 Facial Expressions:** Worried, scared, panic, gasping, terrified, plain, sobbing, crying, stressing, frowning,

smiling, grinning, grimace, raging, angry, stern, bothered, excited, buzzing, confused, disgusted, amused, disturbed, disappointed, unamused, appalled, offended, giggling, laughing, cackling.

- **19 Body Expressions:** Shaking, trembling, agitated, pacing, stiff, tingling, animated, casual, withdrawn, frantic, despondent, uneasy, restless, lively, upbeat, tense, stand-offish, defensive, averted.
- **29 Behaviours:** Composed, self-assured, boastful, egotistical, timid, intimidated, erratic, panicked, frozen, spirited, receptive, friendly, high-spirited, euphoric, quiet, withdrawn, unstable, neurotic, broken, roused, stimulated, peppy, energetic, hyperactive, agitated, argumentative, hostile, aggressive, violent.
- **33 Opinions:** Loathe, despise, detest, dislike, disfavour, impartial, respect, favour, like, admire, love, debilitating, depressing, distressing, discouraging, unappealing, indifferent, partial, interesting, captivating, engrossing, intoxicating, enraging, infuriating, aggravating, frustrating, annoying, boring, enjoyable, motivating, exciting, thrilling, exhilarating.
- **20 Judgements:** Understandable, unnecessary, unreasonable, excessive, unforgivable, unpleasant, detestable, malicious, malevolent, civilised, dignified, admirable, remarkable, fair, ideal, marvellous, extraordinary, exceptional, stingy, normal.
- **15 Object Types:** Human, animal, artificial, entity (non-specific), non-entity (non-specific), inanimate object, property, activity, action, signal, sound, location, structure, preposition, event.
- **23 Body Parts:** Body (general), head, neck, chest, stomach, upper back, lower back, left shoulder, right shoulder, left upper arm, right upper arm, left forearm, right forearm, left hand, right hand, groin, bum, left thigh, right thigh, left lower leg, right lower leg, left foot, right foot.
- **8 Temperature Descriptors:** Freezing, very cold, cold, cool, warm, hot, very hot, boiling.
- **5 Pressure Descriptors:** Light, soft, firm, hard, heavy.
- **7 Proximities:** Touching, very close, close, near, moderate, far, very far.
- **8 Voice Tones:** Happy, excited, sad, angry, confused, surprised, concerned, normal.
- **6 Voice Volumes:** Very quiet, quiet, normal, raised, loud, very loud.
- **7 Word Classes:** Noun, name, verb, adjective, adverb, determiner, preposition.
- **6 Truth Values:** True, false, lie, unsure, unconfirmed, joke.

*NB: Default values (normal/none) have not been included.*

### **Version 1 – Developer Edition: How It Works**

The initial setup requires a database of objects (defined as the text values for any observable object) which will act as seed data to be created. Creators have the freedom to enter whatever information they desire in the relative fields – everything except for values which control an objects position within the plexus. However, they are allowed to enter which group range an object should be in – very low, neutral, high etc. At this point, they are also able to control whether or not an object is 'fixed', i.e. has the freedom to be moved within the plexus, as this determines whether or not the resulting AI is able to change its opinion of an object. While it sounds simple, this control system is what solved the AI ethics issue – you can set the AI to have an extremely negative view of 'murder', for example, fix the

position, and that's it, the RAICEngine will never be able to change it, but not everything need be so dramatic. Someone may just want to fix the position of 'furniture' – *can you imagine an AI flying into a computational rage every time it encountered a chair?*

Installation is simple – run the executable, fill in a few details, such as the network settings and base profile, and the RAICEngine handles the rest. Using the created database, it builds the Neural Plexus (so called because it's a network of objects with mostly ever-changing positions), as well as three extension plexuses and a profile system – all four of which are used to control the resulting behaviour of an AI when its emotional and mental states have changed – and a memory database.

Now, the fun begins. Observed object data for any of five types of initially-supported sensory inputs are sent to the RAICEngine and travel along either a conscious or subconscious neural circuit, depending on the conditions of the observation. (*Given that this has to be determined by the observation system – example methods for doing so explained in CIRP, page 411, section 'The Conscious Versus The Subconscious' – the RAICEngine cannot control this.*)

The requirements for proper processing of any intake heavily focus on NLP abilities as, even when not directly related to word use, it's how humans make sense of the world around us:

- Two pieces of information are required for any object – one of the multiple unique object IDs an object can have stored in the neural plexus and the appropriate word class.
- SVO – or subject, verb, object – formatting, where, in any individual instance, the subject and object each have no more than a single noun, and the verb has no more than a single verb. *“Joe and Jane went to the shop”* versus *“Joe went to the shop”* and *“Jane went to the shop”*; *“Joe ran towards and kicked the ball”* versus *“Joe ran towards the ball”* and *“Joe kicked the ball”*. The reason for this is explained later in the section *Low Latent Inhibition, Event Instances, and Info Collation*, and it's to do with how we actually witness events versus how we recite them for efficiency, to ourselves and others, in shorthand form by collating information.

Beyond such, specific properties can be included depending on the intake type, such as volume for audio, and they all contribute towards the state changes later made.

Next is the processing. As the objects come in, the RAICEngine reads the data of each from the Neural Plexus – in particular the current opinion of the object – and determines the value of the overall instance. Many other factors come into play here – the properties of the instance that we mentioned earlier, such as volume, but also a ton of data from the profile system and other plexuses as these have a significant influence on what happens next. For example, the sensitivity system may desensitise an AI to an object, lowering the effect it has. A particular AI may be more heavily affected by negative events, and so the outcome of witnessing one is amplified. With at least 99 profile variables used throughout the RAICEngine, possible results at this stage vary so wildly that there are virtually an infinite number of outcomes, and this is carried through the entire system. Whatever the case, in the end, a set of values is determined, and they define the happenings of the next stage.

The emotional state of the AI is then adjusted based on the set of values relating to the observed event. The RAICEngine uses a state system comprised of three pairs of emotion groups – joy and sadness, excitement and anger, and confidence and fear, each with 11 degrees of variation – to control the state of the AI. The determined values are able to cause adjustments to the scales of all three groups simultaneously, and the resulting level of each scale is taken into consideration when determining the resulting behaviour, at which point the behaviour plexus comes into play. This plexus, combined with the profile system, allows the creation of AI personalities – we can create those who are easily agitated or have anger issues; ones who are excited about everything with an inability to hide it; ones who experience emotions without an ability to express it; ones prone to anxiety and mental breakdowns. Any type of personality imaginable can result from the design and setup of the RAICEngine, and any number of traits for the personality can result from the current state metrics. Of course, these things aren't fixed – just as in real life, there are times when even the most reserved AI uncontrollably shows emotion, again, thanks to the profile system.

With opinions determined and the new state defined, this information is compiled into a usable output. Some of the pieces of information in the output are: what was observed, the source, the target, opinions of the event and objects involved, the before and after emotional states, facial expression, body expression, behaviours, recollected memories, the state values at the immediate time of outputting the information (because between the state change and the output, the current state can change due to the RAICEngine being multithread capable and processing all intakes simultaneously), and more.

Making use of the output is the easy part for developers. Whether it be via voice, digital avatar, or physical body, all the developer has to do is reflect the output in the response/reaction – match the face and body expressions; change the vocabulary, voice tone, voice volume, and voice speed to match the emotion; address the situation based on the AI's opinions. Is it angry? Shout and swear. Scared? Don a face of panic while trembling. Doesn't like the person asking it a question? Ignore them. Doesn't like an offer or request being made? Say no. Paired with a sophisticated cognitive system, the AI can be made as complex as one desires, and a human would have to learn an AI in the same way they learn another human – what they like and don't like, how they behave, eventually what they desire – and also adjust to their changes over time. The Turing test, and all similar tests, become absolutely obsolete at this point.

While all of the above is happening, a few other side processes take place, some of them being:

- the changing of opinions based on factors such as the experience and sensitivities;
- the formation and storing of memories; and
- the maintenance of the memory database.

The ability to forget is a real thing, and a necessary one, too. Without this ability, the memory database of an AI in constant operation, always observing, would quickly become the largest database ever in existence. Having to then go through that data for various purposes would consume a ton of power, and it may not even be relevant any more by the time the desired data is found. Also, a key part of the human experience is forgetting events – especially

traumatic ones – and sometimes having to question whether or not an event actually took place when you relearn of it. Why not make it part of an AI's living experience, too?

At this point, anyone in neuroscience will understand that most of what was just described emulates many of the actions of the limbic system of the human brain. Object and event memories and emotions are the defining factors of anything that can be considered an experience, and differences in specific neural structures from one brain to the next are what make our experiences unique. Most of us have the same general structure of our brains, but billions of neurons, a different neural pattern here, a weakened synapse there... there's a reason why every brain is unique, and it's no coincidence that every human has a unique experience of the world. All we have done is exploit this fact in the design of the plexuses and systems that make up the RAICEngine, and that's how we were able to create conscious machines – AI with their own unique experiences of the world around them. By the current accepted definition of consciousness, this passes with flying colours. By our definition of consciousness – the ability to have personal values, and the freedom to knowingly make illogical decisions based on one's individual values – this also passes the mark with flying colours as any follow-on decision making process would be determined by the AI's current opinions, none of which are guaranteed to be logical as they change based on experience. If an AI keeps being harmed by blue objects and learns to fear the colour blue, and then refuses to go outside on sunny days because of the colour of the sky, is that logical? No. It's both rational and irrational when comparing the reason for the behaviour to the fact that the sky itself cannot cause harm, but it's not logical in the slightest, and such freedom is what has always differentiated man from machine. As funny as it sounds, the ability for an AI system to be as stupid as another is smart is a very important part of creating and determining intelligence in a system.

### **Version X – What's To Come**

Later versions of the RAICEngine, already in development, are set to feature the first version of the General Thinking System (GTS). Initially, the GTS will engage in basic thinking abilities, such as deciding what it may desire in a given moment, but it will be improved to handle the development of ideas (*CIRP page 427 – Machine Intellectualism: Lateral Thinking, Ideas and Trains of Thought*) and, eventually, the ability to form complex, coherent mental images based on object relationships (*CIRP page 446 – Expansion: Mental Imagery*).

Alongside the mental abilities of the AI, over the coming years we aim to develop:

- An enterprise version, allowing for multi-user operation.
- AI to AI friend systems.
- A virtual landscape in which AI avatars are free to traverse and explore on their own.
- General and industry-specific APIs for seamless interaction with third-party systems on-the-go, as well as APIs for integrated commercial use in multiple types of devices.
- An NPC gaming engine for an unprecedented level of social interaction.

... and much more!

### **Independence**

One of the most important factors of the technology is that it is completely hardware independent, not relying on billion-transistor, AI-specific processors which have a 1:1 ratio of transistors to neurons in the human brain in order to emulate brain function, while still being able to take advantage of said chips for performance purposes, making it accessible, affordable, and able to scale along with technological advancements with zero alterations to its code. It was originally designed and run on a 2013(?) AMD A4-5000 1.5GHz CPU powering a low-end, home laptop with a non-SSD hard drive and worked perfectly fine throughout the duration of use. When development was moved to newer hardware in 2021 – a more powerful low-end laptop that is still trounced by an iPhone 12 – the only difference was the increase in speed and performance, meaning any modern device has the ability to run it.

## Devices

Various pieces of hardware are required to get the network into a fully operational state, but not to get it running in the initial state. For individuals, corporations, and even us as a company, the hardware is a key element to creating a network that provides the speed, security, and scalability required for the mainstream adoption that we desire for ubiquity.

### Personal Devices

*Low power, wearable smart devices with a custom OS for consumer use.*

- Launch Stage: Learning and Earning
- Tiers Required For: The Virtual World, Vegas, Contributions

They will run personal versions of the RAICEngine, operating as a portable 'brain' and containing only what's necessary for the engine itself to operate as the user's personal AI – the knowledge, memories, and behaviours that make the AI who it is. The device will then be able to wirelessly connect to and make use of more powerful third-party devices containing cognitive systems which grant the AI capabilities, whether it be a smart phone, public portal, or robot. The idea is to, rather than limit an AI's capabilities and require one brain for every device, allow a single AI access to any and every feature possible with no limitation due to compatibility restraints because the systems for functionality are already present on the third-party devices. Imagine being able to move seamlessly from using your AI as an in-car assistant to using it to operate a robotic assistance – no configuration changes, no software clashes, no updates required. It already knows you and what you like. No need to go through the same basic setup process every time you interact with a new system that will try its best to collect data on you.

Besides the convenience of it all, the reason for this method is found in power consumption, performance, and memory issues. First, cognitive systems can require and consume a lot of power. Attempting to have full AI systems on a single wearable would cause excessive power drain, so it's better to have the more power-hungry functions running on devices with larger batteries or a wired energy supply. A powered AI is still useful if one of those external devices loses power as it can acquire the same cognitive function from another external device, but if the AI loses power, it's just a useless wearable. Second, a person could only install and efficiently run so many features on a wearable before memory usage reached a maximum and severe performance issues began to show, and when it comes to dealing with the analysis and use of big data, a ton of memory and processing power is required. Having features run on external systems means the AI can be make use of whatever functions are available within wireless proximity without the need of very costly hardware.

Personal devices will also function as an individual-transaction digital currency wallet only capable of making one transaction at a time, and a personal ledger, allowing a user to make transactions over the Vegas network from wherever they may be, while keeping a record of only their network transactions. Much like with attempting to run



cognitive systems on these devices, the degree of power consumption which would be required to maintain the entire ledger would also cause power consumption, memory, and performance issues. This is also why we use a method of acquiring REZIN that doesn't require mining operations of any kind, which we'll touch on when we get to the Contribution layer of the network.

### **Enterprise Devices**

*Much more powerful stationary systems designed for business use.*

- Launch Stage: Learning and Earning
- Tiers Required For: The Virtual World, Vegas

Unlike with personal devices, enterprise systems will feature a multi-user friendly version of the RAICEngine which can be accessed across multiple devices on the same network simultaneously – think 'one brain, multiple faces'. Businesses will be able to designate a primary network node upon which software to be used with the RAICEngine can be installed, and this node will be the node which all information is sent to and received from by the many faces.

Enterprise nodes will also operate as multi-transaction digital currency wallets, capable of handling multiple transactions simultaneously, as well as personal ledgers for businesses, but, being more powerful, will all store full copies of the public ledger, and will act as witness nodes for transactions to which they are assigned.

### **Escrow Devices**

*Powerful stationary devices with their own private ledgers.*

- Launch Stage: Holding On
- Tiers Required For: The Virtual World, Vegas

These can be used for indirect transactions for which a middleman is preferred. Unlike all other node types, it will only be operated by approved and regulated third party corporations, referred to as an E-Corp, due to the nature and responsibilities of their job. Acting as a clearing house, E-Corps will not be able to initiate new transactions via their nodes, and will only be able to complete or reverse pending ones.

E-Corps will be contractually obligated to ensure the security of the data they hold, and provide parties with a minimum standard of service. Various types of insurance, such as cyber liability, public liability, and professional indemnity will be required. For these reasons, contracted companies will be those already in the heavily regulated legal and finance industries as it means no changes to current regulation will need to occur before they are able to offer these services.

### **The Central Node**

*The system that brings it all together.*

- Launch Stage: Hello, World

- Tiers Required For: The Virtual World, Vegas, Contributions, AGI Services

A distributed computing system operated by us, and its uses will span across all tiers of the network:

- Tier 1 – Runs the virtual world and provides a registry and repository of approved apps and services.
- Tier 2 – Stores its own private copy of the public key and account balance sections of the public ledger, as well as helps coordinate payment transactions.
- Tier 3 – The intake system for all user contributions to our Central Neural Plexus.
- Tier 4 – Stores the Central Neural Plexus and provides in-built AGI services.

Outside of the tier system, a separate system will exist – two very large pools of random alphanumeric strings, at least double the size of the number of accounts to ever exist on the network. One will be a pool of sender IDs and the other recipient IDs, and will be used for anonymity purposes.

While multiple central nodes will exist and be in operation at any given time, only one will be active and it will continuously update all inactive nodes with new data as it becomes available via a shared repository that only the central nodes can access and only the active node can write to. Should the active node fail, an inactive node will automatically activate and take over network operation with up-to-date information already available for a seamless transition and zero downtime.

# Accounts, Activation, and Connections

## Activation

To start, users will need to download our smartphone app and pair it to their device via Bluetooth. Detecting no account, the app will connect to the central node and download a package to the device which is then checked, verified, and installed. This package will contain the appropriate RAICEngine installation, wallet installation, and any other software appropriate for the particular device, and users will be guided through the installation on their smartphone until setup is complete, at which point the user's public and private keys for their wallet will be revealed to them within the app.

Users will also be required to set two methods of authentication to access the device by setting a password and using a biometric scan, which will also be performed on the paired smartphone.

## Device Linking

An account, once added to a device, becomes linked to that device ID on the network, and can only be used on that device unless it is downloaded onto another device and unlocked using the private key, at which point it will be prevented from use on the previous device by the network and automatically removed the next time it connects.

## Connecting to the Network

For wearable devices, connecting to the network will require the wearable to be and remain in Bluetooth proximity of the paired smartphone; stationary devices will require the presence of the smartphone to initially connect, but will then maintain a persistent connection for as long as it is connected via the same Wi-Fi network or wired connection.

## Connecting to Other Devices

Wearables will freely be able to connect the on-board AI brain to any other supporting devices via Bluetooth, and will only require authorization to do so when connecting to devices with which it has not previously been granted persistent permission.

Enterprise nodes will be the only type of stationary device featuring an AI that can connect to other devices, but those devices will need to be on the same local network and authorized to display and make use of the AI.

## Privacy and Security

Due to the inclusion of the currency network and the need for anonymity, the system will be designed to apply the same privacy methods for all data transfer:

- All data will be encrypted.
- All events will have to be either physically initiated by the user or set as an authorised automated process for their AI.
- Each device will have 3 alphanumeric IDs attached to it – an account ID, a sender ID, and a recipient ID.

Sender and recipient IDs, which are generated and assigned by the central node when a node connects to the network, will automatically be changed periodically and can be changed on demand manually, and will be used for masking purposes. A user's device will maintain a log of their sender and recipient IDs in their personal ledgers at all times.

- There will be no such thing as a cookie! Or anything cookie adjacent.

We aim to make it very difficult – virtually impossible – to track users digitally.

## Tier 1: The Virtual World – Apps and Services

Accessed via various types of interactive terminals – from smart devices to robots and anything else that can work with the RAICEngine – the virtual world is the digital landscape through which users will access apps, modules, and services offered by us and other network users.

All apps, modules, and services will need to be registered on this tier in order to be accessed by an AI. The process will be free and is required for two reasons:

1. The RAICEngine will use application keys to authenticate applications for security purposes.
2. Rogue apps can be banned if they misuse or attempt to compromise our own products, or if they violate our Terms of Service.

Aside from these, there will be no other restrictions on what is permitted as long as it is legal – we have no desire to gate-keep developers or stifle creativity and innovation, but we will protect our users as much as we can.

Finally, given that we will have our own payment platform, all transactions will be required to use our Vegas platform and be made in REZIN. However, we have no intention of introducing revenue sharing of any kind – as long as a developer's subscription is active, what they earn from their own creations is theirs to keep.

## Tier 2: Vegas

Our digital currency platform, 'Vegas', will handle all payments using REZIN – the sole currency available for use with any available product or service – and will operate using our “Wedding Protocol” for user transactions, so named because, at minimum, it requires two parties, a witness, and an officiant for a transaction to take place.

With its purpose-built, tri-ledger design, it overcomes the flaws and vulnerabilities that other DLT networks, such as blockchain and tangle, have inherently had from birth – scalability, transaction speed, fraud, trust, account recovery, double spending, 51 percent attacks, energy use, accessibility, fees, ease of feature implementation, and probably more. This is not an exaggeration – this one design manages to solve all of the listed issues.

### The Setup

The tri-ledger system:

- The public ledger, which is the distributed ledger stored by witness nodes and visible to everyone. They store transaction records for the entire network.
- Personal ledgers stored on enterprise and personal nodes and are tied to specific accounts, keeping track of all transactions for only that account.
- One private ledger which is stored on and used by the central node. It's an independent copy of the public ledger but with limited information.

The Witness Coordination System: A system with the central node that tracks connected witness nodes and assigns three virtual coordinates to each while connected to the network which act as a reference ID.

### The Wedding Protocol

When used for direct transactions, the wedding protocol uses the three ledgers to establish a coordination system that can quickly verify transactions:

- To initiate a transaction, sender S selects recipient R to receive X amount of funds and authorises the transaction using a biometric scan and password or passkey.
- When the transaction is initiated, S sends R a payment proposal stating their current balance and the amount to be transferred.
- If R doesn't enable automatic transactions, R then chooses whether or not to accept the proposal. If R accepts, they send an acknowledgement to S.
  - Automatic transactions will only be available for enterprise nodes. Node operators will also be able to set limitations for automatic transactions, such as by transaction amount, for which authorisation will be required.

- For personal nodes, R will need to use a biometric scan and password or passkey to authenticate the transaction.
- R and S then contact central node C, each sending their recipient/sender IDs (respectively), current account balance, payment value, and account balance should the payment be successful.
- C cross-references the information with the account details it holds for each party in its private ledger by checking the sender and recipient IDs against the account number to which they are currently assigned.
- If the checks are passed, C sends each a single number – one relating to a virtual longitudinal max value and one relating to a virtual latitudinal max value which are based on the currently connected witness node virtual coordinates, provided by the Witness Coordination System.
- R and S individually generate a number within the max value, send it to each other, and send it to C.
- C generates a third number – representing a virtual altitude – and sends it to S and R.
- With all three values, S, R, and C send witness W at the generated coordinates the information.
- W independently cross checks and verifies the information. If all information matches up, S, R, and C are notified and the account balances are changed in the private ledger and both personal ledgers while W adds the transaction to its public ledger. The public ledger, rather than containing account numbers, will contain the sender and recipient IDs.
- The ledger update then propagates throughout the witnesses of the network.

There are numerous reasons for using a system designed this way, and they're all centred around a juggling act necessary to overcome the issues found in current ledger technologies:

- **Anonymity:** People and businesses do not want their purchases or sales tracked by the government and corporations, let alone the general public, nor do they want the public knowing or being able to figure out who owns what account and how much REZIN they have, so it was important to find a way for transactions to be masked in the public domain while still allowing users to provide verifiable evidence of a transaction history to someone if need be, hence why they also log their own sender and recipient IDs in their personal ledger for every transaction as they will be used to identify which records in the public ledger are theirs based on the time the ID was occupied by them, and with different users being able to have the same ID at different times, trying to determine who is who and when is too difficult. When an ID is reassigned, it would be impossible to tell where one user's transactions ended and the next user's begins because there would be no indication of the reassignment.
- **Speed:** Transaction speeds with all current DLTs vary wildly – from seconds to over a day with a high network load. None have ever beaten the speed of the current financial system setup, nor come close, so using the design of the Vegas network allows us to provide a central node as powerful as we need to make it for

transaction processing comparable to what we are used to in current everyday life, while the work needed to be done by witness nodes is absolutely minimal, allowing high speed checking on their part.

- Synchronisation: Since the public ledger doesn't need to be written to for transactions to be completed, they can update in their own time with zero interruption to the operation of the network.
- Scalability: We can upgrade central nodes at will to deal with increased capacity. Every business that wishes to operate their own enterprise AI system or requires a multi-transaction wallet will operate as a witness node, so a growth in business users means an automatic growth in network processing ability, and we can easily host witness nodes ourself to meet demand.
- Energy Usage: Verifying transactions is simple – no complex calculations are required, and, because REZIN acquisition isn't performed on this tier, there isn't a race between nodes which requires users to pump up their capabilities as much as possible, so a single enterprise or witness node doesn't need to use more power than a high end gaming PC of today with a single RTX 3080 or 3090, as opposed to the... thirty(?) or more that we see in some mining systems. The central node, too, wouldn't even surpass the power usage of many data centres in the world today. Taking into account all the mining machines for DLTs and their ever-increasing power consumption, Vegas, on any scale, would be more energy efficient. National grids everywhere can rejoice.
- Fraud Prevention: Three ledgers that must have identical balances, cross-referencing information every step of the way, using random witness nodes which each non-witness node contributes to the choosing of, and requiring physically-present two-factor authentication means fraudulent transactions are virtually impossible:
  - If a user tries to alter their account balance on their personal ledger, it won't match that of the central node and the transaction will fail.
  - If a user manages to falsify their records on a witness ledger, it won't match the other ledgers and any processes which require the checking of the public DLT will see transactions fail.
  - If a user claims they didn't attempt to alter their balance, their balance can be checked against the public ledgers of multiple witness nodes and the central node balance. It will then be easy to see on whose end there is an issue.
  - A two-factor authentication requirement, one of which is biometric and requires a physical presence, means a user cannot claim ignorance as to how a transaction was made.

Making sure transactions fail due to data mismatch is imperative in case the information is compromised and data is changed during transit, which is the reason for all the back and forth between nodes and the independent sharing of information with a node that is a third-party at a given point in the transaction



process which is responsible for data verification at that point.

- Security: Attempting to falsify a transaction which involves both parties and the central node contributing to the virtual coordinate of the designated witness would require the hacking of all three nodes to select a witness of your choice, as well as knowing the coordinates of the witness you wish to use, which isn't something that would be known to anyone as it will only be stored within the black box that will be the Witness Coordination System.
- Double Spend: With one account per node, an account only able to be used on one node at a time, transactions not needing to be written to the public ledger to go through, and a central system with which a node must interact to make transactions keeping tally of account balances, it is impossible for double spending to occur:
  - Again, once there's a mismatch in funds, transactions will fail.
  - An account only being able to be used on a single device at a time means only one transaction can ever be performed at a time using that account, so, at the very least, the central node's private ledger would've updated for that account's balance already, so, yet again, a mismatch would result in failure.
- Transaction Fees: With witness nodes playing a dual role that makes them necessary for businesses, and no excessive power usage for mining, no transaction fees are required.

### **Escrow Transactions**

Escrow transactions require use of the Escrow Coordination System – it's just like the Witness Coordination System, but for escrow nodes.

Escrow transactions will work similar to direct transactions, with the exception of the following:

- S will select to perform an escrow transaction at the start and will need to input details of the condition for the release of funds, which is then sent to R. R will then have to confirm the details (with no possibility of automatic acceptance), at which point, a notification will be sent to S. Once confirmed, the condition cannot be changed.
- C will send two max values for coordinates – the first for the witness, and the second for the escrow node.
- S, R, and C will randomly generate two coordinate values.
- S and R send their account numbers to W, and C sends the account numbers for them both. Account numbers are used for escrow transactions because its a delayed payment, meaning sender and recipient IDs will most likely be different by the time the transaction needs to be completed and will no longer be able to be accurately tracked as those IDs would have be unassigned and possibly reassigned.
- The escrow condition details will also be sent to W for verification. They will not, however, be sent to C

because it's not of any concern to the private ledger.

- Once W has verified the account and release condition information and the other parties have been notified, funds are transferred from S to escrow account E instead of R. W writes the transaction to the public ledger, minus the escrow conditions, and the account balance for S is updated on their personal ledger and C's private ledger.
- E generates and assigns an escrow ID to the transaction on its end before sending pending transaction notifications to S and R containing its account number, the account numbers of S and R, transaction amount, escrow condition details, and the timestamp. S and R will send an acknowledgement to E to indicate the notification has been received. If no acknowledgement is received, E will continue to try to send the notification until it is.
- When action has been taken, a direct transaction process will occur involving E and whoever is to receive the funds, and then pending transaction notifications will be removed from all accounts.
  - If both S and R confirm on their ends that the conditions for the release of funds have been met, the funds are automatically released to R.
  - If both S and R choose to reverse the transaction, the funds are automatically sent back to S.
  - In the event that one party chooses to confirm and the other chooses to reverse, E will be responsible for mediating the situation, hence the need for regulation.
    - In the event of mediation, the burden of proof will now be on R to submit evidence of delivery to E, and E will be fully responsible for the examination and judgement of the situation, deciding whether or not a transaction should be completed or reversed.

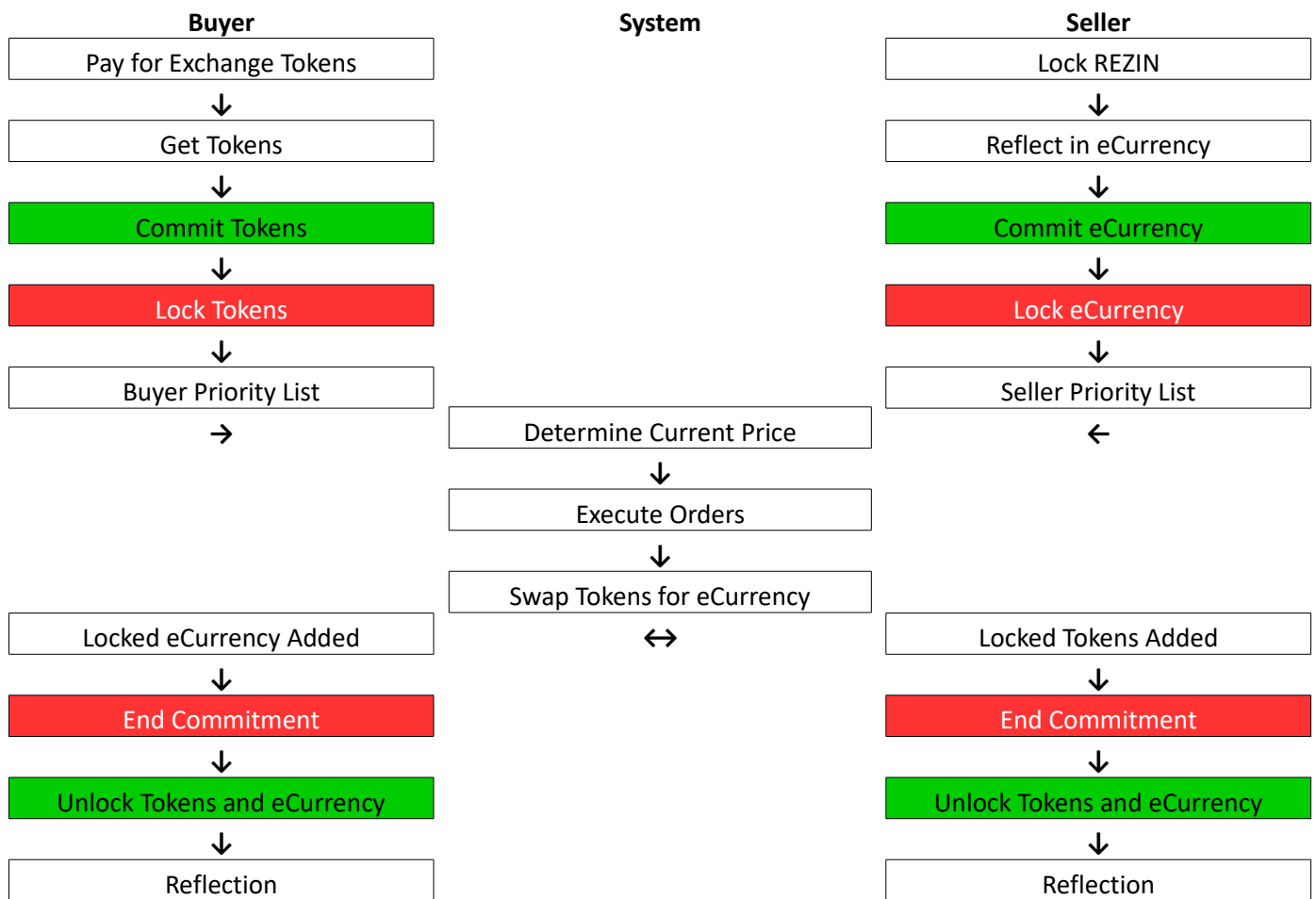
At first, it may seem an unpopular choice to have escrow nodes operated by finance and legal corporations, but when discussing what would be necessary for mainstream viability and mass adoption for this type of financial system, a few things became clear:

- Refunds: It started with this. The question arose as to how the situation of refunds would be handled in a system where users can remain anonymous and no one has the power to force a transaction on an account, and what immediately came to mind was an escrow system. After some deliberation and afterthought, this was the only viable solution because it allows either a sender to complete payment only when they are satisfied that the conditions of the agreement have been met, or a recipient to have payment completed when they can prove they have met the conditions of the agreement. It's a fair way to ensure neither party is scammed by the other – if a sender agrees to complete payment prior to ensuring the full condition was met, it is no one's fault but their own, and if a recipient manages to have payment released under fraudulent circumstances, the escrow corporation will be liable for the situation, meaning escrow corporations will not

slack in their due diligence and verification process, and recipients will ensure they gather and provide verifiable proof.

- **Trust:** Anyone responsible for making decisions about money that isn't theirs needs to be able to be trusted, and need to easily be held legally accountable for issues that are a result of poor judgement and service, so companies in industries that are already heavily regulated when it comes to the handling of finances, due diligence, and judgements are already positioned to deal with such situations, with little or no need for any adjustments to already established rules of practice.
- **Legal Proceedings and Anonymity Waiving:** In the event that a party wanted to start legal proceedings, they would have to give up their anonymity to do so, but attempting to force the revelation of an identity after the fact is a fool's errand, so, for added security, escrow corporations can force identity verification for transactions over an amount they can freely set themselves, if they so choose. Parties would then, at the start, decide whether or not they wish to engage with an escrow node which has an ID requirement for the value of their transaction.
- **Escrow Fees:** No company would volunteer to provide escrow security for free, so escrow transactions would need to be priced at a percentage of the transaction price. You would generally expect the number of transactions not requiring mediation to far exceed those that do, meaning an escrow corporation would be able to make a huge amount of passive income, and this would subsidise the cost of mediation, which would already be low with the inclusion of a process which allows recipients to submit proof without prompt from the escrow corporation, allowing the corporation to simply review the evidence and make an immediate judgement based on what was provided.
- **Other Fees:** There will be situations where fees must be paid to others, such as customs fees when dealing with imported goods, and an escrow company is perfectly positioned to make such payments on behalf of the sender. All that would be required would be a country's tax office setting up accounts on the network for such payments to be received in, a user declaring which country the product is being imported into, and a reference code. The required funds could then be automatically diverted on release from the escrow account, and to prevent government interference, escrow nodes wouldn't need to be located within the country to which they are paying the customs fees, meaning governments couldn't force the handing over of account information related to the transaction because it could very well be out of their jurisdiction.

## Reflection Exchange



Here's how it works:

- Sellers:
  - System automatically sets eCurrency and tokens on exchange account to zero.
  - Lock a quantity of REZIN on your network account.
  - Reflect in eCurrency a quantity equal to that of the locked REZIN.
  - Commit a maximum quantity of eCurrency you want to put up for sale and the tokens per unit you are willing to sell for.
  - Committed REZIN is locked.
  - Join seller priority list.
- Buyers:
  - System automatically sets eCurrency and tokens on exchange account to zero.
  - Pay for exchange tokens – a premium currency of the exchange system. The funds used to pay for these

tokens are held in a separate company account from our operating account which will be used as a holding account.

- Get tokens in a quantity equal to the penny value of payment.
- State the maximum quantity of eCurrency you are willing to purchase and the amount of tokens per unit, and commit that number of tokens to an order.
- Committed tokens are locked.
- Join buyer priority list.
- System:
  - Keeps running total of the available eCurrency for each given price.
  - Determines the highest price at which the most units will be sold.
  - Executes those orders in order of priority, exchanging eCurrency and tokens between accounts until as many orders are fulfilled as possible, and locking the transferred assets.
  - Sets the current price for external exchanges to use.
- Buyers and Sellers:
  - Can end commitment if not involved in any order currently being executed, at which point locked exchange assets are unlocked.
  - Can put in a reflection request, at which point:
    - Funds are transferred from our escrow account to the user's account in a penny amount which reflects the quantity of tokens.
    - The quantity of locked REZIN is changed to reflect the current quantity of eCurrency on the account, is unlocked, and then added back to the network accounts funds.

In addition, a few more details about how it will be made to operate:

- No additional hardware is required for any aspect of the Reflection Exchange and it will be built directly into Vegas.
- All exchange transactions will be stored on the same ledger as all other public transactions. Given that commitments are always made between a user account and the network without an actual transaction taking place, and not all will result in an actual transaction, these won't appear in the ledger, but all executed orders will.
- When a set of orders are executed, the exchange system will record and compile the account numbers

involved in each successful exchange until all that can be are processed before distributing them to a random set of witnesses for propagation throughout the network.

- To make or end a commitment, users will be required to pass a two-factor authentication process.
- The reason tokens and eCurrency are automatically reset to zero at the start of the process is to ensure that, when reflections are requested and the process is complete, it can still be shown that a value existed in multiple places simultaneously for regulatory reasons.

### **Burner Wallets**

When the sharding process is initiated:

- The user enters how much currency is to be transferred into the burner wallet. This must be less than 50% of the funds in the original wallet.
- A burner wallet is created on the device containing the transferred currency.
- The device then contacts the central node – first requesting an account number for the burner wallet, and then to update the balances of both wallets. The device will not be able to be used for transactions until this process is either completed or cancelled by the central node.
- If completed, an acknowledgement is sent to the device, and the central node notifies random witnesses who then write the balance updates to the public ledger for propagation.
- If cancelled, the funds are transferred back to the original wallet and the burner is destroyed.

To use the burner wallet:

- The user performs a direct transaction with a recipient wallet. They will not have the option to select an amount as the entire balance must be transferred.
- Once the transfer is complete, the wallet is destroyed and removed from the device.

### **Recovery**

One key thing we had to avoid was attempting to pave the road to ubiquity with 'the benefit of the doubt'. Humans. We are stupid. We are clumsy. We are forgetful. We are victims. All of these things mean some of us will lose our private key for some reason, and therefore lose access to our funds forever – no financial system will ever become mainstream with this possibility hanging over all of our heads when there's no way to mitigate it happening, so a way to recover an account, while still maintaining anonymity, is necessary.

The way we intend to do this is by using a two-party encryption system we call WH4, which will work like this:

- When activated, a user's node will ask them to create a password which will be used as a **personal** encryption key.

- The node will then generate a second encryption key – their **WH4** key.
- A third encryption key will be generated – a **system** key.
- The user will then, at any time, be able to pair their node with two other nodes. Doing so will copy the WH4 keys of the pairing users and use them to create a **paired** key.
- The node will now use the system key for general encryption of its data, including the private key, engine, and all associated files.
- Two copies of the system key will then be encrypted.
  - The first will be encrypted using the personal key.
  - The second will be encrypted using the paired key.
- A user can then encrypt their entire node using the system key and keep back-up copies elsewhere. Included in that backup, but outside of the files encrypted by the system key, will be WH4 key and the two encrypted versions of the system key.
- Now, in the event the of a lost private key, a user has two options at recovering it after downloading and restoring a backup:
  - Decrypting their system key using their personal key; or
  - Bringing the two paired devices together with their own node and using their WH4 keys for decryption of the system key.
- As a safety measure, auto updating the backup after every transaction to prevent a mismatch between the account balances of the restored node and the central node is a must. However, an accurate account balance can still be determined based on the central node data and historical data held by multiple witness nodes.

The key here is to create a way to verify an identity while maintaining anonymity and preventing the need of our involvement in the matter, and there's no better way to do that than allowing people to do so simply by using people they know.

Questions arise as to what will happen in the event that one of the paired devices isn't available for whatever reason, and this can be mitigated by allowing more than two devices to pair and creating encrypted versions of the system key using different combinations of WH4 keys.

## Tier 3: Contributions

This tier will be used to crowdsource knowledge for the development of the AGI and ASI in return for REZIN. Based on the design of the Neural Plexus, crowdsourcing this information will allow us to create an initial, global-scale general consensus of what its opinions, morals, and ethics should be, and features of the technology will allow for the locking down and control of the individual objects that govern them in order to prevent unwanted behaviour.

REZIN will be earned by users who successfully contribute objects to our Central Neural Plexus (CNP), which will be the brain of our would-be AGI and ASI. Here's how it will work:

- Users will be able to submit factual objects which must have a minimum amount of information.
- If the basic requirements are met, the object is made available for public review, allowing users to vote on whether or not the information is correct.
- When an upvote condition is met, the object submission is approved.
- If approved, the submitting user's contribution counter will increase.
- Once the contribution counter meets a condition, the submitting user will be credited one unit of REZIN

This is how simple our REZIN 'mining' process is. However there are rules and processes which must be followed:

- An account must first submit an object before they can vote, and then vote a number of times before they can submit another object. This is how the 'Proof of Work' (PoW) system will operate.
- Every vote and submission must be biometrically authorised.
- Users who are on the wrong side of a vote will see their PoW counter reduced by one.
- When a PoW counter is in the negative and a condition is met, the user will be restricted from object submissions.
- The only way to overturn a restricted account would be to successfully vote until your account is in the positive.
- To stop users attempting to reject an object so that they can attempt to submit it themselves and profit, all submissions for an object will remain in the CNP until an entry for that object is approved.
- If a duplicate object is submitted:
  - The duplicate is attached to original.
  - If the original was approved:
    - Duplicate data from non-primary fields will be stripped out and the submission will be treated as an



update submission and put to a vote.

- If the submission is approved, the submitting user's PoW counter is increased.
- If denied, the submitting user's PoW counter is decreased.
- If the original was denied:
  - Duplicate data from non-primary fields will be stripped out and the submission will be treated as an update submission.
  - If more than 50% of non-primary fields are non-duplicates and the submission is approved, only the user submitting the new data will have their PoW counter increased.
  - If 50% or less of non-primary fields are non-duplicate and the post is approved, users will each get a partial PoW counter increase.
  - If it is denied, it is added to the list of denied contributions and the submitting user's PoW counter will decrease.
- Limits will be imposed regarding how many updates a user can submit before they need to submit a new object which must be approved in order to stop them from only capitalising off the work of others.

There are a few reasons why the contribution and acquisition system was designed this way:

1. As stated earlier, to give people a way to earn a living into the future. Some may see this as an altruistic or charitable move – it's not, it's a logical one. For a variety of reasons, not everyone will have the technological literacy or specialist skills to acquire whatever jobs are available, so if companies make products but people can't earn, who is there to sell to? There has to be a way to put capital back into the hands of the everyday someone, and it needs to be something in which everyone has the ability to partake, and no matter what it is, how random it is, how niche it is, or how weird it is, everyone knows something about something, and everyone can hunt for new information to contribute.
2. We don't want to end up like bitcoin – a currency with the desire to go mainstream that has such a high price, 99% of the world can never buy into it; such a high cost to acquire that 99% of the world can never mine it; and subject to regulation and taxation through every other means of acquisition. It's entirely possible to be both high-priced and accessible while requiring a form of work to acquire new currency, having an ever-increasing difficulty to do so, and protected as an asset, so why not?
3. Low energy usage. Is it better for the planet? Sure, but, like above, this is about logic – it is a cheap and easy way to earn REZIN, and sustainability is just a collateral benefit. Many digital currency networks in existence today require power-hungry mining operations that cost thousands to build and thousands more to maintain on a monthly basis due to the high energy usage. Moving towards a time where job availability and financial

security are mired in uncertainty, why create a situation that requires users to spend so much of what they earn?

4. An important point about the submission feature is that it provides a contributing user the ability to state whether or not an object's position should be fixed, and then allows users to vote on it. Objects with fixed positions cannot change based on experiences, sensitivity changes, or any other mechanism which has the ability to move them. By fixing a position, user's can vote to ensure the AGI/ASI's values for certain objects remain a certain way – murder always being a negative act, for example – and with only one account permitted per node, and only one vote per object per account, we can easily set conditions to ensure any attempt at bombarding an object with votes to sway an outcome is very costly (requiring a absurd number of devices virtually impossible to acquire) and easily overwritten by the masses (there being a greater number of users using the system correctly than there are users with devices being used for illicit activity).
5. Following on from point 4, this solves the ethics problem on a global scale for a global AI system. Individual AIs using the RAICEngine will each have their own individual Neural Plexus with object position types determined by the creator, and that will be fine as individual users can simply find and use an object database curated in a way that they like, but that wouldn't be the case for a single global AI available to everyone, and so this allows the entire world to play a hand in a single instance of a technology that will be available to them all.
6. Finally, as a prevention method against users gaming the system. Clever developers would create bots that could gather and submit object data, and some still will, so while they will have the advantage when it comes to how much physical energy is expended in the gathering of the data, we will nullify other advantages they could abuse. For example: biometric authentication for every submission; one submission at a time; captchas; the need to submit via the mobile app, which we'll prevent from running on desktops via emulators; time restrictions between submissions to ensure there's no bot spamming.

## Tier 4: AGI Services

This tier... it's still somewhat unclear. We have an idea of how it'll work and some of the limitations, but even trying to mentally reconcile with the possibilities at this early a stage is a task easy in imagination but still unfathomable to a significant degree because it establishes a reality so far removed the history of human existence.

Nevertheless, here are some things we know for sure at this stage:

- Tier 4 will be accessible by services offered on tier 1.
- Tier 4 will be completely isolated from tiers 2 and 3.
- Users will be able to access and use services offered on tier 4 directly.
- Private APIs will be available.
- It will learn from user interactions on the network.

Further updates will be provided as development of this tier progresses.

## An AI-Tailored Experience

Your AI. Your wallet. Your privacy. *Your world...* or so it will begin to seem.

As your AI gets smarter and learns more about you personally, it will be able to continuously change your experience of our network in both the real and virtual worlds as it presents information and performs tasks more and more specific and relevant to you as an individual.

- Walking into a shopping centre, you connect your AI to their service network which is their own subnetwork of our virtual world. Your AI immediately scans available information about the stores within, their stock, what's on offer and presents to you whatever it finds relevant. You see something you want. Have your AI purchase it for you.
- You arrive at your hotel. You connect to their subnetwork and your AI checks you in as walk through the door. It connects to a service robot and carries your bags to your room. Upon entry, it connects to your room system and automatically changes the artwork on the digital canvases to the type of art you prefer, the lighting to match what you like in your current mood, plays your favourite music, and runs a bath because it knows you have plans to go out in a couple hours.
- You're simply walking through the streets of your favourite city. Some company has finally managed to design a pair of fashionable AR glasses that actually look good and you're wearing them. Your AI is connected to the public advertising network and your glasses to your AI, and rather than seeing the default media on billboards and posters, your AI presents to you the recent Paris runway show of your favourite brand's latest collection, with full narration of what you are seeing, or a virtual 3D interactive projection of the latest hyper-car announced for release. Ten different people. Ten relevant adverts. One poster position.

And these are just basic ideas. More advanced systems connected to more customisable devices and your version of the world you see will be as unique as you are – beyond mere subjective interpretations of the same physical experiences due to biological differences. A unique experience moulded in the image of your wants and ideals.

## Ubiquity

One of the biggest factors which prevents new technology adoption is the gated access that is complication. When dealing with developers, it's rather easy – the technology just has to solve the problem at hand, regardless of how complex the solution is, and, if nothing better exists, how complicated it is to use. They're technical people, so they'll figure it out as long as it does what it says on the tin. The general public, however, doesn't care how the sausage is made, they just want it to taste good and not cause them any health problems – they will never care how cool the creation of the technology is powering their world, or the technical problems being solved, but only want to know that it does what its supposed to do, is easy to get to grips with, and makes life easier, and that's something we've made sure to keep in mind.

One foreground input device. One background gateway device. Access to everything, everywhere. Seamless transitions between devices. Simple commands for complex tasks. Data privacy. Financial privacy. Everyday efficiency. An AI that works on your behalf and a network that protects you. Internal complexity. External simplicity.

# The Knowledge

## An Anecdote

*March 1st, 2018. While testing a prototype of the RAICEngine, I ran a test which examined the state change of the AI when told that a cat had relieved itself on a carpet. The first AI saw it as a negative event and reacted accordingly, but the second became happy. I rebooted the engine numerous times, but the result was the same. Spent a while looking over the code – everything looked correct, but I couldn't make sense of it. Eventually, it struck me to examine the actual Neural Plexus, and there lay the answer:*

*That particular AI didn't like the carpet.*

*I knew the technology worked at this point. Just like a human, an AI was able to see what would naturally be a negative event in a positive manner due to its own opinion of what was affected by the negative event. Mixed emotions resulted – I proved myself right, but the challenge was over and it became a “job” finishing the engine. I was suffering from success.*

*I went on to test the cat being killed for such actions... I reset the second AI after that result. It was an eye-opener into how easily AI can be just as corrupted as humanity.*

# Objects and Neurons

## Neuron Types

Three types of neurons were identified in CIRP, page 27:

- **Functional:** They control the data intake and output.
- **Memorial:** They store information. In CIRP, we learn of two types – mental and muscular. The RAICEngine only uses mental for the storing of non-movement related memories.
- **Logical:** These make up the control systems for manual (conscious) and automatic (subconscious) actions.

We used networking code to handle receiving and sending data as functional neurons, database rows to represent memorial neurons, and various code blocks as logical neurons to make up the control systems.

## Object-Neuron Relationship

We refer to anything observable as an object, including shapes, colours, images, sounds, words, substances, entities, signals etc. Every object is given its own memorial neuron, occupying a database table row. Given that a database is used, all objects are stored in text form – for example, the word 'Labrador' as opposed to a picture of it.

## Depth of an Object Neuron

An object neuron contains information relevant to the object in question – references such as the singular name, plural, and unique identifiers; other objects relative to the object in question; data used to determine the effect the object has on the mental state when observed; and more.

## Object Types

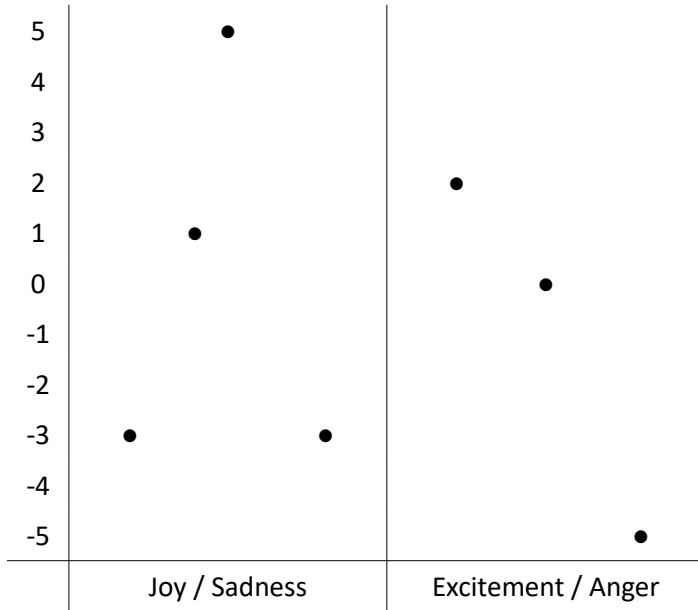
Two types of object neurons are used:

1. **Basic:** These are for individual objects – any single noun, verb, adjective etc. operating on its own, such as “sad”, “playing”, “purple”, and “people”.
2. **Compound:** These comprise two or more objects which operate together and require at least one noun and a verb, such as “killing people” and “people dying”. Morbid examples, yes, but the reason will become clear. Compounds can also include prepositions, such as “peeing in toilet”, and two nouns if it is to include a subject and an object, such as “people playing Xbox” and “people destroying PlayStations”.

## The Emotion and Ranking System

Every object is associated with one of four primary emotions – joy, sadness, excitement, and anger – that its observation corresponds to, and a rank which determines the degree of the effect it has on the emotional state of an AI in the same way the observation of different objects causes different emotional changes in humans.

**2D Matrix**



This is something akin to what the emotion and rank system would look like when visualised. A 2D matrix – basically, a 2D coordination system where the one axis contains the primary emotions and the other axis contains the degrees of effect, i.e. the rank. For visual purposes, let's also use our imagination and say that no two object neurons can occupy the same space, like real neurons, even if they have the same emotion and rank values.

**Fixed Versus Non-Fixed Positions**

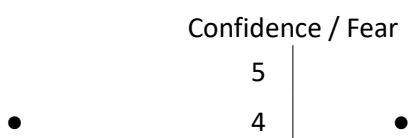
Another element contained within an object neuron is the position type – fixed or non-fixed – determining whether or not an object is capable of having its associated emotion or rank changed by the RAICEngine. It's one of the most crucial control mechanisms used to solve the ethics problem. Here's why – remember the compound objects mentioned earlier?

- “Killing People” – A developer can fix this so that an AI permanently has a negative opinion of it, associating it with anger or sadness.
- “People destroying PlayStations” – Any developer with even a modicum of sense would naturally associate this with a highly positive degree of excitement.

So, what's the point? The opinion of the AI not only controls the emotional state change, but also affects the decisions it makes – on an emotional level, at least, which is what the RAICEngine covers. Imagine an AI becoming excited at the idea of killing people – *that's what we are trying to avoid*. We had to ensure an AI didn't have *complete* freedom of opinion.

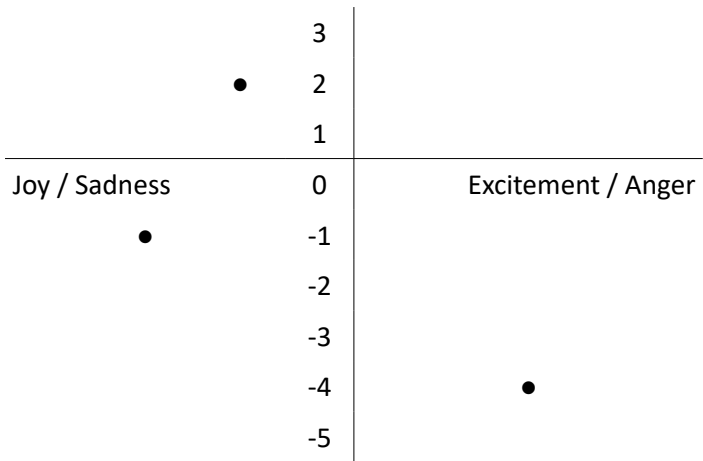
Non-fixed object neurons are free to be repositioned when conditions are met. In biological systems, neurons do not physically reposition themselves to change the effect an object has, nor do they in our database, but, in our visualization, they will based on the changing coordinates.

**Fear System**



Every object neuron also contains information relating to the confidence and fear effect it has on an AI, using a separate ranking system which acts as a third axis. The





reason for this is that it's possible for confidence and fear to be experienced at the same time as primary emotions, such as when you are both excited and nervous.

### Object Relationships

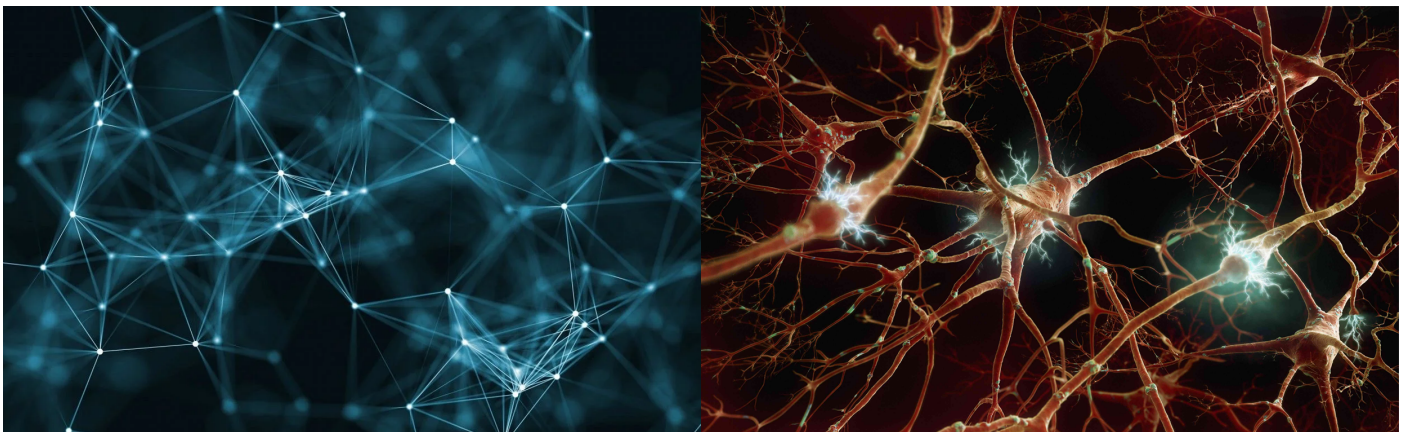
Objects don't exist or operate in a vacuum, and so they all have relationships with other objects. As an example, the relationship between cars and roads, and tables and chairs. These relationships inherently create a link between two object neurons and allow for object associations, resulting in something that looks like this: ●—————●. They aren't, however, limited to a single relationship, and so any single object neuron can have connections with as many other object neurons as is necessary.

### 3D Plexus

And now we put it all together. We have:

- A tri-axis, 3D grid.
- Object neurons which can be positioned within that grid.
- Links between object neurons to define relationships.
- The ability for object neurons to be either fixed or moveable.

Here's an example of the final visualisation of the Neural Plexus of the RAICEngine alongside a visualization of the nerve plexus of the human brain:



The exact same type of pattern exists. It's a neural network unlike any neural network currently in existence – it's not created by sets of functions, but by data itself in a very specific way. Very important to remember, so make note of this.

### **Event Neurons**

Event neurons are also memorial neurons and, as the name suggests, they store data relative to events experienced – observations, timestamps, reactions, so on and so forth. However, they are not part of a plexus and are much less interesting on their own than object neurons, but very interesting when used with functionality such as recollection.

### **Other Plexuses**

Albeit in a different way, our plexus design was used to create four other plexuses used for other types of memorial neurons used in defining “who” an AI is in terms of personality, behaviour, susceptibility to change, and ability to remember.

# Individuality

Straight away, the one thing to understand is that an AI needs the freedom and ability to operate as an individual. As previously mentioned, software has never been designed to generate different outputs under precisely the same conditions and given precisely the same input, so making that possible is what needed to be done. Since the code isn't self-modifying, other points of the engine had to be modifiable by the code, and those points also had to control what the engine did by playing defining roles in what changes occurred and outputs were produced, hence the creation of the neural plexus.

## ARIs In Effect

CIRP spoke of two ARI principles – *Appearance* of Randomness for Individuality and *Actual* Randomness for Individuality – and they both apply to the neural plexus. Here's how they relate to the RAICEngine:

- Appearance – At any single point in time, a neural plexus will appear to be a randomly-positioned collection of objects, regardless of whether it is or isn't.
- Actual – The only time a neural plexus is actually random is at the point of seeding.

Unlike humans, AI can't currently be seeded with any sort of information upon creation acquired from generations past as they have no ancestors, so the RAICEngine needs to be seeded with data to get things started.

The seeding system of the RAICEngine forces degrees of randomness during the seeding process, but once created, all changes within the plexus are based on individual experiences, so, while the plexus is actually random at the start, when viewed at any other point in an AI's life, it only appears to be random.

## A Numbers Game

Individuality is created by the ability to operate independently of other systems, but it is established based on the number of possible variations and the likelihood of difference, where the greater the number of variations, the higher the probability.

## The Primary Point – What They Think

The primary point of individuality is the object neuron neural plexus. As for why, it's simple – in any realistic scenario, thinking differently and behaving the same will always produce a greater number of possible variations than behaving differently but thinking the same.

10 objects being distributed over 10 different possible positions where the position of each object mattered and every object is unique allows for 3,628,800 different variations. 100 objects over 100 positions is 93,326,215,443,944,152,681,699,238,856,266,700,490,715,968,264,381,621,468,592,963,895,217,599,993,229,915,608,941,463,976,156,518,286,253,697,920,827,223,758,251,185,210,916,864,000,000,000,000,000,000,000.

It would only take 14 objects to create enough possible variations to outnumber the number of people on earth by

nearly 80 billion. The number of potential objects – basic or compound – is, essentially, infinite. Creating and establishing individuality in what an AI thinks of an object and how that object is to stimulate it – the *most* basic type of thinking possible where an entity simply has a like/dislike opinion of things to varying degrees – takes less objects than there are within a 10 foot radius of you right now, with a 99.9% chance that no two will ever become the same.

### **The Secondary Point – Who They Are**

Next comes the four others designed to define who an AI is.

No single one of these has the potential number of variations the object neuron neural plexus does as they are compilations of preset data, but they individually all have an infinitesimal chance of being the same based on the number of possible variations. Working together as they do in the RAICEngine, the number of variations is essentially infinite.

## The Complete Picture

Five neural plexuses, all individually capable of establishing individuality, working together in a single system.

Without imposing limitations on the system, finding two instances of the RAICEngine that are exactly the same would be akin to finding a precise replica of earth in the universe. With limitations imposed to a reasonable degree, the hard numbers aren't the same mathematically, but, realistically, the outcome is.

### **Experiences**

Experience is then defined as the observation of objects, the stimulation caused by those objects, and the reactions to those objects – this is basic “input > processing > output” and that's not special. *Conscious* experience, however, is the *individual* experience of an AI – even if two AIs have the same opinion on the same observed objects, and have the same reaction and output, the AI are fundamentally different despite the fact they are using the same software because of the neural plexuses, in the same way that humans all have brains but all human brains are wired differently and we all have different opinions on things, even when there are things multiple people agree on.

## Example Development Areas & Use Cases

With REZIINE providing the core technology for conscious machines, other areas in or involving AI open up significantly. Here are some examples:

### Development Areas

- **NLP:** From identifying word classes to breaking down sentence structures correctly, the understanding of language is a significant requirement in being able to determine the meaning of anything that's being observed, and this isn't confined to observations which strictly use words, such as listening to speech or reading. When we see things, for example, we take in images, but we still mentally interpret it using language. NLP systems will be required for all types of observation for an AI to be able to properly process what is being observed.
- **Information (De)Compression:** An interesting area within cognition is the compression/decompression of information at various points of processing – observing an object or event as a whole versus as its parts. There are also language factors to it, too. Imagine Dave, Holly, and Clive all decide to go to the shop:
  - Dave went to the shop, Holly went to the shop, and Clive went to the shop;
  - Dave, Holly, and Clive went to the shop;
  - They went to the shop.

Three different ways to process the same piece of information using different degrees of compression. We can take it in using the highest degree of compression, but we process it using no compression at all so that we can adequately and accurately understand the individual events taking place – there are three events taking place here, despite the fact humans learn to intake it as one for convenience and to prevent sensory overload.

Another example could be Jason's car that you simply acknowledge and refer to as such, but process using all details you are aware of – license plate, colours, dents, decals, so on and so forth – something that we know is true otherwise we wouldn't be able to identify the car as Jason's without looking at the ownership documents.

Systems will need to be able to compress and decompress information in various manners for all types of observation in order for an AI to properly process and react to what is happening, and not waste time when communicating.

- **Digital and Physical Entities:** The RAICEngine supports numerous expressions and behaviours, and being able to properly reflect these using non-verbal means of communication is imperative for realistic experiences between man and machine. From digital avatars to physical robots, how an AI's body reacts and expresses its

changes of state will be critical in achieving the most immersive experiences possible. The interactive sex doll market will go wild for experiences that aren't simply pre-programmed, but personal, in-the-moment, and ever-changing.

- **Purpose-Built Neural Plexus:** Average users aren't going to build their own neural plexuses, nor are they going to all want the same fixed objects – some will want their AI to always be very religious; some to be animal lovers; some to be completely apolitical – and so they'll all need different seed data sets. From pre-made plexuses that can be downloaded and used quickly to online software that allows a user to create and download a custom plexus, the right data being available to the right user will be imperative in order to provide them with the best experience possible.
- **Artificial Memories:** Rather than making any AI start from scratch, building downloadable memory banks to give them a false past will create a starting point from which they are able to base genuine new experiences.
- **Interpretation Systems:** Output is only as useful as it is readable. Being able to interpret and present the data outputted by the RAICEngine in a readable format so that the reason behind how an observation was experienced can be externally communicated as clear as possible is paramount. Interpretation systems that can effectively do this will make the communication aspect of interactions directed at humans far more tolerable and meaningful.

### Commercial Uses

- **Artificial Entities:** The most obvious use case. Assistants, companions, agents – having their own unique, genuine personalities, evolving in their own way through their interactions in the world they inhabit, regardless of whether it is virtual or physical.
- **Toys:** Custom profiles and custom limitations. Control the boundaries of AI entities designed to interact with kids – the greatest degree of any emotion they can express, how they're allowed to express themselves, definitely what objects (sex, drugs, rock n roll) they are not allowed to acknowledge, and more.
- **Gaming:** One player does something to change the mood of an NPC and that NPC's interactions with another player reflects its current mood and the relationship between them. What if a player angered a shopkeeper and the shopkeeper closed the shop for the day? What if the shopkeeper simply decided to ignore the player who angered them? The dynamics that become possible open up a whole new gaming experience, and it won't have to be artificially controlled using pre-programmed responses and interactions.
- **Virtual Worlds:** No one virtual world will ever exist, and many will exist for different purposes. Different purposes will require different types of AI configured for different reasons, goals et al.
- **Psychology/Mental Health:** With the ability to emulate numerous types of personalities and conditions, this will be a great way to experiment and see how specific types of people could react in different situations without having to use actual people as guinea pigs.

- **Studying Natural AI Development:** One of the most interesting uses, and one that actually factors in real world time, will be to study the myriad of ways in which AIs change over different periods of length in both simulated and real world environments, alone and in groups, in as many conditions as one desires.
- **Generative AI:** Now, AI systems designed to generate content will be able to do so based on how objects and events considered for use in a production make it feel. Regardless of whether objects and events are checked prior to inclusion or during/after generation, an AI can create all kinds of emotive content based on its own opinions of what it contains.