SERVICE MODULES

(Technology Training and Consultancy for Financial Services)

R1 DOT MY Sdn Bhd [976862-M]

http://r1.my

Executive Summary

R1 DOT MY is a technology solutions provider that was incorporated in Malaysia in 2012, from where it has been consulting with various organizations, government agencies and startups throughout the region. We educate, consult and develop long-term strategies and use-cases that allow our partners to better understand, implement and in-turn benefit from the new and exciting breakthroughs that are being made in the fields of cryptographically secured digital currencies and tamper-proof distributed computing systems such as blockchains.

Distributed ledgers are radically improving organizations in the following ways:

- **INFRASTRUCTURE** - Tamper proof data with controlled access to public information
- **AFFORDABILITY** - Reduced infrastructure costs whilst reducing transaction fees
- **RESPONSIBILITY** - Improve accountability whilst introducing social responsibility

With over 15 years of blockchain development experience and an additional 15 years of combined consulting experience our team can help in the following areas:

- **EDUCATION** - from corporate training to customized technical workshops

  -- Conducted with institutions such as Maybank, TNB and Bank Negara

- **CONSULTATION** - technical consultation and developer event coordination

  -- Provided for international organizations such as DBS and Baker Hostetler

- **DEPLOYMENT** - full-stack design, development, hosting and support

  -- Delivered to financial service providers such as ATA-Plus and Securities Commission

Since being paid by DBS in Singapore to help organize the world's first bank-backed blockchain hackathon at the end of 2015, our primary focus has revolved around training, consulting and event management with financial institutions, services and regulatory agencies.

Kind regards;

Mark Smalley
Founder & CEO

Training & Workshops

Our training specialities include advanced technological trends such as distributed ledgers.

Enterprise Training

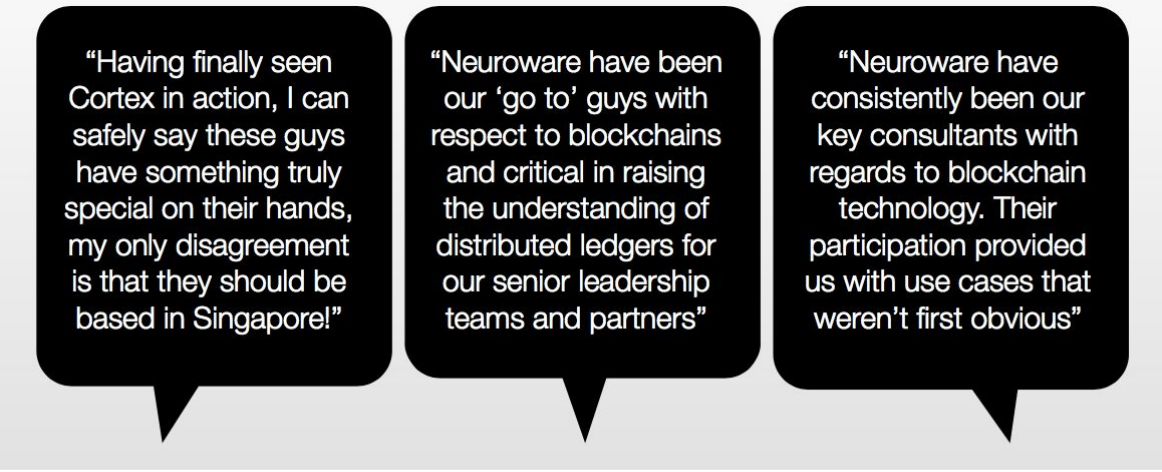
Our immersive approach to learning new technologies utilizes a combination of lecture based training and hands-on technical workshops, where we will personally guide participants as they actively deploy working prototypes based upon their core industry needs. Topics include:

- Blockchain MasterClass
- Implementing Distributed Ledgers
- FinTech Innovation Bootcamp

Developer Workshops

It is often said the best way to learn is by doing, which is why we provide developer workshops conducted by community leaders focused on problems specific to each organization's needs. Combining presented material with group sharing and paired-programming; topics include:

- Blockchain Developer Basics
- Intermediate Smart Contracts
- Advance dApp Development



R1TT101 - Blockchain MasterClass

Learning Level: Intermediate **Programme Fee**: One day in-house private session - RM13,885

Overview:The use of crypto assets and distributed ledger technology in business and financial institutions promises secure, streamlined and faster processing of information. From specific functions such as supply chain and trade financing to more generic uses such as document management; the potential uses for businesses and financial institutions are almost unlimited.

R1 DOT MY brings you an intense 1 day customised workshop with multiple sessions designed to introduce the audience to the world of blockchains and other forms of distributed ledgers, including the various protocols that are being developed upon them.

Programme outline:

- **Introducing money, assets & ledgers** (how did bitcoin come to be)
- **Understanding blockchain technology** (for the non-technical audience)
- **Blockchain generations** (from digital currencies to open assets & smart contracts)
- **Current systems overview** (industry adoption, current challenges, Asia's role)
- **Foundational use cases** (what are the most prudent uses of blockchain technology)

Use cases explored will include topics such as transactional banking, cash management and trade from a banking perspective that highlights regulatory and technical progress and hurdles.

Learning Objectives:
The goal of this training session is to help organisations understand blockchains by putting their team members that attend in a position to achieve the following:

- To differentiate between digital currencies, blockchains and distributed ledger
- To describe how those different tools work
- To understand the uses for different tools
- To apply blockchains in day to day business and financial use
- To evaluate and compare specific tools that can be applied to the participants needs
- To develop new projects and business opportunities

Methodology:

Instructor led discussion using lectures, group discussions. A projector (HDMI input) and whiteboard should be made available. Laptops are not required.

R1TT102 - Implementing Distributed Ledgers

Learning Level: Advanced **Programme Fee**: One day in-house private session - RM13,885

Overview: Assuming that participants have a general understanding about the theory behind distributed ledgers and what distinguishes them from blockchains such as Bitcoin, this training focuses upon the implementation of these technologies and how to deploy working examples. R1 DOT MY brings you an extensive hands-on experience, half of which will be guided through presentations with the other half spent actively using and exploring blockchain technology. The outcome of this session is for both the non-technical and technical audience to be able to understand how the blockchains can be used and where to start the process of implementation.

Programme outline:

- **Cryptography** (from hashes to encryption and key generation - demystifying the tech)
- **Key Management** (generating and using cryptographic keys)
- **Crypto Transactions** (learn how to create and relay raw transactions)
- **Immutable Data** (storing and serving data from the blockchains)
- **Tokens** (creating unique crypto-currencies and assets using Ethereum)

Use cases explored will include topics such as transactional banking, cash management and trade from a banking perspective that highlights regulatory and technical progress and hurdles.

Learning Objectives:

The goal of this session is to ensure that participants are actively generating cryptographically secure content from a public blockchain with a focus aimed at demonstrating how decentralized banking works by putting those that attend in a position to achieve the following:

- To recognise how key cryptography work and to identify its uses
- To identify the various tools for storing and serving distributed data
- To understand how transactions work within crypto-currencies
- To illustrate how these transactions are different to traditional financial transactions
- To understand how smart contracts can be used to tokenize different assets

Methodology:

Instructor led discussion using lectures, group discussions. A projector (HDMI input) and whiteboard should be made available. Laptops are encouraged.

R1FT101 - FinTech Innovation Bootcamp

Learning Level: Basic **Programme Fee**: One day in-house private session - RM13,885

Overview: Technology is a rapidly evolving field that is providing innovation teams from institutions around the world with new and exciting tools that bring with them complicated terminology that can be challenging to those that are not using these technologies on a daily basis. From artificial intelligence used for autonomous support and distributed ledgers providing the promise of removing intermediaries, it's important for teams to be kept in the fold. R1 DOT MY provides a grounded tour of these new technologies. We take a deep dive into both the macro and micro-economics that incentivize the various ecosystem stakeholders that are either supporting or combating these new technologies. This session is for non-technical professionals to be able to differentiate between the various popular trends within the financial industry.

Programme outline:

- **Introducing Artificial Intelligence** (distinguishing fact from fiction with visual guides)
- **The Business of Automation** (exploring the use of AI within financial services)
- **The Business of Blockchains** (reviewing active use cases for blockchains in fintech)
- **Islamic Smart Contracts** (exploring the use of ethereum for sukuk, zakat and more)

Use cases explored will include topics such as transactional banking, cash management and trade from a banking perspective that highlights regulatory and technical progress and hurdles.

Learning Objectives:

The goal of this training session is to help organisations understand blockchains by putting their team members that attend in a position to achieve the following:

- To analyse how Islamic Finance can benefit from blockchains
- To describe how distributed ledgers are being used within the financial service industry
- To differentiate the current categorizations of artificial intelligence that are being used
- To understand active use-cases and trends for these new technologies
- To determine how the scientific foundations of these technologies help with business

Methodology:

Instructor led discussion using lectures, group discussions. A projector (HDMI input) and whiteboard should be made available. Laptops are not required.

R1DW101 - Blockchain Developer Basics

Learning Level: Basic **Programme Fee**: One day group session - min 5 pax - RM885 / pax

Overview: Blockchains have evolved into a broad range of technologies. From systems that use hand-crafted UTXO models such as Bitcoin and Dogecoin, through to more simplified ledger systems that provide generalized smart contracting functions such as Ethereum. Developers must also grapple with the significance of forks such as Bitcoin Cash and Quorum. R1 DOT MY brings you an extensive hands-on experience, half of which will be guided through presentations with the other half spent actively using and exploring blockchain technology. This session is for developers with a basic understanding of JavaScript to be able to actively use a wide selection of blockchain application development tools.

Programme outline:

- **Key Cryptography** (from hashes to hierarchically deterministic and multisig key pairs)
- **UTXO Data Storage** (using unspent transaction outputs to store structured data)
- **Distributed Tools** (from the interplanetary file system to ethereum based domains)
- **Smart Contracts** (using smart contracts to generate token and asset supplies)

Use cases explored will include topics such as transactional banking, cash management and trade from a banking perspective that highlights regulatory and technical progress and hurdles.

Learning Objectives:

The goal of this training session is to ensure that developers are actively generating cryptographically secure content from a public blockchain, demonstrating how decentralized applications are able to work by putting those that attend in a position to achieve the following:

- To understand hierarchically deterministic cryptographic keys
- To construct and send crypto-currency transactions without a server
- To understand other use-cases for these transactions
- To understand how developers can utilize blockchain tools for storing and serving data
- To recognise what it takes to launch your own tokenized asset supply

Methodology:

Instructor led discussion using lectures, group discussions. A projector (HDMI input) and whiteboard should be made available. Laptops are encouraged.

R1DW102 - Intermediate Smart Contracts

Learning Level: Intermediate **Programme Fee**: One day group session - min 5 pax - RM885 / pax

Overview: Organizations such as IBM and Samsung have been using and promoting smart contracts for everything from IoT-based automated micro-payments to supply chains and legal processes. In reality, smart contracts are neither smart nor contractual in nature, but they do provide a much simplified way to store and serve structured data. R1 DOT MY brings you an extensive hands-on experience, half of which will be guided through presentations with the other half spent actively using and exploring smart contracts. This session is for developers with a basic understanding of JavaScript to be able to actively deploy a Solidity based smart contract.

Programme outline:

- **Landscape Review** (learn about the different platforms and use cases built upon them)
- **Smart Contracts for Web Developers** (serverless web application development)
- **The Evolution of ERC20** (generating ad sharing your own unique token supply)
- **Beyond ERC721** (building unique crypto-assets for games and financial markets)

Use cases explored will include topics such as transactional banking, cash management and trade from a banking perspective that highlights regulatory and technical progress and hurdles.

Learning Objectives:

The goal of this training session is to help organisations understand the difference between the various platforms providing smart contracts and how they can actively benefit from their features by putting those that attend in a position to achieve the following:

- To learn to generate token-based points or other digital commodity ecosystems
- To identify what distributed games and crypto-collectibles such as Crypto-Kitties share
- To identify and differentiate between the various smart contract platforms available today
- To apply best approaches for languages such as Solidity from the web
- To recognise other use-cases for these tools

Methodology:

Instructor led discussion using lectures, group discussions. A projector (HDMI input) and whiteboard should be made available. Laptops are required.

R1DW103 - Advance dApp Development

Learning Level: Advance **Programme Fee**: One day group session - min 5 pax - RM885 / pax

Overview: Distributed Applications (otherwise known as dApps) are redefining the way that applications on the internet are able to function without servers or single centralized points of failure - whether it be technical or even from an economic incentive perspective. Game theory, artificial intelligence, virtual reality and augmented social experiences will be radically improved by blockchains. R1 DOT MY brings you an extensive hands-on experience, half of which will be guided through presentations with the other half spent actively using and exploring blockchain technology. The outcome of this session is for developers with a basic understanding of JavaScript to be able to deploy a Solidity based distributed web-application.

Programme outline:

- **Web Development for Blockchains** (use BitcoinJS in HTML for Dogecoin data storage)
- **From JavaScript to Solidity** (preparing for isomorphic applications with truffle)
- **Upgradable Smart Contracts** (learn about the logic behind distributed key value stores)
- **Beyond Tokenization** (building dApps that look like and feel like web applications)

Use cases explored will include topics such as transactional banking, cash management and trade from a banking perspective that highlights regulatory and technical progress and hurdles.

Learning Objectives:

The goal of this training session is to help organisations understand how they can create fully functional web-applications that do not require any form of server-side authentication by putting those that attend in a position to achieve the following:

- To explore how immutable data for applications can be separated from distributed logic
- To identify and to differentiate between the different blockchain developer tools available
- To distinguish the best approaches for new languages such as Solidity
- To determine other use-cases for these tools
- To apply techniques used to connect various distributed contract components

Methodology:

Instructor led discussion using lectures, group discussions. A projector (HDMI input) and whiteboard should be made available. Laptops are required.

About Your Training Facilitator

Mark Smalley has been living in Malaysia for the past 20 years, from where he has been building FinTech applications for the past 15 years. He currently serves as the founder & CEO of R1 DOT MY Sdn Bhd, a technology solutions provider incorporated in Malaysia in 2012, from where it has been consulting with several organizations and startups to help implement and adopt new technologies such as NoSQL storage and distributed ledgers.

Neuroware is the brand name for R1 DOT MY's blockchain and distributed ledger technology solutions. It was first established when the company was selected to join Batch 9 of the illustrious 500 Startups accelerator program in Silicon Valley at the beginning of 2014. It was during his time there in the USA that Venturebeat declared Neuroware as one of the 5 most promising startups to watch from the Batch 9 demo day pitches that took place at Microsoft.

Mark has helped to contribute to a number of local communities, providing presentations at:

- Blockchain & Javascript Developer Meetups
- NoSQL / BIG Data Asia Meetups

With keynotes being conducted at TEDx Kuching, the Islamic Financial News Asia and International Digital Economy Conference of Sarawak (IDECS), Mark has an insatiable passion to spread new ideas, which has included regular appearances on BFM and more recently being featured in the DNA Digerati 50 alongside other founders from Catcha & Grab.

His extensive training sessions and technical workshops have been adopted by a number of large organizations through active partnerships with Red Money and iTrain - through to direct sessions with Labuan Financial Services Authority, Hong Leong Bank Berhad, Cybersecurity Malaysia, Axiata and many more. Mark has led Neuroware to not only be featured on several occasions as one of Malaysia's top-ten fintech companies, but with extensive coverage at various international events has also gotten Neuroware featured by Deloitte as one of the world's top 50 regtech companies - the only one specifically based within Malaysia. This work also led to an extensive week long training with Baker Hostetler in The United States.

International Conference On Financial Crime And Terrorism Financing-Future Proofing Compliance (in collaboration with Bank Negara Malaysia and Securities Commission Malaysia):

ENTER THE ERA of permission-less innovation

Mark Smalley, the founder and CEO of R1 DOT MY Sdn Bhd is currently one of Malaysia's biggest champions of blockchain technology.

But Mark admits he was a bit of a late starter when it came to embracing it.

"I was ignoring it for so long, I was ignoring the headlines," he admits, until one day he knuckled down and read Satoshi Nakamoto's seminal white paper carefully. "The thing that made it so amazing was that it had no new technology."

In fact, it combined hashes and elliptic curve cryptography, which Mark was already familiar with. "I was hooked!"

From an overall perspective, Mark sees blockchain as an innovative way of using open ledgers to keep records, with some unique characteristics: "It can't be changed, it can't be lost and it can't be corrupted," he emphasises. "This is a massive breakthrough from a technical perspective."

Born in the UK, Mark was in fact raised in Miri - not exactly a hotbed of mainstream IT trends. "As an expat in Miri 20 years ago, there was really only two things you could do: Oil and gas or provide financial services to those expats," he recalls.

Neither interested Mark, and about ten years ago he left for the bright lights of the big city and founded R1 DOT MY. In 2013, he met Adam Giles, and together they built an HTML wallet for Bitcoin that was successful enough for them to be accepted into the 500 Startups Accelerator programme.

Eventually he established Neuroware in 2014 and they worked with DBS in Singapore to organise the world's first bank-backed blockchain hackathon.

"They were looking for a way to store distributed data or to use the blockchain for identity purposes," he explains. That experience spurred Mark on to explore the private enterprise infrastructure space. "We went into isolation for a year to build our product."

MARK SMALLEY
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R1 DOT MY SDN BHD
FOUNDER & CEO

What they came up with was Cortex. "It's the world's first blockchain operating system," he says. It offers blockchain functionality without a lock-in to any specific ledger and can even use multiple blockchains for different aspects of the project. Mark claims it's the only such product in Southeast Asia, and will work with any blockchain.

I truly believe that Malaysia can be the epicentre for blockchain technology.

Cortex is already in use in a Securities Commission Malaysia blockchain pilot project for OTC, and with the Equity Crowdfunding platform ATA Plus.

"They keep an immutable backup of all their data into the blockchains," explains Mark. "Should a disaster occur, we can still retrieve our data."

Mark also had a hand in setting up Blockchain Embassy Asia (BCE), a non-profit organisation that aims to educate organisations about the legal and technical implications of distributed ledgers.

However, it was easier to innovate with the technology than to manage the bureaucratic red tape of Malaysian company law. "Getting our founding BCE members to join was less challenging than us working together to become a fully registered non-profit entity," says Mark, recalling the need to officially define blockchain as "kotak rantai". From inception to official registration it was an eighteen-month process!

Despite having members such as Maybank, RHB and 1337 Ventures, Mark is cognisant that more partners need to be brought on-board. "The Blockchain Embassy is currently seeking Trustee, Insurance, Logistics and Healthcare Ambassadors as well as active partnerships with Universities and other regulatory agencies."

"We really need to start working together," concludes Mark.

Mark doesn't see his interest waning anytime soon. "It's this tamper-proof audit trial of data and its implications that will continue to interest me the most," he explains, regardless of what happens to blockchain as an underlying technology.

"Although blockchains may one day be replaced - currently rumored to be done so by DAGs - the era of immutable data and permission-less innovation has only just begun."

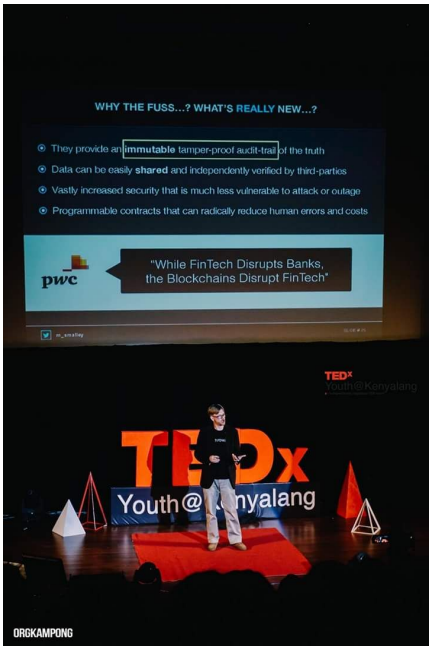
"I truly believe that Malaysia can be the epicentre for blockchain technology," asserts Mark. Among the reasons why, he cites language and that Malaysia has "the need". "There's no other nation so concerned about accountability," he explains.

He cites examples of local startups in the field such as MoneyMatch and Etherscan to demonstrate that there can be a vibrant blockchain ecosystem here, given the right conditions.

All in all, Mark also hopes the work Neuroware does will continue to attract investors. "Unfortunately, we don't have any Malaysian investment yet, which is what we really need."

DNA Digerati 50 & TEDx

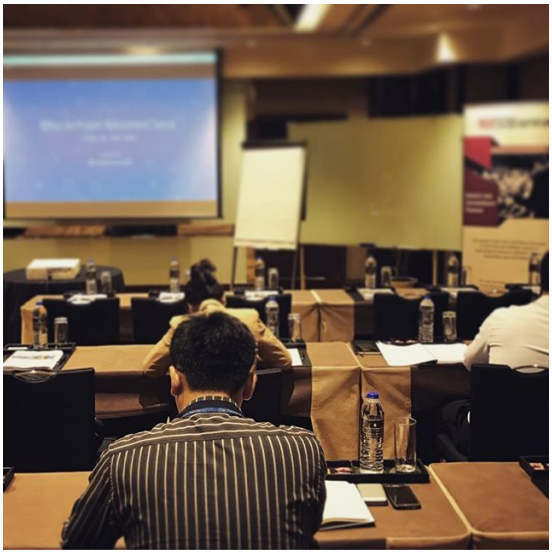
https://www.digitalnewsasia.com/digital-economy/positive-energy-flows-digerati50-inaugural-meet-up



Past training, workshops and technical bootcamps conducted by R1:

DBS · Bank Negara Malaysia · Suruhanjaya Sekuriti · Tenaga Nasional · Maybank

sains · axiata · CyberSecurity Malaysia · The Malaysian Insurance Institute



Consulting

From technical consultation to developer event coordination. We have provided the following services to clients such as DBS bank in Singapore and Baker Hostetler law-firm in USA:

- Ideation and Use Case Development
- Independent Whitepaper Review
- Solidity Smart Contract Auditing

Our comprehensive selection of consultation services were used in forming www.BCE.asia

The Blockchain Embassy of Asia is a registered non-profit society approved by the Malaysian government. It was formed by representatives from several Malaysian companies working collaboratively to improve the ecosystem, with other ambassadors including:

- Maybank
- RHB Bank
- ATA-Plus (ECF Operator)
- Capital Bay (FinTech Startup)
- Red Money (Islamic Financial Training)
- iTrain (Technology Training)
- Lim Jo Yan & Co (Law Firm)

Ideation and Use Case Development

From project management to full-stack development; our experienced community of veteran design and implementation teams are actively working with financial institutions and the various regulatory agencies that govern them. Our consultation services have been approved by the Ministry of Finance as the only blockchain company able to submit to government tenders.

Independent Whitepaper Review

Are you launching a new product within the blockchain space, or maybe even a new chain of its own? We can help evaluate your business plan, product roadmap and the technical know-how of your team or those of others that you yourself may be investigating.

Solidity Smart Contract Auditing

Are you preparing to deploy or already relying upon the service of immutable logic? Solidity is now used across a wide selection of platforms that our teams audit on a daily basis.

Deployment

From full-stack design, development, hosting and support. We have provided the following services to clients such as ATA-Plus and the Securities Commission of Malaysia:

- Cortex - Private Network with PoC
- Cortex - Public Token Supply and Wallet
- Cortex - Public Assetization Wallet

Cortex

Cortex provides a single unified interface for managing different blockchains and the various protocols being developed on them. By using private customized APIs we are able to offer a unique infrastructural foundation for enterprise clients by offering the following primary features:

- Identity, Authentication and Role Management
- Distributed Data and Document Storage
- Custom Token Generation & Analytics
- Cryptographic Keyless eWallets
- Private Networks & Consortiums

Cortex not only provides a unified interface for any blockchain, which allows business owners a way to easily manage distributed data, digital identities and role management - but much more importantly, since we maintain our own blockchain infrastructure - we are also uniquely capable of providing private APIs that are designed around each client's individual protocol schemas.

Private Network with PoC

This package includes the creation of a customized private network and a proof of concept.

Public Token Supply and Wallet

This package includes the creation of a new public token supply system and the corresponding administrative and publicly available wallets required to utilize the new tokens.

Public Assetization Wallet

This package includes the creation of a new public asset supply system and the corresponding administrative and publicly available wallets required to utilize the new assets.

Service Costs

A comprehensive list of our off-the-shelf services can be seen below:

Enterprise Training	Level	Length	Cost per Class
Blockchain MasterClass	Intermediate	ONE DAY	RM 13,885
Implementing Distributed Ledgers	Advance	ONE DAY	RM 13,885
FinTech Innovation Bootcamp	Basic	ONE DAY	RM 13,885
Developer Workshops	**Level**	**Length**	**Cost per Pax**
Blockchain Developer Basics	Basic	ONE DAY	RM 885
Intermediate Smart Contracts	Intermediate	ONE DAY	RM 885
Advance dApp Development	Advance	ONE DAY	RM 885
Packaged Consulting Services		**Delivery Time**	**Cost**
Ideation and Use Case Development		1 to 5 Days	RM 8,885 / day
Independent Whitepaper Review		3 DAYS	RM 8,885
Solidity Smart Contract Auditing		1 DAY / CONTRACT	RM 1,885 / CONTRACT
Product Deployments		**Delivery Time**	**Cost**
Cortex - Private Network PoC		30 DAYS	RM 100,000
Cortex - Public Token Supply & Wallet		15 DAYS	RM 30,000
Cortex - Public Assetization Wallet		20 DAYS	RM 40,000

Should you require more information - please email us directly at info@r1.my