



DIGITAL  
ASSET  
COIN

WHITEPAPER



# DISCLAIMER

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The information shared in this whitepaper is not all-encompassing or comprehensive and does not in any way intend to create or put into implicit affect any elements of a contractual relationship.

The primary purpose of this whitepaper is to provide potential token holders with pertinent information in order for them to thoroughly analyze the project and make an informed decision.

Prior to your participation in the purchase of Digital Asset Coin, we strongly advocate a careful study of this whitepaper and all documents associated. We recommend you consult legal, financial, tax, and other professional advice prior to participation in the IEO mentioned in this whitepaper. DAC tokens are not shares or securities of any type. They do not entitle you to any ownership or other interest in Digital Asset Coin LLC.

Certain statements, estimates, and financial information featured in this whitepaper are forward-looking statements that are based on and take into consideration certain known and unknown contingencies and risks which in eventuality may cause the estimated results or may differ factually and substantially from the featured estimates or results extrapolated or expressed in such forward-looking statements herewith.

# ABSTRACT

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Real estate investments represent low volatility and provide a higher return per unit of risk. The inflation-hedging capability of real estate derives from its positive relationship with Gross Domestic Product (GDP) growth.

Digital Asset Coin (DAC) is a smart contract governed ecosystem that utilizes blockchain technology and concepts of cryptocurrencies to revolutionize the real estate industry. Our goal is to eliminate minimum investment requirements, entry barriers, increase liquidity, and facilitate cross-border investments in the real industry.

DAC is a cryptocurrency that allows all investors to participate in the real estate industry through economic incentives, dividends, and value appreciation. The Digital Asset Platform (DA Platform) is a tokenized real estate marketplace where Digital Asset Right Token (DART) tokens are unique real estate backed assets that represent fractional ownership.

We believe that the reader of this whitepaper has sufficient fundamental knowledge about cryptocurrencies, blockchain, and smart contracts.

# INTRODUCTION

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Blockchain is a distributed, immutable ledger that makes recording transactions and managing assets in a corporate network much easier. Blockchain networks enable virtually anything of value to be recorded, traced and traded, lowering risk and cutting costs for all parties involved.

Information and data are crucial for businesses in our increasingly digitally driven world. Businesses are constantly seeking new ways to quickly and accurately transfer information. Immediate, shareable, and transparent information on an immutable ledger that only can be viewed by permissioned users make blockchain ideal for the transfer of information. It creates a single view of the truth for blockchain network participants.

Blockchain technology has a variety of important applications across a wide range of industries such as banking and finance, supply chain, healthcare, government, retail, media and advertising, telecommunications, manufacturing, insurance, and transportation.

## Distributed ledger technology

The distributed ledger and its immutable record of transactions are accessible to all network participants. Transactions are only recorded once with this shared ledger, eliminating the duplication of effort that is common in traditional corporate networks.

## Immutable records

After a transaction has been logged to the shared ledger, no participant can edit or tamper with it. If a mistake is found in a transaction record, a new transaction must be made to correct the error, and both transactions must then be visible.

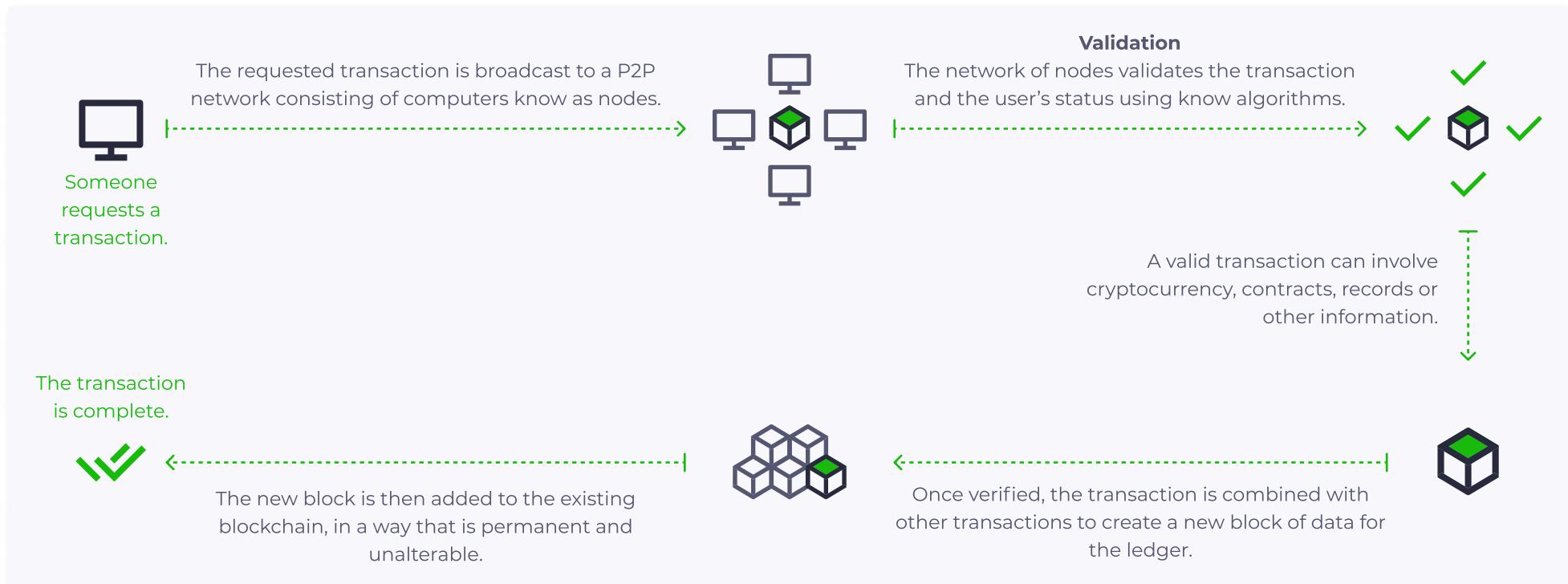
## Smart contracts

A collection of rules called a smart contract is stored on the blockchain and executed automatically to speed up transactions. A smart contract can specify requirements for corporate bond transfers, as well as payment terms for trip insurance.

## BLOCKCHAIN IN REAL ESTATE

Blockchain's inherent trust structure makes it an ideal solution for real estate. The smart contracts and ledger capabilities of blockchain are being used by real estate organizations all around the world to make renting, purchasing, investing, and even lending more transparent and efficient.

There are various potential uses for blockchain in the real estate industry, spanning the full property value chain. The purchase price for real estate assets can be transferred via cryptocurrency or tokenization on the blockchain. Smart contracts can automate the purchasing and selling process,



improving market transparency while addressing principal agent concerns.

Blockchain can be a practical solution with immense benefits to the real estate industry such as tokenization of real estate assets, process efficiency for underlying industry operations, reduced costs from automation of processes, access to global asset distribution, access to broader investor pools by fractionalization, increased liquidity at secondary markets, data accessibility and transparency.

## PROBLEMS WITH TRADITIONAL REAL ESTATE INVESTMENT MODELS

Traditional real estate investment models present immense entry barriers. Apart from the legal challenges, financial costs, investment size, operational complexities associated with physical real estate assets make investing practically impossible for most potential investors.

### High Entry and Exit Costs

The average investment required to invest in commercial real estate such as offices and retail space in lucrative locations is far too high for small and medium investors.

Moreover, exit costs are high due to agency and middleman costs, not to mention the time and effort required to find a buyer.

## Liquidity Issues

Traditional physical real estate properties and REIT investments can only be exclusively traded to local markets; making them illiquid due to high investment requirements. Tokenization addresses the liquidity issue by permitting fractional ownership and lowering the investment minimum, allowing more investors to participate. Blockchain and smart contracts will enable the trading of fractional ownership or investments on digital exchanges around the world 24 hours a day, seven days a week.

## Complexity of purchasing

Legal aspects, international transaction rules and costs, market knowledge, trust, taxes and maintenance costs make it challenging to own real estate abroad.

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## SOLUTIONS ENABLED BY BLOCKCHAIN

Integrating cryptocurrencies, blockchain, smart contracts in real estate

Blockchain is a catalyst for innovation in the real industry. Currently, blockchain is used as a global value exchange and digital asset representation tool in real estate. It is democratizing access to real estate that was previously unavailable to the average investor.

The tokenization of real estate properties is poised to revolutionize the traditional real estate industry. Digital assets can represent real-world assets such as real estate, real estate funds, revenue streams, governance rights, and more. Tokenized assets can be divided into smaller pieces and made available to a larger pool of investors and leveraged to raise capital.

Infrastructure continues to be developed surrounding decentralized finance, asset ownership, utilization, and exchange. The potential for blockchains to create new tools for asset owners makes it obvious that the next step for the real estate industry is integrating with public blockchain asset platforms.

The Binance Smart Chain and other blockchain networks enable the secure and compliant digitization of these assets' activities and procedures, including issuance, trade, and lifecycle management, once they've been tokenized.

## Fractionalization

Fractionalization allows for the democratization of investments in the real estate industry by eliminating the minimum investment size required by traditional real estate investment models. Fractionalized real estate assets create an opportunity

of a pool of investors to invest in a single asset seamlessly. Increasing the number of potential investors and sellers while reducing the entry barriers provides liquidity to formerly illiquid assets.

Fractionalization of real estate has the potential to have a significant positive impact on the real estate market. Because fractional ownership tokens are significantly less expensive than the asset itself, the typical person may make smart real estate purchases without any additional funding.

# PROJECT OVERVIEW

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DIGITAL ASSET COIN (DAC) project merges the crucial concepts of cryptocurrencies and real estate asset investment through blockchain and smart contracts. We are integrating the principles of decentralized finance (DeFi), crowdfunding, and tokenization into the traditional real estate business model.

DAC reduces the high volatility of cryptocurrencies with an asset-backed model governed by smart contracts in addition to deploying a real estate asset tokenization platform that introduces a new model of real estate financing.

DAC is reinventing the traditional concepts of real estate investment models to create a number of added benefits to token holders that do not exist today. We are enabling token holders to participate in the real estate industry without any investment barriers while giving DAC holders the ability to receive monthly dividend payments.

DAC is eliminating traditional investment challenges and entry barriers that enable the facilitation of global investment opportunities, increasing asset liquidity; while, allowing token holders to benefit from both the global real estate industry. DAC is managed by an experienced team and governed by smart contracts.

DAC project consists of an ecosystem with three main components and two phases:

## COMPONENT 1: DIGITAL ASSET COIN

### A cryptocurrency backed by real estate assets

DAC has two distinct purposes (1) a cryptocurrency backed by a real estate portfolio managed by a team with experience in the US and Mongolian commercial real estate industry and our partner property management companies; (2) a cryptocurrency that will be exchangeable for Digital Asset StableCoin (DAS) and Digital Asset Right Token (DART) on the DA platform (real estate tokenization/crowdfunding) to invest in tokenized real estate assets.

Combining DAC with a real estate portfolio reduces the uncertainty related to traditional cryptocurrencies and protects DAC holders investments.

The real estate portfolio performance, operations, revenues, and expenses will be fully transparent and audited quarterly. The real estate portfolio will utilize custodian banking and insurance services from local financial institutions to increase trustworthiness and protect the assets under management.

## **COMPONENT 2: DIGITAL ASSET PLATFORM**

### **Decentralized finance in real estate**

The Digital Asset Platform (DA Platform) is a tokenization and DeFi platform that will create alternative financing opportunities for real estate developers and owners; moreover, create alternative investment opportunities for investors in the real estate industry. The platform will function as a marketplace for tokenized real estate assets and investment offerings. The DA platform will be deployed on the Cardano blockchain.

It will offer simple and transparent real estate investment opportunities that eliminate the risks that small investors experience and allow nearly anyone to participate in the real estate industry with predictable and consistent returns. On the DA platform investors will be able to invest in fractionalized ownership interests in real estate assets by purchasing asset backed tokens called Digital Asset Right Token (DART). Participants on the DA Platform will be able to purchase DARTs via Digital Asset Coin, Digital Asset Stablecoins, and/or fiat/other cryptocurrencies of choice.

## **COMPONENT 3: DIGITAL ASSET STABLECOIN**

### **Stablecoin**

Digital Asset Stablecoin (DAS) will become an algorithmic stablecoin that has mechanisms to maintain a low deviation of its target price. DAS will act as an autonomous reserve, keeping a reserve of Basecoins, and minting and burning Stablecoins and Reservecoins. DAS's algorithm will be designed to keep DAS price stable.

DAS will solve the traditional issues with fiat reserve backed stablecoins. DAS's mathematical protocol automates the majority of transaction postings.

DAS main purpose will be to be exchangeable for DAC (and other prominent cryptocurrencies) and utilized on the DA Platform. and other prominent cryptocurrencies and its main utility is to allow real estate purchasing and selling transactions.

### **PHASE 1: MONGOLIA LAUNCH**

Digital Asset Coin's Initial Exchange Offering (IEO) on key Mongolian Cryptocurrency Exchanges such as COINHUB, TRADE MN, DAX, COMPLEX.

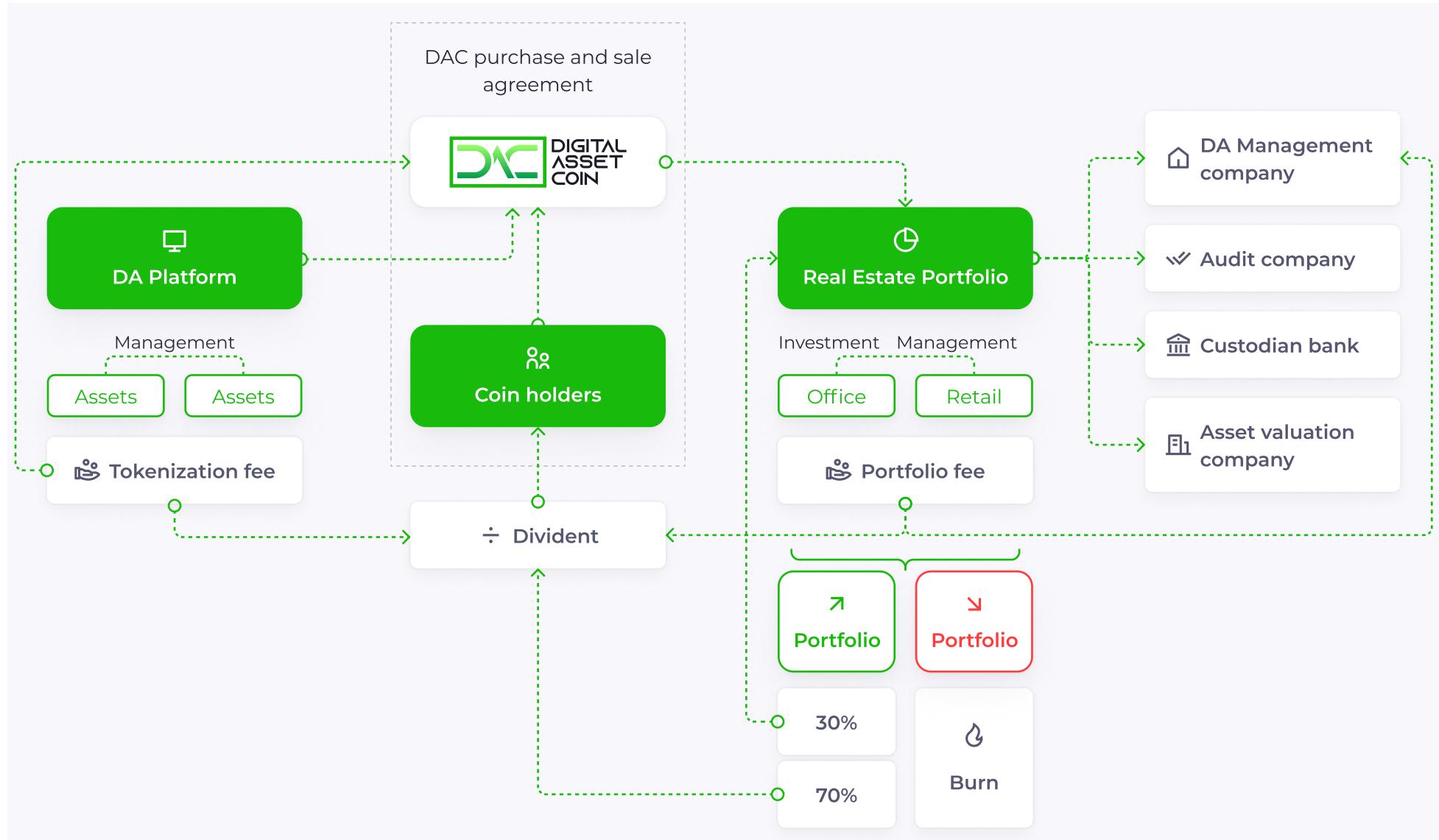
IEO proceeds will be used to build a diverse real estate portfolio and develop the DA platform to create opportunities for Mongolian and foreign investors to invest and benefit from the Mongolian commercial real estate industry.

### **PHASE 2: GLOBAL LAUNCH**

Digital Asset Coin's listing on global centralized exchanges such as Bittrex, ByBit, Binance, and others.

Use listing proceeds to build a diverse global real estate portfolio to create opportunities for Mongolian and foreign investors to invest and benefit from the global commercial real estate industry.

## Project structure



# DA REAL ESTATE PORTFOLIO

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The majority of the IEO proceeds as stated in this whitepaper will be used to build a stable income generating real estate portfolio in Mongolia. The real estate portfolio will utilize the fundamental aspects of a real estate investment trust model and adapt it to create added benefits to DAC holders.

We will invest in commercial real estate assets with high income and value appreciation potential such as office buildings and retail spaces in the most lucrative and thriving locations in Ulaanbaatar city. The DAC team and our partner property management company will be responsible for all management aspects related to the real estate portfolio.

The value and income generated by the real estate portfolio will determine the fundamental value of DAC. The portfolio income will be used to grow the portfolio and payout monthly dividends to DAC holders.

Upon listing on a global cryptocurrency exchange the proceeds will be used to build a global real estate portfolio to increase DAC's portfolio size and increase the dividends to DAC holders.

DAC tokens will be burned in case of an extreme real estate market event determined by the valuation of the real estate portfolio. DAC's strategic reserves will be utilized to increase the number of assets in the real estate portfolio.

## DAC PROPERTY MANAGEMENT

Due to the fact that a large number of DAC token holders will not be able to manage the real estate portfolio like traditional asset owners, we have established a professional property management team and have signed agreements with professional property management companies to manage the real estate assets in the portfolio. .

The property management team and partner property management companies will be responsible for all property related operations and activities on behalf of DAC holders. This allows DAC token owners to simply own DAC tokens and benefit from the real estate portfolio.

## DIVIDENDS

Dividends will be the rent, net operating costs including property management fees, insurance, and taxes. 70 percent of total dividends will be paid out to DAC holders and 30 percent will be used to grow the real estate portfolio.

# DA PLATFORM

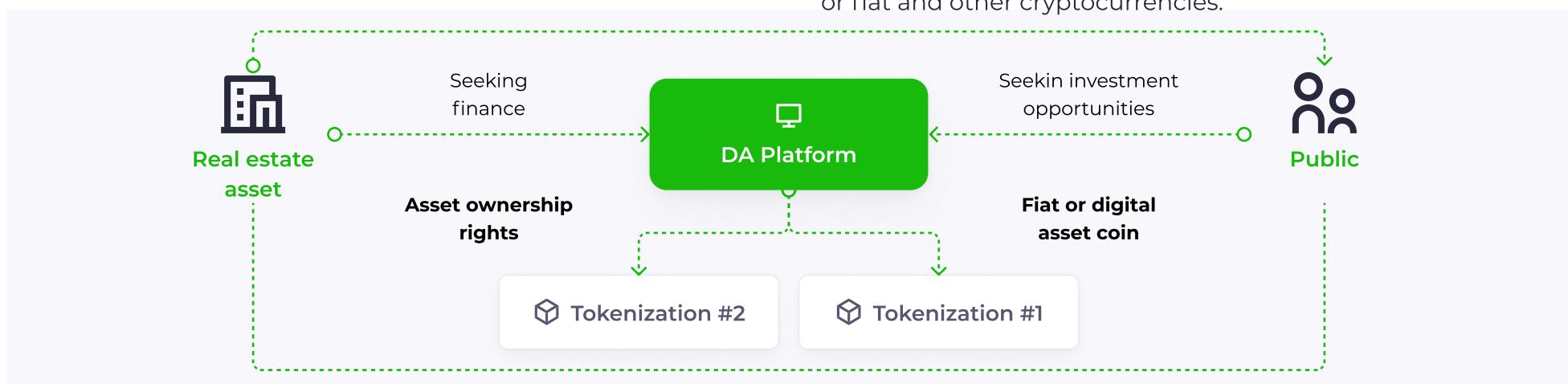
The DA Platform is a tokenization and decentralized finance platform that will create alternative financing opportunities for real estate developers and asset owners while creating investment opportunities for investors interested in the real estate industry through fractionalization.

Tokenization makes it possible to add new features to asset ownership and trade that were previously unavailable. By allowing an asset to be legally represented by a token on blockchain, the asset can get all of the benefits of a cryptographic token while maintaining its original value. The potential of asset tokenization is exemplified by the tokenization of real estate. With its high pricing, high transaction costs, delayed exchange, and limited access to purchasers, the illiquid real estate market has been the exemplar business to tokenize for supporters of the future tokenized society.

The DA Platform will function as a marketplace for tokenized real estate assets and investment offerings. It will offer simple and transparent property investments that eliminate the risks that small investors experience and allow nearly anyone to participate in the real estate industry with predictable and consistent returns.

On the DA platform, investors will be able to exchange DAC for fractional ownership of a real estate asset called Digital Asset Right Token (DART) and invest in the real estate asset of their choice.

The platform is designed to allow investors from various jurisdictions around the world to buy, sell, and trade tokenized real estate assets and create the opportunity for asset owners to raise capital. All tokenized real estate assets will be represented by DART and available to purchase using DAC and/or fiat and other cryptocurrencies.



The DA platform will be deployed the Cardano Blockchain to create a tokenization process of real estate assets and the proof of ownership protocol is used to link smart contracts to the underlying property.

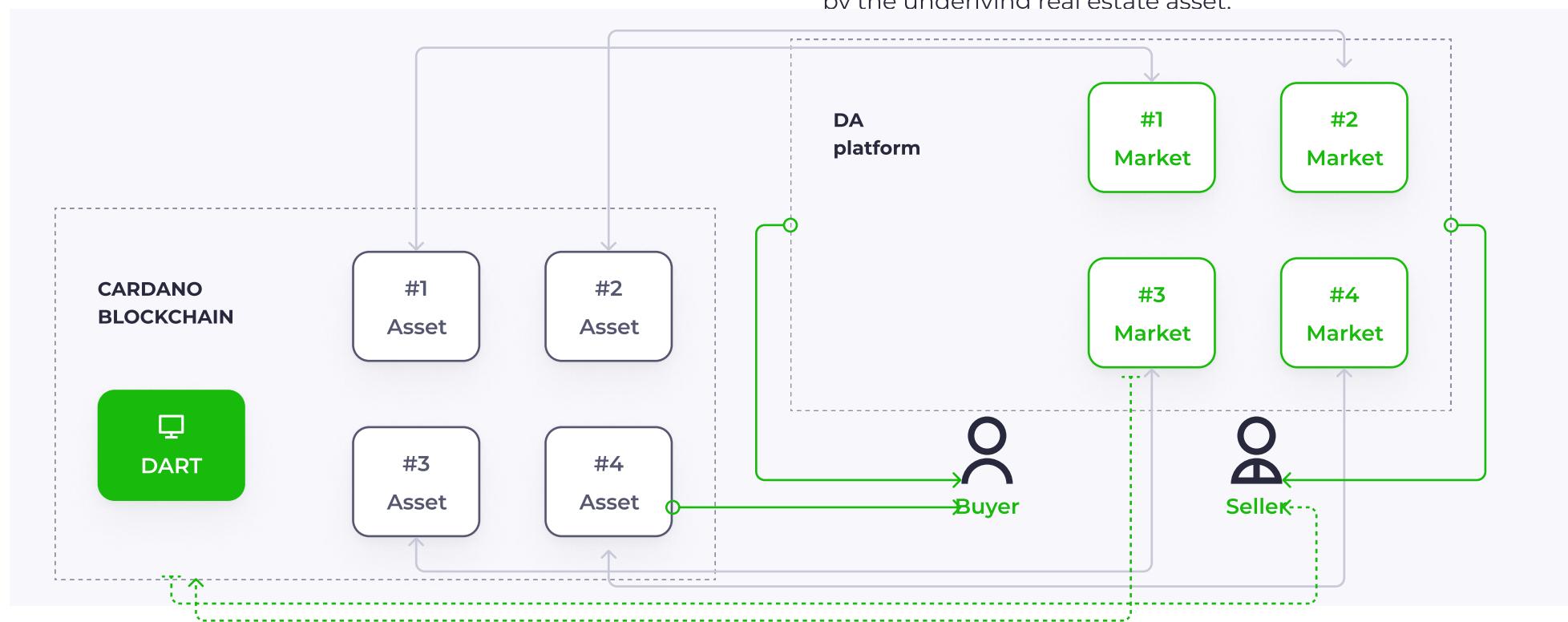
## Digital Asset Right Tokens

Digital Asset Right Tokens are electronic, cryptographic, digital tokens to be issued on the Cardano blockchain. The protocol, or code, for the DART smart contracts has been designed to fit Cardano's native token environment. Each DART has a designated unique identification number that is required to link DART to the real estate asset listed on the platform.

## Legal framework

To solve the legal aspects of legally tokenizing a real estate asset we have created a system that bridges the gaps between ownership of a real estate asset and DART. Tokenized real estate assets will be represented by DART that each has a unique identification number that is embedded in the smart contract of the token and included in the custodian banking service contract.

The asset ownership title and list of DART owners related to the real estate asset will be registered by the custodian service by a bank. This will ensure the economic interests of DART owners and provide a legal right to dividends or annual yield generated by the underlying real estate asset.



## **Platform functionality**

Real estate assets to-be listed on the platform will require a thorough due diligence process that will cover aspects such as real estate asset title, business analysis, third-party asset valuation, management review, and final approval.

The system will automatically create all the associate data for the smart contract and will mint the Digital Asset Right Tokens. DARTs will represent the shares on each real estate asset. DARTs will also be tradable inside the DA platform so any investor will be able to transfer and sell their investment to gain liquidity.

Our platform will be accessible to everyone interested in investing in tokenized real estate assets and will be designed to manage the business logic described in this whitepaper.

## **Dividends**

During the proof of concept stages of fractionalized real estate assets on the DA platform, all listed real estate assets will be assets with a constant rental income or investment yield. This will enable investors to receive monthly dividends created by the tokenized asset.

The DA platform will collect a 2 - 5 percent listing fee based on total required investment size on all tokenized assets. The platform's net profits will be paid out to DAC holders as dividends.

The rental income or investment yields created by tokenized real estate assets will be collected by the Digital Asset Coin LLC and paid out directly to DART holders.

# TECHNOLOGY

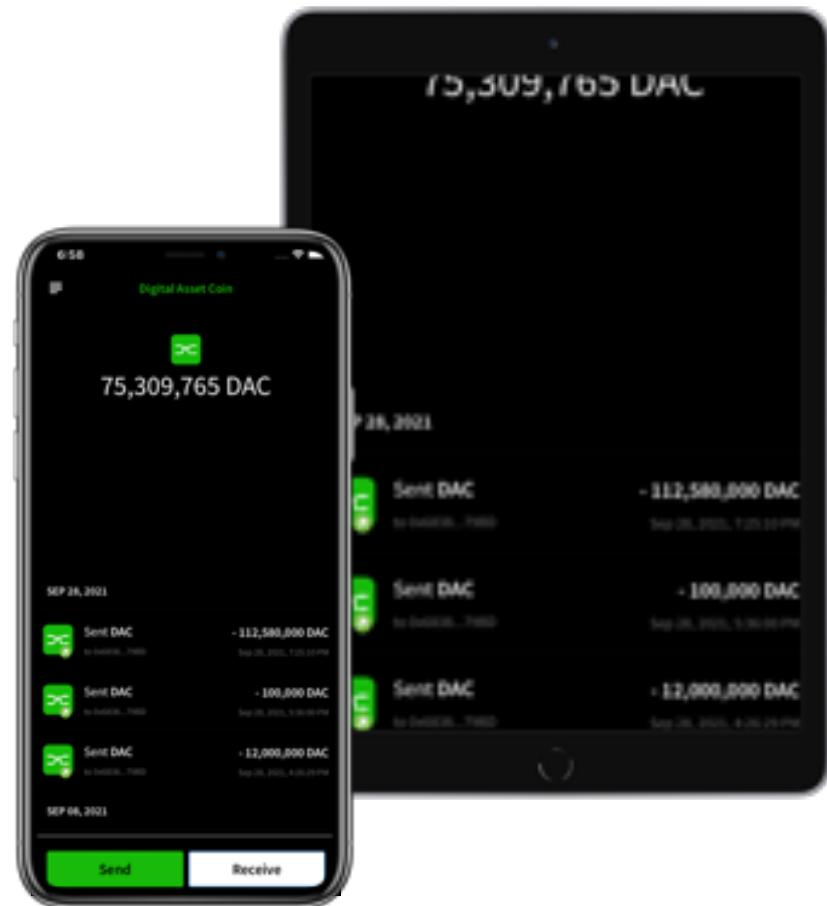
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## Smart contract

On-chain smart contract – token consists of 2 parts that are written in Solidity – are the source codes. “dactoken.sol”- token – main core and the core configuration part (config), transaction (transfer), governance (allowance) consists of these functions. “dap.sol” proposed to manage real estate acquisition into the platform.

## Wallet

Mobile wallet app provides full control of the account in the most secure and non-custodial way. The user can import existing accounts or create new ones and manage other Ethereum and Binance Smart Chain based tokens as well. Additionally, there are some incentives that only wallet users can benefit from.



# DAC TOKENOMICS

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## INTRODUCTION

DAC is a cryptocurrency based on the Binance Smart Chain's BEP-20 standard. Binance Smart Chain (BSC) is best described as a blockchain that runs in parallel to the Binance Chain. Unlike Binance Chain, BSC boasts smart contract functionality and compatibility with the Ethereum Virtual Machine (EVM).

Both BSC and the Binance Chain operate independently. BSC is EVM-compatible, it launched with support for the rich universe of Ethereum tools and DApps. In theory, this makes it easy for developers to port their projects over from Ethereum.

### Consensus

Binance Smart Chain achieves ~3 second block times with a Proof-of-Stake consensus algorithm. Specifically, it uses something called Proof of Staked Authority (or PoSA), where participants stake BNB to become validators. If they propose a valid block, they'll receive transaction fees from the transactions included in it.

Note that, unlike many protocols, there is no block subsidy of freshly-minted BNB, as BNB is not inflationary. On the contrary, the supply of BNB decreases over time, as the Binance team regularly conducts coin burns.

### Cross-chain compatibility

Binance Smart Chain was envisioned as an independent but complementary system to the existing Binance Chain. Dual-chain architecture is used, with the idea being that users can seamlessly transfer assets from one blockchain to another. In this way, rapid trading can be enjoyed on Binance Chain, while powerful decentralized apps can be built on BSC. With this interoperability, users are exposed to a vast ecosystem that can cater to a myriad of use cases.

BEP-2 and BEP-8 tokens from Binance Chain can be swapped for BEP-20 tokens, the new standard introduced for Binance Smart Chain. BEP-20 uses similar functions to Ethereum's ERC-20.

## TOKEN UTILITY

DAC tokens will have two distinct utilities: (1) DAC tokens will be used to build a diverse real estate portfolio as a proof of concept in the form of fractional real estate asset ownership. DAC token holders will receive real estate portfolio dividends (2) DAC token's can be exchanged for Digital Asset Right Token (DART) and invest in a large pool of tokenized real assets listed on the DA Platform.

Investors can use their DAC token to invest in fractional ownership to a real estate asset on the DA platform by

exchanging DAC for DART or invest via fiat currency. The asset price will be converted from DAC to fiat at market price. DARTs will be tradeable inside the platform allowing for liquidity. This ecosystem enables investors to participate in the real estate market without investment barriers.

After the investment has been made, and on a monthly basis, investors will receive their share of the rental profits or annual yield that the Real Estate asset generates.

### TOKEN ALLOCATION

<b>TOTAL SUPPLY</b>	<b>250,000,000,000</b>
IEO allocation	75,000,000,000
IEO price	0.33 MNT
TOTAL IEO PROCEEDS	24,750,000,000 MNT
IEO AIRDROP	10,000,000,000
STRATEGIC RESERVES (Locked for 5 years)	50,000,000,000
GLOBAL RESERVE (Locked until ICO on global exchange)	75,000,000,000
Founders, Team, Advisors (Locked for 1-5 years)	40,000,000,000

### TOKEN ALLOCATION

### USE OF PROCEEDS

<b>TOTAL IEO PROCEEDS</b>	<b>24,750,000,000 MNT</b>
<b>REAL ESTATE PORTFOLIO</b>	<b>18,000,000,000 MNT</b>
OFFICE	9,000,000,000 MNT
RETAIL	9,000,000,000 MNT
<b>PLATFORM</b>	<b>6,750,000,000 MNT</b>
TECHNOLOGY DEVELOPMENT	1,550,000,000 MNT
OPERATIONS	1,000,000,000 MNT
LEGAL	500,000,000 MNT
MARKETING	2,700,000,000 MNT
RESERVES	300,000,000 MNT
LIQUIDITY	1,000,000,000 MNT

# ROADMAP

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# MEET THE TEAM

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## IO TECHNOLOGIES

IOTECH is an software development company. We provide comprehensive services including development of mobile applications, web-oriented applications, business software solutions, as well as software integration and updating, support, and maintenance of software applications.

Our organization has experience in developing trading systems, user experience and user interface design development of Mongolia's largest banks, Non-bank financial organizations and Board broker systems. Also, our organization has experience developing an integrated platform for the construction infrastructure sector. Our team has studied at prestigious foreign and domestic schools that specialize in modern information technology systems. Furthermore, we ensure the continuity of human resources through IO Institute.

[www.iotech.mn](http://www.iotech.mn)

# MANAGEMENT TEAM

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## DUGERDORJ DAVAADORJ

### **Founder**

Duger Dorj Davaadorj is a Mongolian business professional/entrepreneur with extensive experience in the local startup community and corporate industry. His work experience include Business Development Agent at IOHK/Cardano Foundation (ADA), Digital innovation consultant at The Food and Agriculture Organization of United Nations, co-founder of the Mongolian Blockchain Technology and Cryptocurrency Association, and co-founder of Startup Terminal Coworking space. He graduated from the Grand Valley State University with a bachelor's degree in Business Administration and Finance and later on completed his MBA at the University of Finance and Economics in Mongolia.



## GANBAGANA ENKHBAT

### **Founder**

### **CHIEF EXECUTIVE OFFICER**

Graduated from the School of Economics of the National University of Mongolia with a degree in Banking Management. Ganbagana has worked as an Internal Auditor at the Trade and Development Bank of Mongolia, Executive Director of Yusun Shijir Invest NBFI, the co-founder and CEO of Startup Terminal LLC, co-founder of the Mongolian Blockchain Technology and Cryptocurrency Association. He has a number of professional certificates in Corporate Governance, Investment and Insurance.

# MANAGEMENT TEAM

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## **ENKH-AMGALAN ENKHANDAL**

**Founder**

**CHIEF TECHNOLOGY OFFICER**

Enkh-Amgalan Enkhmandal is the co-founder of IO Technology and IO Institute and splits his time as a CTO and Lecturer. Graduated from Istanbul University with a degree in Computer Engineering. He has 10 years of experience in the software industry as a software developer at N&N Digital and a senior developer at Mongol Content.



## **DULGUUN**

**CHIEF INVESTMENT OFFICER**

Graduated from the University of California Santa Barbara with an Economics and Accounting B.A degree. Internationally he has worked in global Fortune 500 company CBRE as an real estate investment officer, Consultant at global real estate firm Unibail Rodamco Westfield and various CPA firms as an internal staff. In Mongolia, he has worked as a Consultant at PricewaterhouseCoopers in public accounting and as an investment and financial analyst at Newcom LLC working in real estate and renewable energy projects across Mongolia.

# MANAGEMENT TEAM

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**ODKHUU BAYARAA**

**CHIEF FINANCIAL OFFICER**

Odkhuu has graduated from Grand Valley State University with a bachelor's degree in Finance. He began his career as an external financial auditor at one of the big 4 accounting firms, Ernst & Young Mongolia, where he led the audit team on top enterprises of local and international firms for 5 years. He also has 3 years of experience as an asset manager and investment analyst in the hotel and commercial real estate industry.



**TULGA TSEDEV**

**CHIEF OPERATING OFFICER**

Graduated from Saunders College of Business at Rochester Institute of Technology with a degree in Finance. He has hands-on experience in corporate and SME client relationship management, financial budgeting, and forecasting. Directed and supervised ongoing client management and developed the credit portfolio by prospecting new clients, cross selling and offering suitable banking services and financial advice to clients as a Corporate Relationship Manager and Credit Analyst at XacBank. Holds numerous professional certificates in corporate credit analysis, policy, and sustainable financing.

# ADVISOR TEAM

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**BAT-ULZII DASHTSEREN**  
TECHNOLOGY ADVISOR  
Chairman of BLOCKCHAIN AND CRYPTOCURRENCY ASSOCIATION



**MANDUKHAI TSOOTBAL**  
STRATEGY ADVISOR  
Strategic Advisor of COINHUB  
Founder of ORCHUULGA24



**ODSUREN BAATARZORIGT**  
INVESTMENT ADVISOR  
Investment manager of ICT GROUP JSC



**UNDRAL AMARSAIKH**  
MEDIA ADVISOR  
Founder of UNREAD MEDIA  
CEO of VTV



**LKHAGVASUREN NYAMJAV**  
REAL ESTATE ADVISOR  
Vice President of MONGOLIAN PROPERTIES

# ADVISOR TEAM

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**BOLDBAATAR DASHDORJ**

**STRATEGY ADVISOR**

Co-founder of Steppe Group,  
Trusschain tech startups ,  
CEO of Plenti Fund LLC



**MUNKHJARGAL MUNKHBAT**

**LEGAL ADVISOR**

Managing partner at MJL  
**ATTORNEYS AT LAW**

## PARTNER ORGANIZATION

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UA PARTNERS



SANCHIR TECH



BRONZE HERO



MONGOLIAN  
PROPERTIES

# BLOCKCHAIN AND CRYPTOCURRENCIES

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Source:<https://builtin.com/blockchain/>

Blockchain technology is the concept or protocol behind the running of the blockchain. Blockchain technology makes cryptocurrencies (digital currencies secured by cryptography) like Bitcoin work just like the internet makes email possible.

The blockchain is an immutable (unchangeable, meaning a transaction or file recorded cannot be changed) distributed digital ledger (digital record of transactions or data stored in multiple places on a computer network) with many use cases beyond cryptocurrencies.

Immutable and distributed are two fundamental blockchain properties. The immutability of the ledger means you can always trust it to be accurate. Being distributed protects the blockchain from network attacks.

Each transaction or record on the ledger is stored in a “block.” For example, blocks on the Bitcoin blockchain consist of an average of more than 500 Bitcoin transactions.

The information contained in a block is dependent on and linked to the information in a previous block and, over time, forms a chain of transactions. Hence the word blockchain.

## Types of Blockchains

There are four types of blockchains:

### 1. Public Blockchains

Public blockchains are open, decentralized networks of computers accessible to anyone wanting to request or validate a transaction (check for accuracy). Those (miners) who validate transactions receive rewards.

Public blockchains use proof-of-work or proof-of-stake consensus mechanisms (discussed later). Two common examples of public blockchains include the Bitcoin and Ethereum (ETH) blockchains.

### 2. Private Blockchains

Private blockchains are not open, they have access restrictions. People who want to join require permission from the system administrator. They are typically governed by one entity, meaning they're centralized. For example, Hyperledger is a private, permissioned blockchain.

### 3. Hybrid Blockchains or Consortiums

Consortiums are a combination of public and private blockchains and contain centralized and decentralized features. For example, Energy Web Foundation, Dragonchain, and R3.

Take note: There isn't a 100 percent consensus on whether these are different terms. Some make a distinction between

the two, while others consider them the same thing.

#### 4. Sidechains

A sidechain is a blockchain running parallel to the main chain. It allows users to move digital assets between two different blockchains and improves scalability and efficiency. An example of a sidechain is the Liquid Network.

### HISTORY OF BLOCKCHAIN

The first blockchain-like protocol was proposed by cryptographer David Chaum in 1982. Later in 1991, Stuart Haber and W. Scott Stornetta wrote about their work on Consortiums.

But it was Satoshi Nakamoto (presumed pseudonym for a person or group of people) who invented and implemented the first blockchain network after deploying the world's first digital currency, Bitcoin.

Because blockchain technology is the technology behind the blockchain, it cannot be owned. It's like the internet. But anyone can use the technology to run and own their own blockchains.

### How blockchains work

Records stored using traditional ledgers are also easy to tamper with, meaning you can easily edit, remove, or add a record. As a result, you're less likely to trust that the information is accurate.

Public blockchains solve both these problems – and the way we trust – by evolving the traditional bookkeeping model to triple-

entry bookkeeping: transactions on a blockchain are cryptographically sealed by a third entry. This creates a tamper-proof record of transactions stored in blocks and verified by a distributed consensus mechanism.

These consensus mechanisms also ensure new blocks get added to any blockchain. An example of a consensus mechanism is proof-of-work (PoW), often referred to as “mining.”

Mining isn't universal to all blockchains; it's just one type of consensus mechanism currently used by Bitcoin and Ethereum, though Ethereum plans to move to another—proof-of-stake (PoS)—by 2022.

Here's how this process works with Bitcoin. When sending Bitcoin, you pay a small fee (in bitcoin) for a network of computers to confirm your transaction is valid. Your transaction is then bundled with other transactions pending in a queue to be added to a new block.

The computers (nodes) then work to validate this list of transactions in the block by solving a complex mathematical problem to come up with a hash, which is a 64-digit hexadecimal number.

Once solved, the block is added to the network—and your fee, combined with all other transaction fees in that block, is the miner's reward. It's that simple.

Each new block added to the network is assigned a unique key (via cryptography). To obtain each new key, the previous block's

key and information are inputted into a formula.

As new blocks are continually added through the ongoing mining process, they become increasingly secure and harder to tamper with. Anyone caught trying to edit a record will simply be ignored. All future blocks then depend on information from prior blocks—and this dependency from one block to the next forms a secure chain: the blockchain.

#### Proof of Work (PoW) vs. Proof of Stake (PoS)

A public blockchain functions through consensus mechanisms: the process for validating transactions without a third party like a bank.

PoW and PoS are two such mechanisms. While their goal—to reach a consensus that a transaction is valid—remains the same, how they get there is a little different.

#### What Is PoW?

PoW, the technical term for mining, is the original consensus mechanism. It is still used by Bitcoin and Ethereum as of writing but, as mentioned, Ethereum will move to PoS by 2022. PoW is based on cryptography, which uses mathematical equations only computers can solve.

The example in the previous section of how blocks get added to the Bitcoin Blockchain explains this system.

The two big problems with PoW are that it uses a lot of electricity and can only process a limited number of transactions simultaneously (seven for Bitcoin). Transactions typically take at least ten minutes to complete, with this delay

increasing when the network is congested. Though compared to the days-long wait required to wire money across the globe, or even to clear a check, Bitcoin's ten-minute delay is quite remarkable.

Other consensus mechanisms were created to solve these PoW problems; the most popular being PoS.

#### What Is PoS?

PoS still uses cryptographic algorithms for validation, but transactions get validated by a chosen validator based on how many coins they hold, also known as their stake.

Individuals aren't technically mining, and there's no block reward. Instead, blocks are 'forged.' Those participating in this process lock a specific number of coins on the network.

The bigger a person's stake, the more mining power they have—and the higher the chances they'll be selected as the validator for the next block.

To ensure those with the most coins aren't always selected, other selection methods are used. These include randomized block selection (forgers with the highest stake and lowest hash value are chosen) and coin age selection (forgers are selected based on how long they've held their coins)

The results are faster transaction times and lower costs. The NEO and Dash cryptocurrencies, for example, can send and receive transactions in seconds.

## CRYPTOCURRENCIES

A cryptocurrency is a digital or virtual currency that is secured by cryptography, which makes it nearly impossible to counterfeit or double-spend. Many cryptocurrencies are decentralized networks based on blockchain technology—a distributed ledger enforced by a disparate network of computers. A defining feature of cryptocurrencies is that they are generally not issued by any central authority, rendering them theoretically immune to government interference or manipulation.

## INITIAL EXCHANGE OFFERING

In blockchain terms, an initial exchange offering (IEO) is an initial coin offering (ICO) which is undertaken by a cryptocurrency exchange rather than by the issuing company. IEOs differ from ICOs in that issuing companies are screened by a third party (an exchange) and must meet certain criteria. Only companies who meet an exchange's criteria for listing can list their tokens on the exchange. In this way, cryptocurrency exchanges play a similar role to that played by stock exchanges in the stock market.

A stock exchange screens companies and only companies which meet its criteria can hold an initial public offering (IPO) and subsequently list their stock on the exchange. A cryptocurrency exchange screens companies and only companies which meet its criteria can hold an IEO and list their tokens on the exchange.

This sets IEOs apart from ICOs, where companies sell their tokens directly to investors. ICO can be compared to over the

counter (OTC) stock trading, where shares or participation certificates are sold directly by their issuing companies to investors without regulation by a third party.

IEOs differ from security token offerings (STOs) in that they are regulated by cryptocurrency exchanges whereas STOs are regulated by government authorities.

# REAL ESTATE INDUSTRY

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## GLOBAL REAL ESTATE INDUSTRY

SOURCE: [HTTPS://WWW.PWC.COM/US/EN/INDUSTRIES/ASSET-WEALTH-MANAGEMENT/REAL-ESTATE/EMERGING-TRENDS-IN-REAL-ESTATE.HTML/](https://www.pwc.com/us/en/industries/asset-wealth-management/real-estate/emerging-trends-in-real-estate.html)

The size of the professionally managed global real estate investment market increased from \$9.6 trillion in 2019 to \$10.5 trillion in 2020. However, the Covid-19 pandemic had a significant impact on the global real estate industry. More than a year after COVID-19, the industry is still recovering from the effects of the outbreak. The challenges of the recovery are still being met by the industry's various constraints. The global economy contracted by 4.4 percent in 2020, the worst performance since the Great Depression.

The real estate industry is expecting a robust recovery in the second half of 2021, but uncertainties around the COVID-19 variants and the easing of social distancing restrictions still remain a concern. Despite the pandemic, the Asia Pacific region is leading the recovery, mainly due to its robust growth rates and the fact that its major economies are in better condition than other western countries.

Despite the volatility that could arise from the current environment, real estate is still attractive to investors due to its yield spread over other asset classes. According to a PWC report, global industry leaders believe the potential real estate income growth is even stronger this year than in pre-COVID times. The residential housing market has seen a better recovery compared to the commercial real estate market. Both the US and Europe are experiencing higher demand for

residential real estate based on the fact that the shift in remote working and more time spent at home has increased the demand. Although the recovery process for the commercial real estate sector in the US and European markets is slow, the Asia Pacific region is seeing a much quicker recovery in real estate income, demand, and value. Industry leaders are expecting the Asia Pacific region to outperform other regions due to the better management of the pandemic and increased economic activity in the foreseeable future.

## Economic conditions

The International Monetary Fund (IMF) expects economic growth in 2021 to be upwards of 5.5 percent. Major concerns for the real estate industry recovery are the effects of the unprecedented levels of fiscal and monetary stimulus. The IMF estimates that direct fiscal support for businesses, employees and the unemployed during the pandemic now exceeds US\$12 trillion. With quantitative easing (QE) on top, governments and central banks have shelled out a total of \$24 trillion of stimulus to "put a floor under the world economy". One consequence is that the debt total for governments, companies and households across the world has reached an all-time high of US\$281 trillion, or more than 355 percent of global GDP, according to the Institute of International Finance.

The global economy will experience several years of above-trend growth as it rebounds out of the Covid crisis. Growth will

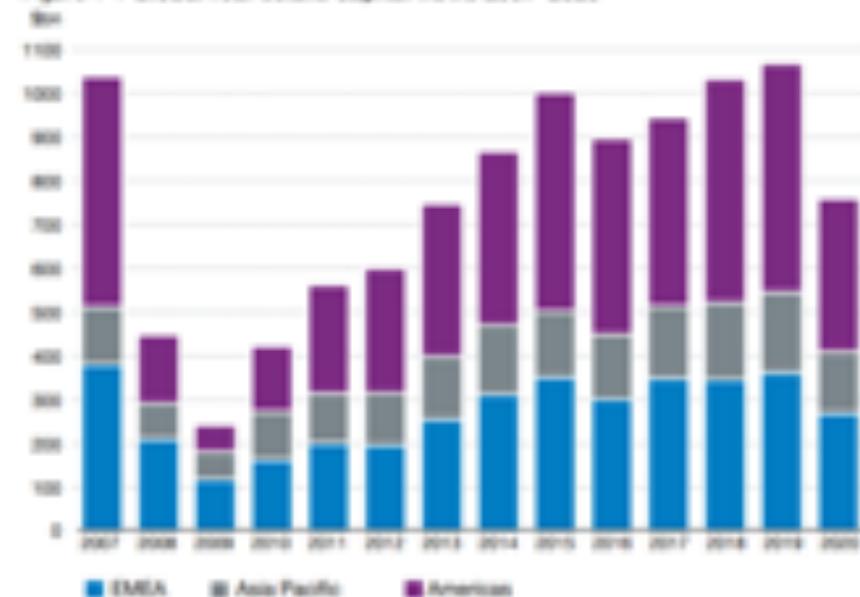
be helped by vaccine rollouts, accommodative fiscal and monetary settings, and the better adaptation of firms and households to restrictions where they remain in place.

The property industry in many Western markets voiced its concerns about the security of income given the nonpayment of commercial and residential rents – in certain markets, government-approved non-payment of rents

Real estate keeps attracting capital. With higher national debt burdens resulting from the stimulus and support programs, governments and central banks are expected to maintain low interest rates this year as they try to keep the public finances stable. It is no surprise, therefore, that many industry leaders across all regions are convinced that real estate will benefit from a lower or even longer interest rate environment. But even with the possibility of a rise in rates next year or beyond, they believe that the yield spread over other asset classes would still prove hugely persuasive to investors. If anything, the inherent attraction of real estate income appears stronger now than in pre-COVID times.

According to Real Capital Analytics (RCA), global trading of income-producing properties fell by as much as 29 percent to US\$759.4 billion in 2020, which was generally expected although interestingly not as sharp a decline in volumes as in the 2008 Global Financial Crisis (GFC). The figures also signal an improvement in many markets by the year-end as vaccination programs started in some countries, which reflects the cautious optimism for 2021.

Figure 1-1 Global real estate capital flows 2007-2020



The future of work and how it affects the office sector are arguably the most fascinating unknowns in real estate as corporate occupiers continue to focus on managing through the pandemic rather than taking long-term decisions. Though the early, extreme “end of the office” pronouncements have subsided, COVID-19 nonetheless means that owning and managing an office building is a far more challenging proposition than before – especially around the health and wellbeing of occupiers.

While high-quality buildings, modern and adaptable office solutions will remain in high demand and attract capital investments; low quality buildings are likely to decrease in demand. The pandemic has been a catalyst for the trend of

remote working and industry experts expect US and European companies to shift from a traditional work setting into a hybrid working environment; but, the narrative is completely different in the Asia Pacific region. Major cities with a dense population and smaller apartment units, such as Hong Kong and Tokyo are unsuitable for a working from home environment. Moreover, cultural factors in Asian countries will limit the trend in remote working.

### Retail sector

Much of the physical retail industry had been hit by the rise of online sales for years before the outbreak of COVID-19, albeit essential and convenience shopping have proved to be notable exceptions. The structural refocus of retail continues while the overall trading outlook for 2021 remains bleak in the US, parts of Europe and Asia Pacific.

The industry has already experienced an oversold retail real estate market and according to industry experts, there is ample opportunity to buy attractive retail real estate at a significant discount. In many cases, retail real estate will be repurposed for more creative and usable formats such as co-working or co-living.

### Hospitality sector

In no other sector has COVID-19 had such a sudden and devastating impact as it has in hospitality. Many hotels have seen occupancy and income fall to a fraction of pre-pandemic levels, posing a serious economic risk to operators, but also cities that are heavily reliant on tourism.

Unlike retail, the slump in leisure tourism is mostly cyclical, which is seen as a factor in its favour although some forecasts suggest that international travel and tourism will not return to pre pandemic levels until 2025. Much still depends on the rollout of the vaccine and the relaxing of travel restrict.

**Housing** Favourable supply-demand dynamics have led investors across all three regions to increase their allocations to residential for years, but COVID-19 has clearly accelerated this trend. It is seen as a defensive rebalancing of portfolios, but equally important, the industry is also addressing the need in society for more affordable housing. “Residential is an enormous, untapped sector that in many countries is just embryonic,” says one global investment manager. “We’ve seen what’s happened in North America over the last 40 years, where it’s become a major investable asset class for institutions. The same thing has happened in Japan. But in many other parts of the developed world, it hasn’t really begun.”

### United States

Investment volumes slumped by a third to US\$405.4 billion in 2020, according to Real Capital Analytics, but the stark year-end total masks encouraging signs of a pick-up in transaction activity in the more resilient property sectors during the final quarter. Though the early data for 2021 indicate a fall in deal activity, industry leaders canvassed for this report nonetheless express “a sense of relief” that there is “more predictability” for the US economy following the election. “It’s a little easier to build conviction around an investment strategy,” says one.

In the meantime, the logistics, industrial cold storage, data centre, medical office, life sciences and suburban housing sectors have shown extraordinary resilience over the past year. Values for logistics properties, in particular, have held up and are expected to increase in 2021. By contrast, senior living has endured historic low occupancy rates during the pandemic although this is seen as a temporary decline. As in every region, hospitality has been badly hit during the crisis although interviewees point out that deals are being done – heavily discounted pricing is evidently tempting some investors back to this sector. Retail, however, remains under a heavy cloud, with COVID-19 accelerating the shift from bricks and mortar stores to online sales. US shopping malls were the first to suffer years ago and are clearly still bearing the brunt of this difficult transition although most US players believe the best malls will adapt successfully. “The mall space needs to be rethought,” says one. “There will be an opportunity in that space, whether it’s redevelopment as residential, distribution or other uses. And then I believe there will be a time – probably not in the short term – when there’s going to be this consolidation where retail will do very well. But it’s hard to say because I think 25 percent of the thousand malls that are out there today are likely to be gone in the next 12 to 24 months.” The short-term outlook for US offices, meanwhile, is hard to untangle from the move to widespread remote working and the demographic-based suburban growth, especially in the Sunbelt markets. Though COVID-19 has called into question the appeal of big cities the world over, the “population shift to the suburbs”, as one interviewee puts it, is much more of a US trend.

## Europe

Huge volumes of quantitative easing (QE) and record low interest rates continue to help European real estate overcome the negative economic effects of COVID-19.

“What’s interesting is that capital values and rents have not tracked with GDP in this crisis in the way that we’ve seen historically. It’s quite unusual and it’s largely driven by the QE factor,” says one industry leader. It is one reason why office values and rents have held up remarkably well as the industry comes to terms with remote working and the debate around just how office property will be used in future. Against that uncertainty, overall take-up has slumped to its lowest level since the 2008 global financial crisis (GFC) with little respite anticipated in 2021 as major corporate occupiers cut back on costs or delay decisions. Yet Berlin and Paris lead Emerging Trends Europe’s ranking of overall investment and development prospects for cities in 2021, just as they did pre-COVID. As it turns out, prime office yields in Berlin and Paris are widely acknowledged to have seen compression during the pandemic while pricing has held steady in London despite the early post-Brexit loss this year of financial services business to the European Union. However, interviewees note that London and Paris are struggling disproportionately with some of the pandemic’s side effects compared with smaller competing cities. Aside from the collapse in foreign tourism, both these big capitals have a high dependence on public transport and therefore the not entirely appealing prospect of long, crowded commutes to work once lockdown is over. They also have the social distancing issues of higher office densities per employee.

These pandemic-related challenges are informing the industry debate — as yet unresolved — around urbanisation, densification and where future opportunities lie. “The reality of it is that the statistics on urbanisation are pretty compelling,” says one interviewee. “London and Paris have had a bigger impact from COVID. But fundamentally, smaller cities like Copenhagen, Hamburg, Munich, are all still growing.”

The European real estate industry sees investing in housing — social, affordable and private rented — as fulfilling a basic need in society but also as a prudent defensive play at a time of economic uncertainty. Germany, Denmark and the UK have all seen strong investor demand for housing over the past year. There is, however, pandemic-related caution attached to student accommodation, retirement housing and co-living, at least for 2021. “We’ll be very selective about where we take risk, across all sectors,” says one investment manager, “but in the living sector demand outstrips supply pretty much across all European geographies. And, we haven’t been building enough residential accommodation for the demand since the GFC, and even before the GFC.” For the short term, the industry hopes for an upturn in investment in the second half of 2021, but much depends on the vaccine rollout and the continuing government policy responses to the pandemic, not least in Germany following its September election. With Chancellor Angela Merkel not standing for office after four consecutive terms, this so-called “super election year” may yet test Germany’s position as Europe’s safe haven for capital.

## **Asia Pacific**

The success of Asia Pacific governments in containing the spread of COVID-19 has become a key factor in reassuring global investors of the region’s relative strength as an investment destination in 2021 and beyond. The interviews suggest that many global investors are “placing their biggest growth bets” on parts of Asia Pacific. As one industry leader points out, “a lot of people concluded back in March of 2020 that there was probably going to be a correlation between who recovers first [economically] and who has handled the pandemic better”.

Others suggest that the favourable megatrends that helped attract global capital to the region before the outbreak of COVID-19 — such as growing savings and the massive emerging middle classes in places like China and India — are as important as ever. As one global investor active across the region observes: “If you’re in Asia, it’s because you believe in the demand drivers in Asia. Not because of international capital flows, not because of multinational tenants or whatever it may be. That plays a part of it, but that’s rounding errors in all these economies.” According to Real Capital Analytics (RCA), there was an overall 23 percent year-on-year fall in transactions to US\$141.2 billion but an encouraging final-quarter pick-up in activity. It is still worth highlighting the differences in capital trends across a region of such disparate economies. Sharp declines in investment by both domestic and foreign players in Singapore and Australia, in particular, dragged the 2020 total down although interviewees expect core capital to return to both markets in 2021. In stark contrast, India, Taiwan and South Korea all achieved record investment volumes last year, and

there is no sign of any let-up in momentum. In the case of South Korea, a surge in office and retail investment — driven by domestic institutions — resulted in Seoul becoming the world's largest retail transaction market in 2020, and the second largest office market, behind Paris.

### **Mongolian real estate industry**

The Mongolian real estate industry is largely concentrated in the capital city of Ulaanbaatar. Ulaanbaatar is the unchallenged political, economic and cultural center of the nation. The vast majority of the country's housing stock is located in the capital. While provincial cities will offer significant growth opportunities in the future, Ulaanbaatar is currently the only market with reliable data and investment opportunities.

The city consists of nine administrative districts, six of which are contiguous. All nine districts are divided into smaller subunits. The real estate market can be split into four main zones: the central business district, peripheral residential areas, the underdeveloped urban sprawl "ger districts", and the new southern suburbs.

Ulaanbaatar has changed rapidly in recent years as a result of rapid economic growth and rural urban migration. Economic growth and new-found wealth have led to the construction of modern skyscrapers and luxury homes. On the other end of the spectrum, the rural migrants who have flocked to the city in search of opportunity often end up residing in poor conditions within the city's ger districts.

Ulaanbaatar hosts a diverse residential market. The market heated up in 2017 after a subdued 2016 which was characterised by oversupply in the residential sector, and a sharp drop in consumer confidence. The district-by-district analysis in Section 3 gives a much more detailed breakdown of the supply and demand forces affecting prices in different city locales. Overall, strong economic growth and rising wages will be the main determinants of demand for residential space. In 2017, the economy grew at over 5%, and a rate of over 6% is anticipated in 2018. In a small economy, this can have a noticeable effect on wages, increasing the purchasing power of locals. Though the mortgage market is still in its infancy, the asset review of the banks conducted in 2017, may enable a moderate roll out of loans, contributing to affordability.

### Residential

UB's residential market is extremely diverse. On one end of the market you have high-end luxury apartments (often in excess of 300 square meters) with full modern amenities and sweeping views of the countryside. On the other end, you have individuals residing in temporary felt tents without running water, heat, or electricity. Often these extremes can be found within a few hundred meters of each other. Between them, various Soviet era and modern developments exist. Diversity aside, the residential sector has been on a sharp upward trend for the past decade. Supply has increased dramatically and, with the exception of the period surrounding the 2009 global financial crisis, both rental and sales prices have increased substantially almost every year. However, as with many complicated developments, the devil is in the details. There are parts of the city (e.g., Sukhbaatar District and the Zaisan area of

Khan-Uul District) where residential real estate has dramatically outperformed the general market. Differing idiosyncratic supply and demand factors will lead to a different mix of locations outperforming others in the future. As the old adage goes, "There are three things that influence a home's value: location, location and location". The wealth of historical residential market transactions in our database allows us to provide a detailed analysis of past trends, and make forecasts about future evolutions in each of these districts. The real value of this report lies in the district level analysis featured in Section 3. There are, however, certain city-wide forces acting upon both the demand and supply side of the residential market that have shaped the way the market has developed and will continue to develop in coming years. The report also strives to provide accurate district-level analysis of the office, hospitality, and retail sectors. However, the paucity of detailed historical transaction data in office, hospitality, and retail precludes the possibility of developing effective models on a district-by-district level.

#### Office

Buoyed by the mining-based boom in Foreign Direct Investment (FDI), which started with the completion of the Oyu Tolgoi Investment Agreement in 2009 and lasted until the run up to the 2012 parliamentary election, demand for offices skyrocketed. From 2010, developers began to rapidly commission new projects in order to meet the needs of international and growing local firms. Enormous future developments materialized, as organizations looked to cash in on the flood of international companies commencing operations in Ulaanbaatar. FDI declined markedly, as a

consequence, at least in part, of a controversial new investment law, and acceleration of populist rhetoric in the run-up to the 2012 election. The subsequent drop in commodity prices put a further damper on exploration companies and junior miners. Between 2014 and 2016, the uncertainty in Mongolia's investment climate and weak global natural resources market pushed demand for Grade A & B office space below the levels of 2011, and occupancy rates crept down from nearly 100% to around 65%. With a much improved economic picture since the IMF package we expect occupancy to increase. This said, with a glut of new supply coming online this may still place downward pressure on rents and prices in the coming years. Select opportunities are available but taking the market as a whole, it is relatively exposed when compared with the capital's other real estate sectors.

Offices were one of the best performing sectors in Ulaanbaatar just a few years ago. In the wake of the Oyu Tolgoi investment agreement, dozens of junior miners and investment firms flocked to the country looking for a piece of the action. Riding the crest of the decade-long global commodities super cycle, firms awash with cheap cash from foreign investors competed for the limited supply of premium office space in the downtown area, bidding up rental and sales prices in the process. The situation changed dramatically with the economic difficulties experienced by Mongolia. Office is perhaps the sector where Mongolia's current short term economic troubles have most clearly manifested themselves.

#### Retail

Retail may be the hidden hero of Mongolia's real estate market.

Developers have tended to focus on high-end office and luxury residential complexes over the last few years, and neglected the needs of a growing consumer class. Though relatively small in absolute numbers, there are important sub-sectors of retail that are still underserved. A rise in real incomes, credit facilities and, consequently, purchasing power has led to strong and rapidly expanding sales figures for both local retailers and the handful of international brands that have already opened stores in Ulaanbaatar. Luxury and “midrange” products are both flourishing and generating sales per unit area metrics that are already competitive at an international level. In fact, research indicates mid-range brands are outperforming their luxury counterparts, flouting trends in other parts of Asia and underlining the fact that, contrary to popular perception, Mongolia’s growth is trickling down. Recent sales manager and developer surveys consistently confirm a high level of business confidence in the retail sector. Rental yields for retail space are in excess of 16% in prime locations and APIP expects sales and rental prices will continue to rise steadily as rapid growth and more widely available credit push demand up faster than supply. The amount of prime retail space in the city center will increase only modestly over the next few years as larger mixed-use developments come online. 2014 & 2015 saw the launch of a number of satellite retail destinations in the Khan Uul region of the city. These retail and entertainment destinations are already running with full occupancy and some asking prices are similar to the CBD. If carefully selected, investors may benefit from strong capital appreciation.

The undersupply of existing quality retail space coupled with rising wages and the emergence of new wealth makes a compelling argument for growth in the retail sector. The

square footage of grade A retail outlets in the downtown area is still comparatively small, especially when compared to more developed office and residential sectors. The next two years will see a number of enormous office developments come online as well as a plethora of luxury residential projects, yet future developments for retail, in the downtown area at least, remain relatively stagnant- limited to a few dozen floors in new mixed use developments. Assuming the residential projects are completed and sold, this will further assist in driving demand.

### Hospitality

With its spectacular scenery, unique culture and economic potential, Mongolia has the capacity to develop a thriving tourist sector. The number of foreign visitors per annum has grown steadily since 2000 with new airlines and flight routes established as well as a new international airport due to open shortly. This increased interest saw tourism industry revenues rise to over MNT206bn in 2013, and it has been relatively stable since then.<sup>55</sup> Mongolia saw a 14% increase in tourism in 2017, reaching a figure of 469,000.<sup>56</sup> Most tourists are from China, Russia and South Korea.<sup>57</sup> As a result of the recent influx of tourists and business travellers, the past few years have seen a growth in the 5-star hotel market, from relative obscurity, to now hosting the Best Western and Shangri-La. According to our estimates, there are seven 5-star hotels in Ulaanbaatar supplying about 1,163 rooms in total. With limited supply, and few future developments, the hotel sector looks to have great potential in the coming years.

The scenery, flora and fauna of Mongolia are quite exceptional. Its strong and growing mining sector has the capacity to affect

its natural appeal, however, this is attenuated by restrictions on the total amount of land available for exploration. It is therefore unusual in its ability to benefit from both business and recreational visitors. There has been a steady increase in travelers since the millennium, with a healthy increase in the number of airlines serving Ulaanbaatar. There is likely to be a further improvement in connectivity with the opening of a new airport. Recent infrastructure improvements and those planned for the future- serve to open up the country further, whether to the lush Siberian forests.