

Deloitte.

Israel:
A Hotspot for
Blockchain Innovation

February, 2016



Foreword

Dear Reader

Over the last year Deloitte has researched, engaged and actively participated in building the foundations of the global ecosystem of blockchain. Although blockchain has already become a trending buzz word (for better or worse), we believe 2016 will be the year in which this technology will start making waves within traditional businesses and industries.

This publication is a first-of-its-kind overview of the rising Israeli blockchain ecosystem. The report focuses on the potential of the Israeli blockchain ecosystem and offers unique mapping of the leading players within this ecosystem.

Deloitte Israel has positioned itself as a bridge to innovation and is actively connecting global organizations with Israeli startups and entrepreneurs.

We encourage you to reach out, discuss and explore ,together with us, how you can leverage the power of our ecosystem both locally and globally.

Best regards,
Amit Harel
Innovation Practice Leader
Deloitte Israel

Introduction

Blockchain, mostly known as the backbone technology behind Bitcoin, is one of the hottest and most intriguing technologies currently in the market. Since 2013 Google searches for “blockchain” have risen 1900%. Similar to the rising of the internet, blockchain has the potential to truly disrupt multiple industries and make processes more democratic, secure, transparent, and efficient. Entrepreneurs, startup companies, investors, global organizations and governments have all identified blockchain as a revolutionary technology.

Israel, driven by a strong defense industry, technological military units and cutting-edge academic institutes, has become a hub for startups and hi-tech innovation. The country’s unique experience with fintech, cyber and cryptography, has positioned Israel as a hotspot for blockchain innovation.

This report introduces 38 startups within Israel leading the blockchain revolution. Due to blockchain’s highly flexible nature, these startups span a wide variety of focuses from social networking through security to hardware. In conducting research for this report, the first to cover the Israeli blockchain ecosystem, we interviewed industry leaders, entrepreneurs and experts who offered their insight into the Israeli and global blockchain landscape.

Deloitte Israel has become a global bridge to Israeli innovation for multi-national organizations. Understanding the disruptive nature of blockchain technology, Deloitte has positioned itself as an industry leader, with the ability to connect global organizations and investors to the emerging Israeli blockchain startup ecosystem. With profound industry knowledge and business expertise we offer our services as the guide to exploring and exploiting the tremendous opportunities involving blockchain technology.

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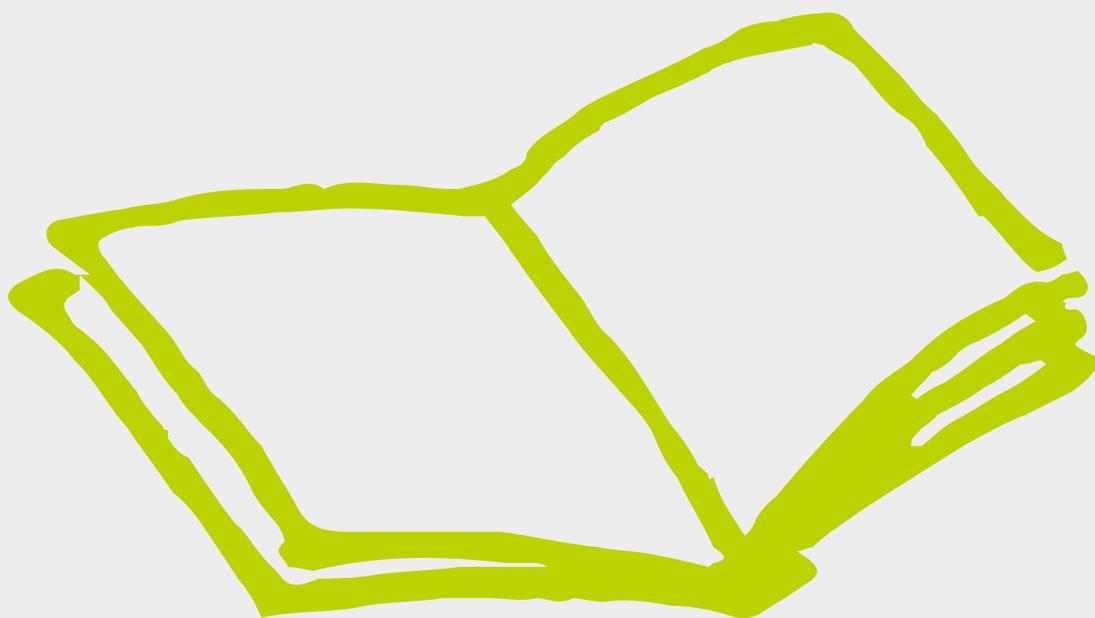


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Background:

What is a Blockchain?



Blockchain, the technology behind Bitcoin, a true game-changer

The digital currency 'Bitcoin' has been featured in numerous articles and has gained widespread recognition and some might even say notoriety. If you have read up a bit about bitcoin you might have also come across the term 'Blockchain', the underlying innovative technology that makes it possible.

Although bitcoin has been the center of attention over the last few years, we believe that blockchain technology may be the game-changer that truly disrupts and revolutionizes many industries.

So what is a Blockchain?

A blockchain can be defined as a **digital, chronologically updated, distributed** and **cryptographically sealed** record, of all data transfer activity.

It may be thought of as a cloud-based ledger that is shared among a network of users (the "participants"), recording all data being transferred between them. This record displays all the information related to the data, while at the same time allowing the identity of the involved participants to remain confidential. The record can be viewed by all participants, but updates can only be made after being agreed upon by a majority of participants. Furthermore, once the data is entered into the record it can no longer be deleted.

Digital

Given that almost any type of information can be expressed in digital format and subsequently referenced through a ledger entry, a wide and diverse range of potential implementations emerge.

Chronologically updated

The technology provides verification and authentication through permanent time stamping. Each block points and refers to the data stored in the previous block in the chain, so all blocks are linked to one another.

Cryptographically Sealed

Once a specific block in the chain is sealed, it can no longer be tampered with or changed, thus preventing deletion, copying or editing, essentially creating a truly digital asset.

Distributed

An identical copy of the record is shared by all, thus allowing each participant to independently verify its contents. The fact that the blockchain can only be updated by consensus of a majority of participants provides an inherent safeguard, mitigating the risk of fraud and eliminating the need for a centralized coordinated verification process.

Any attempt to gain a majority, manipulate the system and alter its records, could be detected by other participants, consequently discrediting the system and preventing any benefit from being realized.

Additionally, due to its dispersed architecture, being shared and duplicated across multiple sites, there is no single point of failure. If one node in the network fails, whether due to attack or outage, the remaining nodes can continue to operate unhindered, ensuring data availability and reliability.

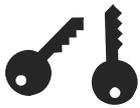
The most widely recognized manifestation of blockchain technology has been the “Bitcoin”

Bitcoin, a form of cryptocurrency, was the first truly decentralized digital currency. Bitcoin functions as a P2P system, providing people with the means to transfer value digitally and directly.

How does it work?



Person A wishes to transfer bitcoins to Person B.



To securely and anonymously transfer the bitcoins, two components are necessary:

1. **Private key** – similar to a password for an email account, it's kept secret and known only to its owner – only he has access to the account and its contents (i.e. bitcoins).
2. **Public key** – comparable to an 'unidentified email address', although assigned to a specific participant, the owner's identity is not disclosed and it can be shared throughout the network. Anyone possessing the 'email address' can send 'content' intended for its owner.



Bitcoin Miners' around the world are alerted of the pending transaction.

Miners take it upon themselves to perform a validation process, keeping an ongoing record of all transactions and ensuring that each coin is only being used once at any given time.



Miners verify that Person A has enough bitcoins to make the payment.



'Proof of work'

The verification process involves solving a complex set of algorithms requiring a significant amount of computational power.

Miners compete to be the first to complete the process and upon completion broadcast their results to the rest of the miners who will then confirm that the result is indeed correct. When a certain majority of miners confirm the result, the block (containing information regarding transactions that took place within a defined period of time) is cryptographically sealed and added to the blockchain. The algorithm awards the “winning” miners with a certain number of bitcoins.



Within 10 minutes of initiating the transaction, Person A and B get a confirmation that the bitcoins were signed over.



What about manipulation?

Any attempt to manipulate the process by gaining a majority control would necessitate an exorbitant amount of computational power, roughly equal to 13,000 times that of the world's 500 most powerful supercomputers.

Blockchain, moving beyond Bitcoin

Alternative Blockchains

The pursuit to enable wider functionality and address certain perceived drawbacks to the original Bitcoin-blockchain technology, has spurred the exploration of possibilities to create new alternative blockchains, while utilizing the same underlying technology.

These new blockchains attempt to address various constraints of the original technology such as allowing faster settlement times, larger transaction sizes, additional consensus methods, varying degrees of anonymity, advanced functionality, adjustable permissions, etc.

Permissioned vs. Unpermissioned Blockchains

One subgroup of alternative blockchains are private or permissioned chains. The difference between a permissioned and unpermissioned blockchain essentially boils down to whether participation and interaction with the blockchain can be restricted.

In a permissioned system only approved (whitelisted or blacklisted) participants have access and may interact with the ledger.

This as opposed to an unpermissioned system, which is open to all and as such does not require identity disclosure.

For example, Bitcoin is in essence an unpermissioned system, providing those who partake in it a degree of anonymity, which due to its attractiveness to criminal elements, has contributed to its notoriety.

In light of security and regulatory concerns, the prospect of an unpermissioned system has been a deterrent for many financial institutions, although the core concept of a verifiable secure distributed ledger that negates the need for an intermediary component (with its inherent accompanying downfalls in the form of costs, delays, and risk) is compelling. This has led to a growing effort to examine the possibility of implementing various forms of private blockchains in these sectors.



Unpermissioned blockchains

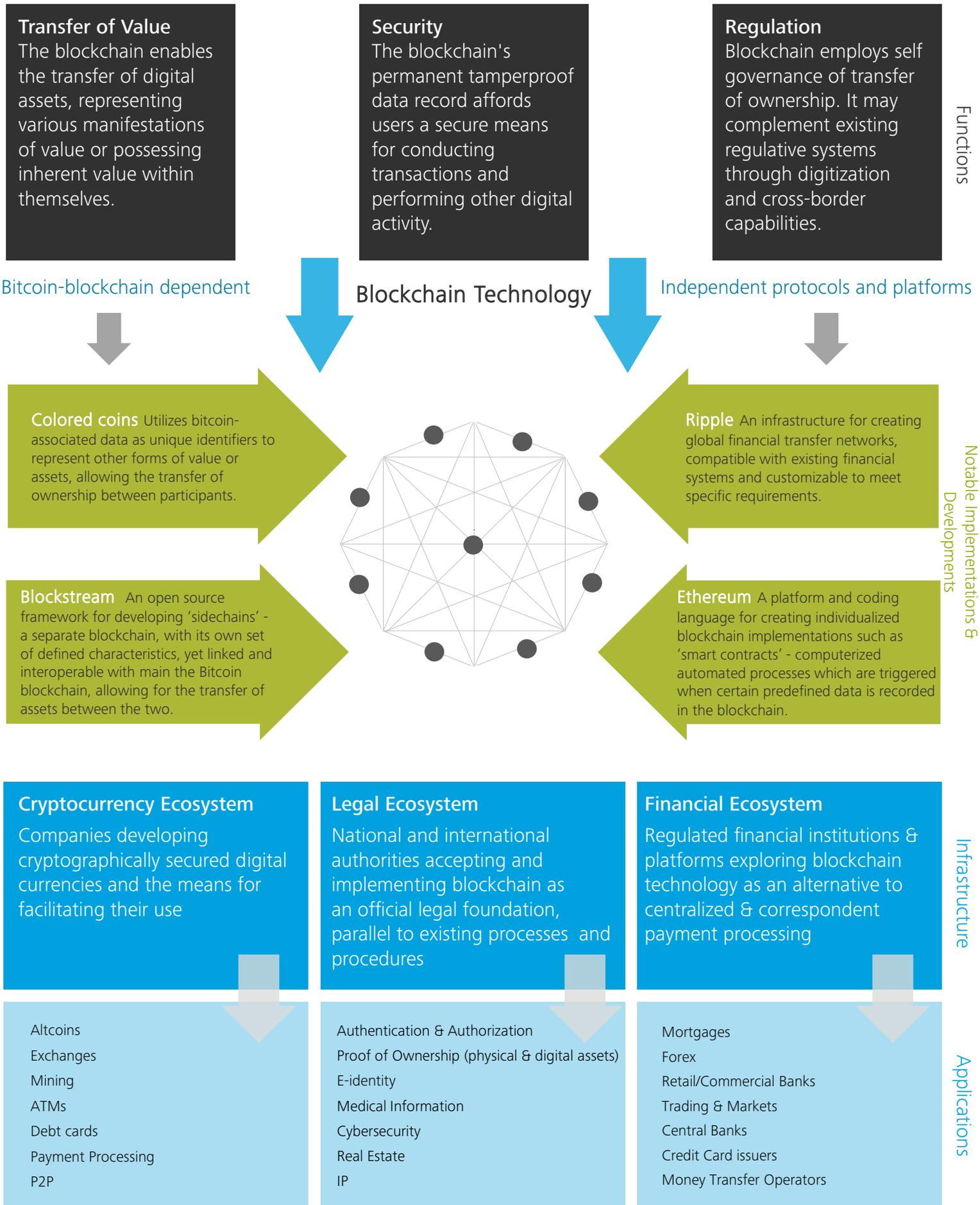
- Everyone can participate
- No identity disclosure
- Manipulation is difficult due to its "distributed" nature (no trust needed)
- Example: The Bitcoin blockchain

Permissioned blockchains

- Restricted participation
- Identity disclosure
- Trust is required since participants have greater control power
- Example: The 'utility settlement coin' by UBS (prototype)



The Blockchain Ecosystem



What are the benefits & challenges associated with the implementation of blockchain technology?

Benefits

Disintermediation & trustless exchange Two parties are able to make an exchange without the oversight or intermediation of a third party, eliminating the counterparty risk

Empowered users Users are in control of all their information and transactions

High quality data Blockchain data is complete, consistent, timely, accurate, and widely available

Durability, reliability, and longevity Due to the decentralized networks, blockchain does not have a central point of failure and is better able to withstand malicious attacks

Process integrity Users can trust that transactions will be executed exactly as the protocol commands removing the need of a trusted third party

Transparency and immutability Changes to public blockchains are publicly viewable by all parties creating transparency, and can never be altered or deleted, therefore creating immutability

Ecosystem simplification With all transactions being added to a single public ledger, it reduces the clutter and complications of multiple ledgers

Faster interbank clearing and settlement Previously banks and financial institutions would have to wait days for securities to clear; blockchain shortens this process to minutes

Lower transaction costs By eliminating the need of a third party intermediary, users are able to exchange assets without paying a transaction fee

Challenges

Nascent technology Resolving challenges such as transaction speed, the verification process, and data limits will be crucial in making blockchain widely applicable

Uncertain regulatory status Because modern currencies have always been created and regulated by national governments, blockchain and Bitcoin face a hurdle in widespread adoption by pre-existing financial institutions if its government regulation status remains unsettled

Large energy consumption The Bitcoin blockchain network's miners are attempting 450 thousand trillion solutions per second in efforts to validate transactions, using substantial amounts of computer power

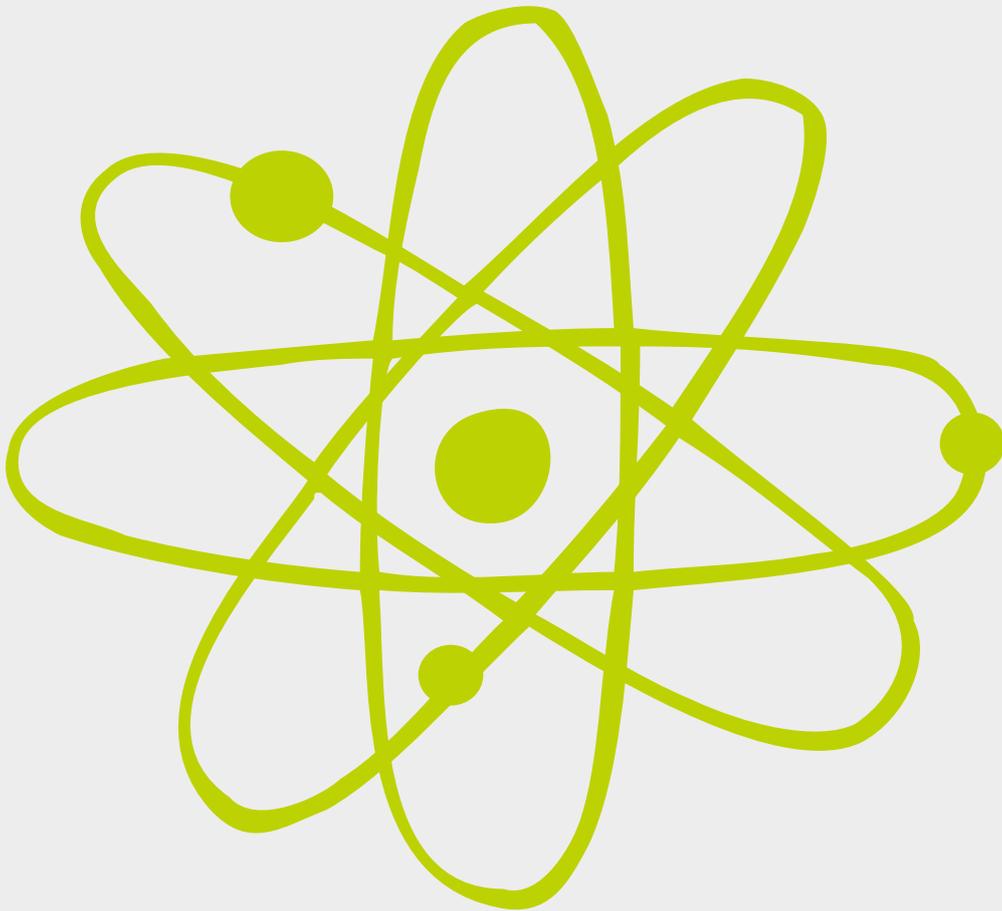
Control, security, and privacy While some solutions exist, including private or permissioned blockchains, there are still cybersecurity concerns

Integration concerns Blockchain applications offer solutions that require significant changes to, or complete replacement of, existing systems. In order to make the switch, companies must strategize the transition

Cultural adoption Blockchain represents a complete shift to a decentralized network which requires the buy-in of its users and operators

Cost Blockchain offers tremendous savings in transaction costs and time but the high initial capital costs could be a deterrent

Israel's innovation ecosystem



Israel - the world's 2nd best entrepreneurial ecosystem

Israel – The hotspot for disruptive innovation

For more than a decade Israel in general, and the city of Tel Aviv in particular, has positioned itself as a global leader for innovation and of the faster growing hotspots for technology. Israel is mostly known for its rich ecosystem and ability to produce disruptive and cutting-edge innovations. The Israeli technology industry has turned into an economic success story by both local and international standards.

Technology in Israel

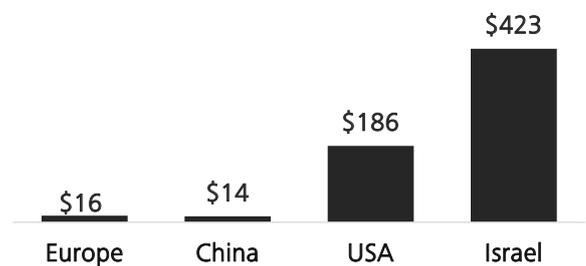
Israel has the highest concentration of technical companies outside of Silicon Valley and the highest number of NASDAQ-listed technology companies, after the U.S. and China. Also, Israel's technology industry accounts for 15.7% of the country's GDP.

The 2015 Global Startup Ecosystem ranked Tel Aviv 2nd place after the US.
[Criteria: Performance, Funding, Talent, Market Reach, and Startup Experience]

The 2015 Bloomberg Innovation Index ranked Israel #5, outpacing the US.
[Criteria: R&D performance, tech education, patents, and other marks of technology process]

Over 1,000 exits = over \$60 billion in capital
of Israeli technology companies in 2006 - 2015

2015 per capita investment in startups



2015 was another strong year of exits & investments in Israeli startups with 104 deals of over \$9 billion

\$8.4 bn.

The total value of 96 Israeli Hi-Tech M&A deals in 2015

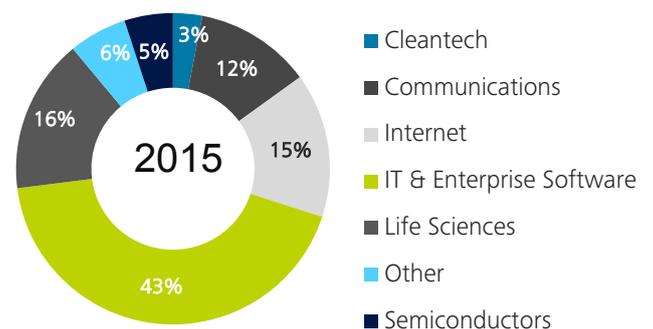
\$609 mn.

From IPO activity in 2015

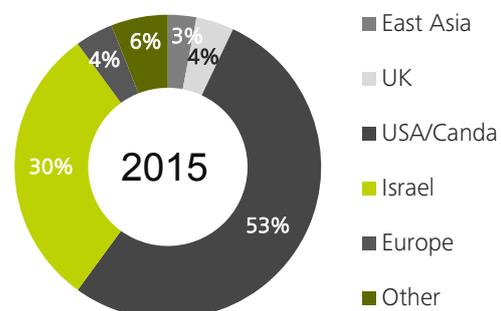
1,400 new startups,
in 2015, out of which:



Exits by sector



Buyers by geography, M&A deals



Key reasons for Israel's innovation success



Unique Society

- Educated & skilled workforce:
 - Ranked 2nd in the world in percentage of engineers and scientists in the work force
- Israel experienced several waves of highly educated immigrants coming from all over the world
- Young people already receive a high technical training during their military service and are equipped with a high sense of responsibility and success orientation

Market



- Lack of natural resources led to a scientific-technological innovation system developed to ensure Israelis a high quality of life
- The country's small size and geographical isolation from its neighbors enhanced domestic dynamics

Government Support



- The government's technology incubator program supports innovation and start-ups' growth
- Demand for technical innovations for defense and military purposes
- The 'Investment Law' enables foreign companies to benefit from a company tax rate of only 10%, and investment grants of up to 24%.

Strong R&D Focus



- **No. 1 in the world** in R&D expenditure per capita
- Israel invests about 4.25% of its GDP in R&D, which is the **highest ratio of any country** in the world
- Israel's universities are ranked among the world's leading research institutes

VC Industry



- **Ranked 5th in the world** for venture capital availability
- Israel's venture capital industry has approximately 70 active venture capital funds, of which 14 are international VCs with offices in Israel

Highly innovative & strong managerial entrepreneurship



- Israeli managers were **ranked 2nd in the world** for business entrepreneurship
- Israel is world renowned as being **the "start-up nation"** and is the **world leader** for number of start-ups per capita with ~5,000 active technology start-ups
- Profit-driven Israeli innovations include a long list of market firsts such as disk-on-key technology, IP telephony, ZIP compression, the ingestible pill-size camera, modern drip-irrigation technology, ICQ instant messenger, and many more

Leading multinational companies



- **Fortune 500 companies** such as Google, Microsoft, Facebook, Apple, IBM, Intel, SAP, Cisco, Johnson and Johnson and over 300 global tech leaders have local presence in Israel

Fintech, one of Israel fastest growing Hi-tech sectors

Fintech encompasses a range of economic business-to-business (B2B) and business-to-customer (B2C) activities, including payments, money transfers, credit card charges, check scanning, ecommerce and digital consulting, customer relations management, and app trading services. Serving originally financial institutions, recent technological changes in global IT markets are pushing the fintech industry to seek solutions, that include virtual banks, currencies and NBFi (non-bank financial institutions).

430

Israeli fintech companies, including large enterprises as well as hundreds of local startups

14

Multinational fintech R&D centers in Israel

\$369 million

raised capital by 61 fintech Israeli companies in 2014. During the first three quarters of 2015, about 43 Israeli companies are reported to have raised capital.



Israel has an established legacy of fintech companies that have become leaders in their respective fields (Actimize: fraud prevention, FundTech: transaction banking solutions, Retailix: Point-of-Sale, Trusteer: cybercrime prevention, and Sapiens: Insurance)

Israeli financial institutions have always been open to innovation.

Israeli fintech covers all aspects of the growing demand for better payments systems and security solutions.

Major international banks (e.g., Citibank, Barclays) and leading players in the financial market (SunGard, PayPal, Intuit, RSA) establish their presence in Israel, building up fintech innovation labs and startup accelerators.

Israel, and specifically Tel Aviv, at the forefront of blockchain technology

Israel – a strong player in blockchain technology

1. Cyber security and cryptography play a key role in the Israeli defense establishment; as such, the military serves as a potent incubator for these fields.
2. There are numerous Israeli entrepreneurs and startups that are currently developing a wide range of blockchain applications. The dynamic nature of weekly blockchain meetings and the close cooperation between the science, innovation and finance sectors, function as a powerful driving force behind the blockchain industry in Israel.
3. The “Israeli Factor” – Israel is well known for its entrepreneurial spirit and booming startups scene, successfully introducing many cutting edge technologies to the world.
4. Israel is uniquely geographically positioned to serve as a gateway to numerous markets. Providing easy access to Europe as well as to Eastern Asian and African countries, Israel is ideally located for conducting business with foreign markets.
5. Israel's relatively small size (approximately 20,000 sq. km), provides for a highly concentrated business arena. Consequently, due to their fairly close proximity, it is very easy for companies throughout the country, to interact and collaborate with each other.

Israeli universities with blockchain research pioneers



Professor Adi Shamir, internationally recognized cryptographer expert, Turing Award winner, and Israeli Prize for Computer Sciences recipient



Prof. Eli Ben-Sasson, leading computer science researcher and developer of zerocash protocol, whereupon users can exchange bitcoins without revealing any personal information



Senior lecturer Dr. Aviv Zohar, author of several blockchain publications, including a proposal that would increase the transaction speed of bitcoin exchanges without compromising security concerns



Senior lecturer Eron Tromer, expert in cryptography and information security, and head of the Lab for Experimental Information Security

Bitcoin activity within Israel

- 10K to 15K Bitcoin owners in Israel (worldwide estimate: about 10 mn.)
- 4 Bitcoin ATMs located throughout Tel Aviv
- About 150 - 230 businesses accept Bitcoin in Israel with almost 50 brick-and-mortar stores accepting Bitcoin as payment in the city, including kindergartens, tattoo parlors, lawyers, a car repair shop, and about 15 bars and restaurants in Tel Aviv
- 2015 Bitcoin events hosted in Tel Aviv:
 - (1) *Inside Bitcoins Conference* - 350 participants attending lectures of key Bitcoin experts and discussing the cryptocurrency ecosystem
 - (2) *Bitcoin Hackathon* - 100 participants building decentralized apps
 - (3) *Weekly Bitcoin embassy meetings*

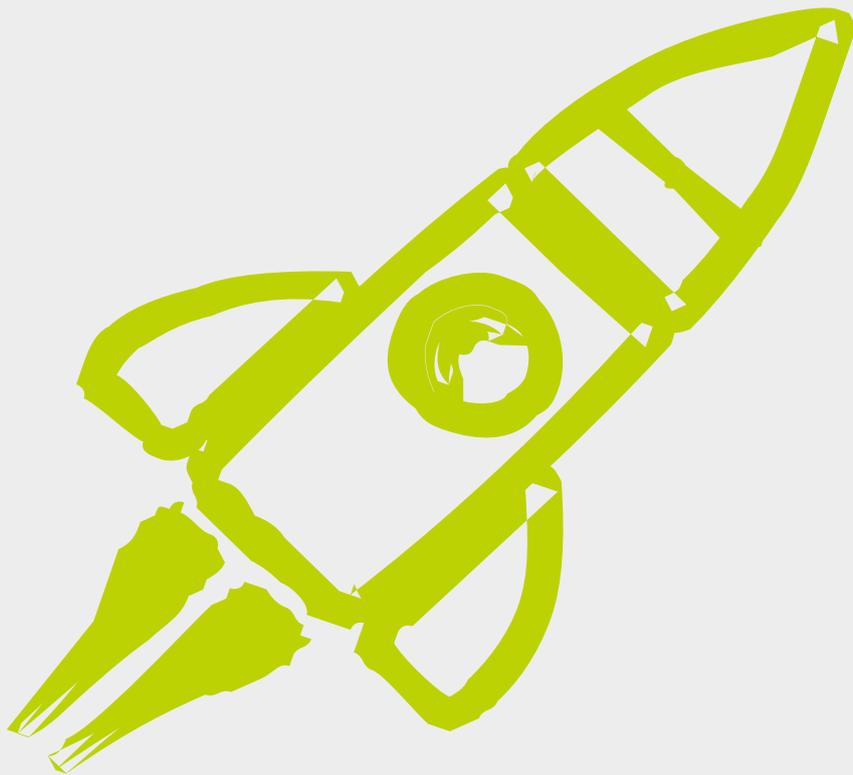


The Israeli Bitcoin Association (IBA) is a nonprofit organization with a mission to ensure that the people of Israel will benefit as much as possible from Blockchain technology.

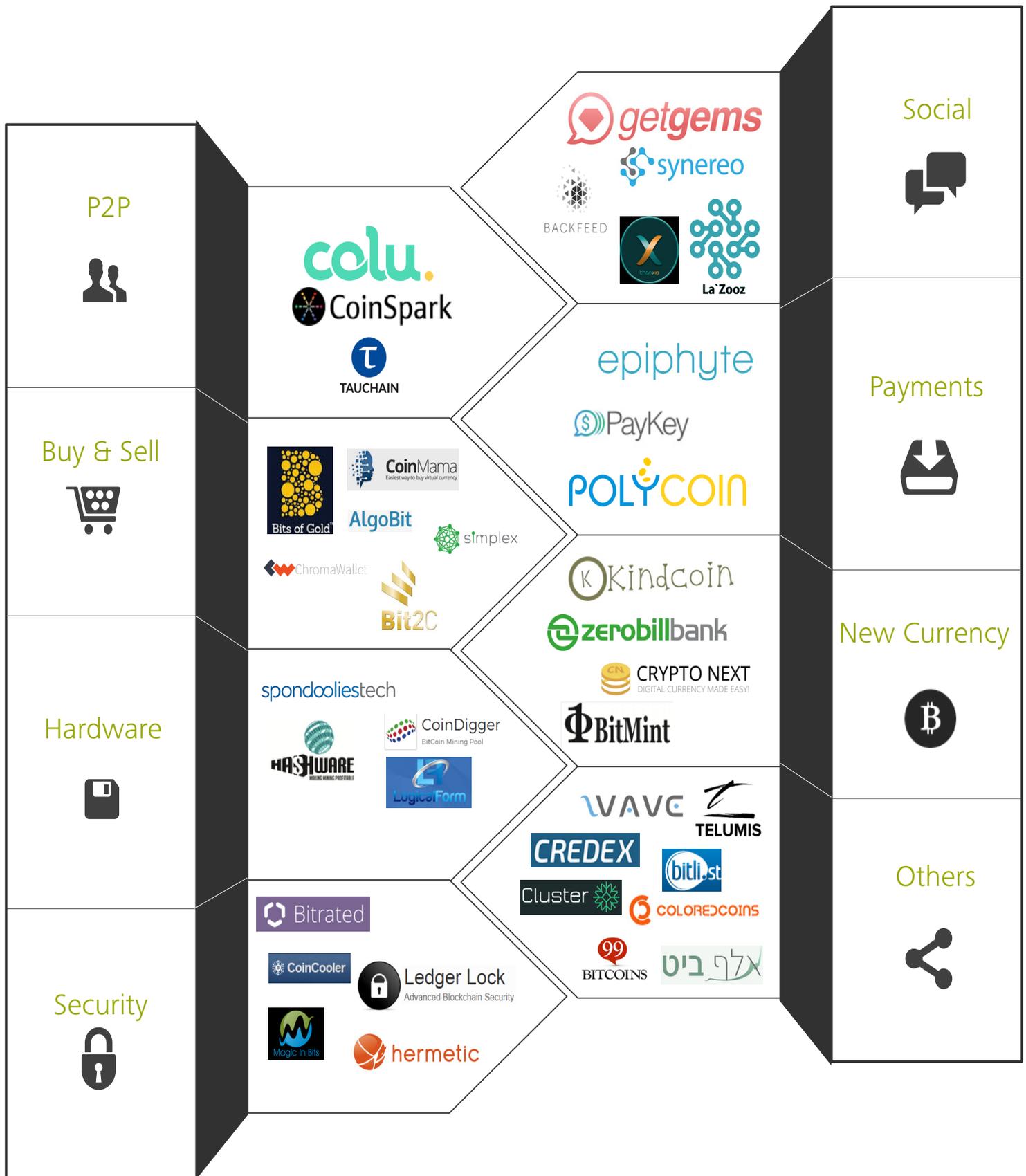


The Bitcoin Embassy in Tel Aviv is the central hub of a large community of people and entrepreneurs, hosting lectures, courses, tutorials, and collaborative work on Blockchain related projects.

The blockchain startup landscape in Israel



Selected Israeli blockchain startups



Notes:

- As of January 2016.
- In some cases, companies may belong to more than one category.
- Inactive startups were excluded.

Israeli blockchain – 11 selected startups

Colu

Founded: 2014,
Management: CEO Amos Meiri, CTO Rotem Lev, VP of R&D David Ring
Employees: 13
Company type: Private
Funding: 2.5 million
Sub-space: P2P
Website: www.colu.co



Colu uses blockchain technology to allow users to buy and store goods online in a secure and validated process. The company raised \$2.5 million in seed investment in January 2015. The founders of Colu originally started ColoredCoins.org, a service for creating digital assets on the Bitcoin blockchain. Colu expanded on this idea by creating an application programming interface for developers and offering an app for consumers to make purchases on anything from sporting tickets to art pieces.

Recently, Colu has formed over 20 partnerships with different operations including Deloitte. The Colu-Deloitte partnership aims to leverage Deloitte's industry knowledge and Colu's technological expertise to bring blockchain to companies across industries. They strive as well to improve blockchain operations for companies already beyond the implementation stage. In addition, Colu has partnered with Revelator, a company which provides sales and marketing intelligence for independent music producers. Colu stores digital copies of songs on its blockchain platform. If anyone attempts to access the songs illegally, the creator is immediately notified and their protection is insured. Colu has also partnered with the online exchange company, Bitt, in an effort to bridge the gap between the bitcoin-style currency and physical money. Focused in the Caribbean where as many as 200,000 people have no bank account but do have smartphones, blockchain technology through Colu will allow these citizens to convert money stored in a digital wallet into bills at ATMs.

Getgems

Founded: 2014
Management: CEO Daniel Peled
Employees: 8
Company type: Non-public
Funding: \$400K Seed on January 4, 2015
Subspace: Social
Website: <http://getgems.org>



CEO Daniel Peled established GetGems as a social messaging app that allows users to send cryptocurrencies. Similar to Whatsapp or Telegram, users can message each other after exchanging phone numbers or usernames. However, each profile is attached to a virtual wallet, so in addition to sending messages users can also transmit virtual currency. Every time a user invites someone to download the app, they are rewarded with 25 gems. Eventually, users will have the opportunity to receive gems for watching advertisements. These gems can be converted to other cryptocurrencies such as bitcoins, gift certificates, or actual dollars depending on the users' preference. As of October 2015, the app had 15,000 users and raised approximately \$1 million in total funding, including investments from Magma VC, one of the early investors of the crowd-sourced navigation app Waze.

The startup was awarded the title of "most visionary social media solution" at the Citi Mobile Challenge in Europe, the Middle East and Africa out of 750 applicants from 101 countries. Citi described the app as "a solution that could transform financial services."

Wave

Founded: 2014
Management: CEO Gadi Ruschin, CTO Or Garbash, VP R&D Yair Sappir
Employees: 1-10
Company type: Private
Funding Stage: Bootstrapped
Sub-space: Other
Website: <http://wavebl.com>



WaveBL aims to replace the use of paper in international shipping agreements by storing the documents electronically on a blockchain ledger. The service connects all members of the supply chain to a decentralized network and allows them to directly exchange documents, including contracts, receipts, and travel logs. Wave manages ownership of documents via blockchain technology which therefore eliminates disputes, forgeries and unnecessary risks (lost shipments, counterfeiting, etc.).

The company was selected to participate in the Barclays Accelerator program.

Logical Form

Founded: 2014
Management: Founder Dror Sam Brama
Employees: 1-10
Company type: Non-public
Funding stage: Bootstrapped
Sub-space: Hardware
Websites: <https://logicalform.com>



Logical Form is an innovative company founded by Dror Sam Brama. Logical Form provides apps and blockchain data templates for banks and enterprises. Although blockchain digital currencies, such as bitcoin, seek to replace banks, Logical Form uses blockchain to authenticate and track items and records for banking institutions. By using Logical Form technologies, banks are able to mitigate double spending, issue authentication without identification, and verify digital signatures.

Most companies founded on the Bitcoin blockchain seek to replace the need of "trusted parties" such as banks or governmental organizations. Logical Form assumes that these entities are here to stay, and concentrates on effectively utilizing the blockchain algorithm.

Israeli blockchain – 11 selected startups

Bits of Gold

Founded: 2013
Management: CEO Gil Assayag
Employees: 1-10
Company type: Private
Funding stage: Seed
Sub-space: Buy and sell
Website: www.bitsofgold.co.il



Bits of Gold specializes in bitcoin services to the Israeli market. The company operates over 150 branches throughout the country where people can buy or sell bitcoins, many of which have bitcoin ATMs. By forming a partnership with the Global Money Transfer (GMT), Bits of Gold can ensure its compliance with anti-money-laundering regulations within Israel.

Besides offering a service for citizens to exchange cash for bitcoins, Bits of Gold also targets merchants who are looking to accept bitcoin as a payment option. Their "Checkout with bitcoin" service allows businesses to accept bitcoins from customers while maintaining their record books in Israeli Shekels. This service is offered to physical stores as well as online stores with headquarters in Israel. Following its launch in Israel in 2013, the company is currently planning to expand to other markets in South America and the Middle East.

"Israelis are early-adopters and many have begun to see the potential of Bitcoin technology."

Jonathan Rouach, Director Bits of Gold

Bitrated

Founded: 2014
Management: Founder Nadav Ivgi
Employees: 1-10
Company type: Private
Funding stage: Pre-seed
Sub-space: Security
Website: www.bitrated.com



Bitrated provides fraud prevention and consumer protection mechanisms for bitcoin transactions. The company builds a layer of trust on top of bitcoin, helping to protect consumers, and allowing merchants to build their reputation. Bitrated serves as a reputation management system. Every user receives a score based upon ratings that were given by other users and based upon other social networks. This allows buyers and sellers to evaluate their counterpart and decide whether or not they want to do business with them.

Additionally, prior to Bitrated if a consumer used bitcoins to purchase an item and never received that item they would be left with very few options to recuperate their losses. Bitrated adds another level of security by introducing a "trust agent" to all bitcoin transactions. These intermediary officials can resolve disputes and reverse payments if fraud is detected. Users can apply to serve as these arbitrators and receive compensation for their services.

Crypto Next

Founded: June 18, 2014
Management: CEO Sharon Greenberg, CTO Asaf Azulay
Employees: 1-10
Company type: Private
Funding stage: Seed
Sub-space: New currency
Website: www.cryptonext.net/



At the Inside Bitcoin Conference in Tel Aviv in 2014, Crypto Next announced its new product, the "White Label Exchange" which gives its customers the ability to set up their own currency exchange in a matter of hours. Users who are eager to create their own, customized cryptocurrency will be able to construct a platform that is tailored to their own personal desires, or the needs of their community or organization. CEO Sharon Greenberg said that "setting up a White Label Exchange will be as easy as registering a domain name." Crypto Next's management team hopes that digital currencies such as bitcoin will become more mainstream through the creation of more user friendly exchanges. Improved service will lead to higher demand for the product, and higher demand will encourage more merchants to accept the digital currencies, completing the cycle of buying and selling.

In 2015 Crypto Next created a new service which allowed users to pair and exchange any cryptocurrency with any other cryptocurrency or fiat currency. Previously, exchanges were only interested in high volume trades, so relatively niche currencies were not able to be exchanged. The company has stated that its goal is to have at least 50 different currencies available for exchange by the end of the year.

Backfeed

Founded: 2015
Management: CEO Matan Field
Employees: 11-50
Company type: Private
Funding stage: Series A
Sub-space: Social
Website: <http://backfeed.cc>



Backfeed provides an opportunity for people to coordinate, collaborate, and create decentralized organizations. CEO Matan Field describes Backfeed technologies as "similar to an Israeli kibbutz where members split the profits based on the contribution, each one makes as perceived by their network in real-time." Backfeed will target a wide range of organizations who can reap benefits of decentralization including taxi services, social networks, insurance companies, and school systems. Using schools as an example, if a teacher is excellent and the students' parents would like to reward her, they would have the power to increase her salary. In a decentralized organization, your contribution and your reward would be determined by your shared community instead of a single person or governmental organization.

Although the platform is currently in development, the founders predict it will launch sometime in 2016.

Israeli blockchain – 11 selected startups

Spondoolies-Tech

Founded: 2013
Management: CEO Guy Corem, COO Kobi Levin
Employees: 11 – 50
Company type: Private
Funding: \$6.5 million
Sub-space: Hardware
Website: www.spondoolies-tech.com

spondooliestech

Spondoolies-Tech is a company focused on building mining rigs for cryptocurrency. Currently the subsidy is 25 bitcoins, but this value will be halved approximately every four years. This process allows new coins to be disseminated in the market in a decentralized manner and also motivates people to provide security for the system. The process is intentionally designed to require significant computational power so that the number of blocks mined each day remains steady. Spondoolies-Tech specializes in producing this complex equipment.

The company constructs easy to use machines that are relatively simple to set up, and are designed for both private and commercial users. In 2014 Spondoolies-Tech launched five different products and produced \$28 million in revenue. In 2015 the company merged with Bitcoin Shop, a Bitcoin-specific retail website.

CoinSpark

Founded: 2014
Management: CEO & Founder Gideon Greenspan, CTO Michael Rozantsev
employees: 1 – 10
Company type: Private
Funding stage: Bootstrapped
Sub-space: P2P
Website: coinspark.org

CoinSpark

CoinSpark allows users to send private messages attached to Bitcoin transactions. This technology adds a personal touch to the exchanges of cryptocurrencies. "Every payment system has a way to attach information with payment, so if you're sending money, you have the opportunity to explain if this is payment for a contract or it's an investment in a company. That's kind of necessary or the recipient might not always know what the purpose of a transaction is, and that's something that's always been missing from Bitcoin," said CEO Gideon Greenspan. If Bitcoin hopes to compete with digital exchanges such as PayPal or SWIFT, then adding personal messages to transactions is a necessary component.

CoinSpark's parent company, Coin Sciences, also offers a product called MultiChain that allows organizations to rapidly design and operate private distributed ledgers. The public nature of the Bitcoin blockchain presents several security drawbacks. With MultiChain, companies have far greater control, including limiting who can connect to their blockchain, who can send and receive transactions, and who can create assets and blocks.

Simplex

Founded: 2014
Management: CTO Erez Shapira, CRO Netanel Kabala, CEO Nimrod Lehavi
Employees: 11 – 50
Company type: Private
Funding: \$8.4 million in 2 rounds
Sub-space: Buy and Sell
Website: www.simplexcc.com



Simplex provides Bitcoin exchanges, broker websites and wallet applications with a safe, fraud-free and fully protected platform for selling Bitcoins online. Simplex is unique in offering the ability for users to buy Bitcoin online via credit card transactions.

The company has no minimum amount of purchase, can be accessed globally and has low barriers to entry for users without strong technical knowledge. In the event of fraud or a chargeback, Simplex absorbs the cost and the customer still receives the money.

Deloitte Israel – Creating Opportunities



Deloitte Israel – Your bridge to innovation

Deloitte Value Proposition: Deloitte Israel is the right partner to connect and integrate startups and innovative Hi-Tech firms with key global players from multiple industries

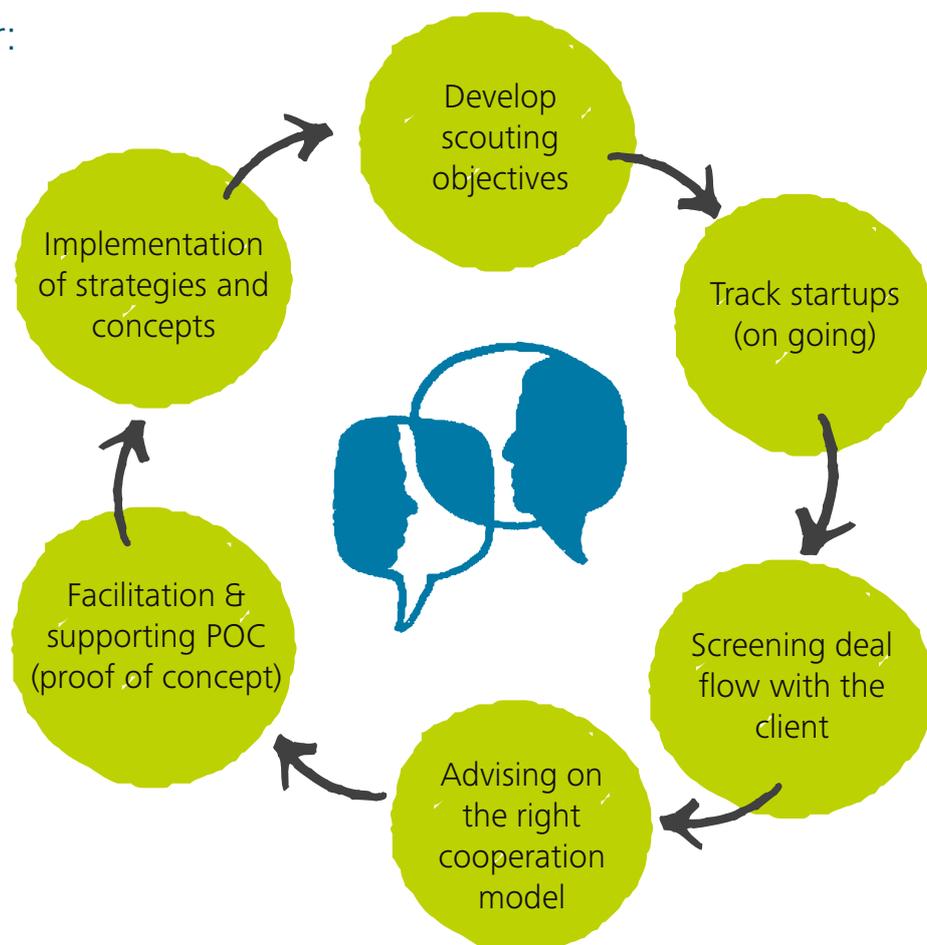
SCOUTING SERVICES Extensive experience and insights from similar assignments with major global multinational companies from the USA, Japan, Europe, China, and more.

STRATEGY COMPETENCY Cutting edge methodologies to assess target synergy fit, acquisition implications – through industry renowned thought leadership and understanding of success/failure drivers in alliances, JVs, and acquisitions.

MARKET PRESENCE An experienced team, based in Tel Aviv, combining cross-functional background in fintech, IT, blockchain, and corporate finance. With 20+ years of experience and relations, we develop unique methodologies to nurture local innovation, fuel entrepreneurship and assist global power-houses with matchmaking services.

PARTNERSHIPS Strong partnerships/alliances with VCs, accelerators, innovators in Israel. Global experience serving leading PE and VC firms leading to an extensive network of institutional investors.

What we offer:

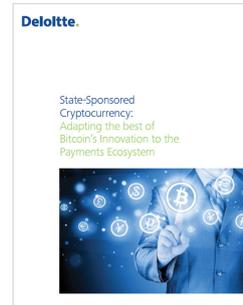


Deloitte - blockchain as a service

Our global network is very active and offers a wealth of insight into blockchain applications, including service platforms, publications and participation in blockchain related events/panels.



Rubix, a leading edge blockchain platform launched by Deloitte in 2015, allows companies to prototype, test, and build their own customized blockchain. Additionally, companies can tap into the emerging technology of smart contracts. Rubix has assembled a team of blockchain experts who have the capability to advise companies through the complicated yet powerful offering that the technology provides.



Deloitte has coordinated an ecosystem of blockchain pioneers

Since 2014 we have been combining Deloitte's strategy and innovation consulting practices with a growing ecosystem of the world's top entrepreneurs, scientists, technologists and business leaders which has led to groundbreaking blockchain initiatives such as:

World Economic Forum Collaboration

Deloitte partnered with the WEF to explore the transformative potential of innovation over 15 months. This exercise involved over 40 financial industry leaders, over 100 technological innovators, and 6 global workshops.



Singularity University

An educational institute that brings together top experts, such as Michael Rhodin, Peter Diamandis and Marc Goodman, to inform financial services leaders how technology is impacting business.

Deloitte Cryptocurrency Community (DC3)

An internal group of over 200 members across 18 countries. The group was created as a cross-industry, cross-functional group exploring the potential of blockchain for our clients while also facilitating connections between startups and established companies or investors. The three primary goals of the DC3 are to educate Deloitte and its clients on opportunities in the space, investigate how blockchain can improve existing services and explore future solutions built on the blockchain.

MIT MediaLab Digital Currency Initiative

Working with Brian Forde, former senior White House advisor for mobile and data innovation, and world-renowned faculty members from Sloan School of Management and the MIT media Lab to research Blockchain and its possible implications on society.

Summary

The Israeli Hi-Tech ecosystem is characterized by **fast movers** and is on the cusp of **breakthrough technological** advancements. The **“startup nation”** offers a unique atmosphere of collaboration, innovation, and entrepreneurship, and is supported by unique academic knowledge, with some of the leading cryptographers and computer science engineers in the world. The fintech and cybersecurity industries, with obvious connections to blockchain technology, are two of the strongest fields within the Israeli startup community.

Israel offers many **opportunities** for companies interested in blockchain, such as investments, M&As, strategic partnerships, innovative solutions, collaborations with tech industry leaders, and many more. This report highlights 38 startups located in Israel and involved in the blockchain technology boom, but there are more companies currently being formed, with the potential of advancing blockchain technology to new frontiers. Although the blockchain ecosystem is currently mostly associated with Bitcoin, the Israeli companies and entrepreneurs are developing solutions that has the potential to disrupt various industries.

Deloitte Israel is uniquely positioned to be the bridge between the leading global organizations and investors and the vibrant Tel Aviv blockchain startup ecosystem. With our vast rolodex of connections, we have the ability to create mutually beneficial relationships between companies. Having in-depth experience with organizations across all stages of the business spectrum from startups through established hi-tech companies to large financial institutions, Deloitte is the right partner for bringing companies together to maximize their potential.

Appendix



Israeli Blockchain Startups: Security

Name & Tag Line	Description	Homepage	Founded
Bitrated: Bitcoin Arbitration Marketplace	<ul style="list-style-type: none"> Bitrated protects customers against online fraud with multi-signature transactions. Bitrated aims to make arbitration an open marketplace, where arbitrators can innovate and find new and creative ways to resolve disputes, and be judged based on the quality of their work and their reputation. By opening this market to new players, Bitrated claims to bring better solutions to consumers and merchants by allowing them to transact safely over the internet, even anonymously. Domain-specific arbitrators with knowledge in specific fields can be chosen, allowing them to make better and more informed decisions. 	www.bitrated.com	2014
Magic in Bits: Bitcoin Security Services	<ul style="list-style-type: none"> Magic in Bits monitors exchanges and evaluates their performance and availability to help customers choose what's right for them. The company's digital currency is stored in multi signature addresses. They are released by the approval of a rule based co-signer that supports limits, whitelists and more. Magic in Bits makes sure customers' wallet software is up-to-date, uncompromised and has the optimal security configuration. Magic in Bits also monitors unauthorized accesses to customers' wallet's private files. Customers' digital currency will not leave their wallet unless they approve it using smartphone, e-mail or SMS. Magic in Bits uses external and internal information sources to provide insights about the identity and the reputation of the receiver. The network is scanned for active attacks and potential threats for digital currency. Magic in Bits also analyzes customers' behavior to prevent suspicious activity. 	www.magicinbits.com	2015
CoinCooler: Easy Bitcoin Cold Storage on an offline RaspberryPi	<ul style="list-style-type: none"> CoinCooler is a kit that helps users to create, encrypt and inspect digital files listing cold storage Bitcoin addresses in a secure and easy way. CoinCooler was designed to make the process of cold storage easy and user friendly without compromising security. CoinCooler runs on a dedicated RaspberryPi that is forever kept offline. Digital files contain a list of Bitcoin Addresses and their associated Private Keys are generated, strongly encrypted, and then downloaded to USB memory sticks. Advanced Features allow users to mitigate some of the risks associated with password loss and a way to enable heirs of users' choice to inherit their bitcoins in case anything happen to them. Finally, users can use CoinCooler to securely inspect the content of their cold storage files so that users can glean the private key when deciding to retrieve funds from any of their cold storage addresses. 	www.coincooler.com	2014
Ledgerlock: Advanced Blockchain Security	<ul style="list-style-type: none"> Ledgerlock is the sister company of Bits of Gold, with CEO Jonathan Rouach. The company focuses on providing advanced blockchain security 	https://github.com/LedgerLock	2015
Hermetic: Eliminate password security without compromising security	<ul style="list-style-type: none"> Hermetic Vault SDK brings secure credential storage to any mobile device, simplifying authentication and privacy control for end users and service providers alike. Sensitive assets are made easily accessible to their owners with just a PIN, swipe pattern or fingerprint. Yet, they remain secure against brute force attacks, server hacking, and even lab attacks. 	http://hermetic.io/	2013

Israeli Blockchain Startups: Buy and Sell

Name	Description	Homepage	Founded
CoinMama: Virtual Currency Buying Platform	<ul style="list-style-type: none"> CoinMama offers a quick way of purchasing virtual currency online by using Credit Card, Debit Card or Cash. Coinmama is a product of New Bit Ventures. 	www.coinmama.com	2013
Bit2c: Israel's Largest Bitcoin Exchange	<ul style="list-style-type: none"> Bit2C Ltd is providing trading services in bitcoin. All trading is executed in the Bit2C website platform, which facilitates interaction between sellers and buyers. 	www.bit2c.co.il/	2013
Bits of Gold: Provides Bitcoin Services to the Israeli Market	<ul style="list-style-type: none"> Bits of Gold's team is working to make this new economy accessible in emergent markets, in traditional banking and financial institutions. They focus is security, ease of use and adherence to regulation. Bits of Gold operates the largest bitcoin change in Israel today, with strict adherence to local regulation. Bits of Gold is expanding the offer to more markets (Middle east and Europe), while working on software modules to enable bitcoin for traditional deposit-holding businesses. 	www.bitsofgold.co.il	2013
Simplex: Credit Card Payments for Bitcoin Exchanges	<ul style="list-style-type: none"> SimplexCC Ltd. enables crypto-currencies exchanges to accept credit cards at no chargeback risk. This is achieved by utilizing fraud analysis and risk management along with a unique understanding of the crypto-currency protocol in its context. The solution expands the total addressable market of Bitcoin by orders of magnitude while accumulating priceless user and identity data and associate with the pseudo anonymous environment. 	www.simplexcc.com	2014
AlgoBit: Algo-Trading Platform for Virtual Currencies	<ul style="list-style-type: none"> AlgoBit is an algorithmic-based platform that uses data and sophisticated algorithms to execute trades in some of the largest crypto-currency exchanges in the world. The company has developed smart algorithms and solid software that enables automatic trading of virtual currencies. Currently, they strive to create a solid basis for an excellent product. Therefore, they are exploring different algorithms such as mathematical trend prediction, machine learning artificial neural network (ANN), Genetic Algorithm, Arbitrage and others. 	http://algotbit.org/	2015
ChromaWallet: Blockchain Platform for Financial Transactions	<ul style="list-style-type: none"> ChromaWallet, the ChromaWay's flag product, is just like a normal Bitcoin wallet, but additionally allows one to work with assets which are represented by colored coins. The ChromaWallet provides any kind of tokens, such as shares, bonds, tickets, private currencies or smart property. Trade transactions are allowed on a build-in decentralized exchange. Information about the ownership of colored coins is recorded directly in the Bitcoin block chain, which means it is unforgettable and doesn't rely on any third-party server to keep valid records of ownership. The company plans to implement Bitcoin's advanced features, such as escrow, dispute mediation, trustless mixing and so on. 	chromaway.com	2014

Israeli Blockchain Startups: P2P

Name	Description	Homepage	Founded
Coin Sciences: Solutions for Public and Private Blockchains	<ul style="list-style-type: none"> Coin Sciences Ltd. develops a suite of technologies and services for public and private blockchains, including MultiChain (www.multichain.com), CoinSpark (coinspark.org), and Coin Secrets (coinsecrets.org). Multichain is an open source distributed database for financial transactions. It's builds on the technology that powers Bitcoin to enable private blockchains with managed permissions. MultiChain is optimized to help financial institutions and service providers accelerate their exploration of blockchain technology. Coinspark is a rich protocol for enhancing Bitcoin transactions with third-party assets and messaging. Coin Secrets shows recent metadata embedded in the Bitcoin blockchain. 	http://coinspark.org	2014
COLU: Secure Validation for Purchases that are Made by Using Bitcoins	<ul style="list-style-type: none"> COLU allows fast access to Colored Coins and Bitcoin 2.0 infrastructure through an easy-to-use fast and secure API that will power the next generation of distributed applications. The company's app for consumers provides secure access to everyday purchases and experiences. COLU platform is the bridge between the technology and everyday use that will enable a broader key and confirmation of who the users are across all these things and experiences. 	www.colu.co	2014
Tauchain: Programmable Decentralized P2P Network Based on Ontologies and Reasoning	<ul style="list-style-type: none"> Tau-chain is a fully decentralized P2P network being a generalization of many centralized and decentralized P2P networks, including the blockchain. The company aims to generalize the concept as much as they find, and give users the ability to implement virtually any P2P network over tau-chain. 	http://www.tauchain.org/	2015

Israeli Blockchain Startups: Social

Name	Description	Homepage	Founded
Backfeed: Decentralized Collaborations	<ul style="list-style-type: none"> Backfeed develops the foundational tools that work on top of blockchain technology in order to empower Decentralized Collaborations. It provides the protocols that make it possible for any disparate group of individuals to easily deploy decentralized applications based on spontaneous, large-scale and free collaboration. Backfeed protocols enable people to coordinate themselves through a decentralized governance model that distributes token rewards and reputation to all collaborators, based on the perceived value of their contributions. The protocols are designed to encourage the internal alignment of individuals within a given community, while also promoting diversity at the margins. With blockchain technology, people can freely collaborate and transact on a peer-to-peer basis, they can deploy decentralized applications and services that benefit the entire community, as opposed to a small group of stakeholders. The potential for disruption is huge and Backfeed is committed to empower the next generation of decentralized organizations on a global scale. 	http://backfeed.cc	2015
La'Zooz: Collaborative Transportation Network	<ul style="list-style-type: none"> La'Zooz is a decentralized transportation platform owned by the community and utilizing vehicles' unused space to create a variety of smart transportation solutions. By using cryptocurrency technology La'Zooz works with a "Fair Share" rewarding mechanism for developers, users and backers. La'Zooz platform will synchronize empty seats with transportation needs in real-time, matching like-minded people to create a great ride-sharing experience for a "fair fare". 	http://lazooz.org	2014
GetGems: Messaging that Pays	<ul style="list-style-type: none"> GetGems is a free mobile app available for iOS and Android. It makes instant messaging with friends fun, simple, secure and profitable. The primary goal of GetGems is to make it easy for millions of people to adopt bitcoin. GetGems has all of WhatsApp/Telegram functionality, with additional features. Every GetGems user automatically gets his own protected wallet. The username is an alias to the wallet address, an innovation that allows users to easily send both bitcoins and gems to their friends by sending a text message. 	http://getgems.org	2014
Synereo: Decentralized Social Network	<ul style="list-style-type: none"> Synereo is a Distributed and Decentralized Social Network. Building a network owned by users and controlled by no one. Users connect directly to one another, via secure cryptographic channels that prevent governments, spooks, and marketing agencies from eavesdropping without consent. The platform allows users the choice of exposing to sponsored content in their stream. The distributor of the content pays directly for taking up users' attention - using AMPs, Synereo's information flow currency. Synereo is being built to provide a new kind of social experience online. 	www.synereo.com	2014
Thankx.io: Bitcoin Messenger	<ul style="list-style-type: none"> Thankx.io, developed by Automatic for the People, hopes to bring bitcoin to the masses with an extremely user friendly Bitcoin wallet. The company offers a messenger program with a connection to Facebook, which allows users to chat with each other as well as send bitcoins to one another through the program, making sending bitcoins as easy as sending a Facebook message. 	https://thankx.io	2014

Israeli Blockchain Startups: Payments

Name	Description	Homepage	Founded
Polycoin: Bitcoin Payments Platform for the Regulated Merchants	<ul style="list-style-type: none"> Polycoin is a crypto-payments management platform, allowing online businesses to start processing transactions in virtual currencies(i.e. bitcoin) while settling in fiat currency directly to the merchant's bank account. Polycoin offers a comprehensive solution suited for the eCommerce, iGaming and the financial markets. 	http://polycoin.io	2013
Epiphyte: Instant Settlement for Trades	<ul style="list-style-type: none"> Epiphyte allows banks to facilitate consumer-to-merchant payments using cryptocurrencies 	http://epiphyte.com	2013
Paykey: Payment app for social networks	<ul style="list-style-type: none"> PayKey enables payments within social network chat. Its solution is independent of the underlying payment technology, including credit cards, wire transfer or distributed ledger. Suitable for FB messenger, WhatsApp, Twitter etc. Leveraging existing networks creates simplicity and an intuitive payment experience. Users enjoy minimal transactions fees and instantaneous money transfer. PayKey's technology is bridging the gap between banking (bank users) and social interactions (social networks). PayKey users enjoy the security of the trusted banks within their favorite applications. 	http://www.paykey.me/	2015

Israeli Blockchain Startups: New Currencies

Name	Description	Homepage	Founded
Crypto Next: Digital Currency Platform to Support All Bitcoin 2.0 Assets	<ul style="list-style-type: none"> Crypto Next aims to make Digital Currencies Easy. The company accepts the largest amount of Crypto Currencies and the largest amount of Fiat Currencies. Crypto Next's software will be available in a white label format and anyone can incorporate an exchange in their existing or newly created websites. Modules will be made available for languages, multiple virtual currencies, multiple fiat currencies, margin trading and futures trading and merchant payment services with recurring payments through the Crypto Next wallet. 	www.cryptonext.net	2014
Zero Bill Bank: Your Asset, Your Way	<ul style="list-style-type: none"> Zero Bill Bank allows community organizers to issue customized digital currency 	www.zerobillbank.co	2015
BitMint: The Becoming of Money	<ul style="list-style-type: none"> The basic idea is to excise the Bitcoin money generation formula, and otherwise apply Bitcoin essentially "as is" over digital coins which are redeemable by the mint that minted them. This will preserve the Bitcoin assured anonymity. The new BitMint solution will benefit from Bitcoin double-spending prevention, and would otherwise enjoy all the benefits associated with money in a digital form. 	www.bitmint.com/	2014
Kindcoin: Support Awesome Causes, Earn Kindcoins, Change The World	<ul style="list-style-type: none"> Kindcoin is a digital currency which the user can earn by supporting great causes. Users can spend, store or transfer Kindcoins to other people. Users can exchange their Kindcoins on rewards at Kindshack.com, pledge them, or trade them. 	http://kindco.in/	2010

Israeli Blockchain Startups: Hardware

Name	Description	Homepage	Founded
CoinDigger: Bitcoin Mining Pool	<ul style="list-style-type: none"> The company is building a large Bitcoin mining pool based on their patent pending ASIC design. Their mining equipment overall system design is optimized for best power performance, allowing them to reduce operation cost significantly. This will ensure the company is very cost effective even in the upcoming fierce battle of the Bitcoin mining ASICs. 	https://coindigger.co/	2013
Spondoolies-Tech: Powerful Bitcoin Miner, Enhancing Cryptocurrency	<ul style="list-style-type: none"> The company offers affordable hosting solutions for customers who don't want the hassle of managing their Bitcoin mining equipment. Founded by a group of Israeli high-tech veterans, Spondoolies-Tech is all about cryptocurrency. The company has assembled a team comprised of several leaders in the Israeli semiconductor industry, with the goal of building the infrastructure on which cryptocurrency will flourish. 	http://www.spondoolies-tech.com/	2013
Logical Form: Apps and Block Chain Data Templates for Banks and Enterprises	<ul style="list-style-type: none"> The core products are Block Chain Data Templates for banks and enterprises. Most companies in the block chain sector seek to replace the need of "Trusted Parties". Logical Form assumes "Trusted Parties" like banks and governments are here to stay. The company therefore concentrates on effectively utilizing the Bitcoin algorithm and protocol between trusted parties, without the complications required when trust is eliminated. 	http://logicalform.com/	2013
HasHWare: Mining Technology's Hardware and Cryptocurrencies	<ul style="list-style-type: none"> HasHWare wishes to make mining accessible to all as well as promoting widespread acceptance of bitcoin and other crypto currencies and therefore have expanded beyond selling mining machines. The company together with its partners Coin Commerce has recently installed Bitcoin payment systems in 25 businesses throughout Israel with more to follow, and plans to install and operate bitcoin exchange ATM kiosks as well as introducing isracoin, the first localized cryptocurrency. 	http://www.hashware.co.il/	2014

Israeli Blockchain Startups: Other

Name	Description	Homepage	Founded
Telumis: Marketplace for Financial Investment Opportunities	<ul style="list-style-type: none"> Telumis is a Financial Opportunities Search Engine that lets the investor search through leading financial Institutions to find Investment Opportunities. Instead of settling for offers from one or two financial institutions, users can utilize a world of opportunities. 	www.telumis.com	2014
WaveBL: The Key to Paperless Trade	<ul style="list-style-type: none"> WaveBL aims to replace the use of paper in international shipping agreements by storing documents electronically 	http://wavebl.com	2014
CredEx: Offers Small Businesses Interest Free Credit Lines for Use in Our B2B Network	<ul style="list-style-type: none"> CredEx is a B2B cred marketplace that allows to trade directly with other, lifting the money barrier. The network has it's own credit system, and offers interest free credit in the B2B network. Users can get credits, spend them in the network and rebalance by selling their goods and services. 	www.credex.com	2014
Colored Coins: Open Source Protocol for Creating Digital Assets on the Bitcoin Blockchain (Website is run by Colu)	<ul style="list-style-type: none"> Colored Coins is an open source Bitcoin 2.0 protocol that enables developers to create digital assets on top of Bitcoin blockchain utilizing its functionalities beyond currency. 	coloredcoins.org/	2014
99Bitcoins: Information portal on bitcoin	<ul style="list-style-type: none"> 99 Bitcoins is a website and blog about Bitcoin. The website aims to close the gap between newbies and the technological aspect of Bitcoin through the use of a non technical blog and simple tutorials explained in laymen terms. 99 Bitcoins also operates the subdomain 99 Affiliates which aims to be the most comprehensive source on the web for Bitcoin Affiliate Programs. 99 Bitcoins has issued out various plugins and apps for the Bitcoin community, including: 99 Coins Ticker, Bitcoin News Feed Widgets, and 99 Bitcoins mobile app 	99bitcoins.com/	2013
Cluster: Disruptive Technologies Hub	<ul style="list-style-type: none"> Cluster offers a space for hi-tech startups to come together and work alongside other startups The company also offers courses on technologies, languages and navigating the Israeli startup landscape Cluster also offers a tour of various hi-tech startups within Israeli 	http://www.clusterhub.org/	2015
Alefbt: Technology Economy	<ul style="list-style-type: none"> Alefbt is a resource for people to learn more about Bitcoin and blockchain The website also offers a guide for Israeli blockchain startups 	http://www.alefbt.com/	2014
Bitli.st: Bitcoin Startups	<ul style="list-style-type: none"> Bitli.st serves as a directory for various Bitcoin startups Users are able to search through a categorized list of different companies 	http://bitli.st/	2013

Notable implementations and developments

Bitcoin-blockchain dependent:

Colored coins - An open source protocol that can utilize the existing Bitcoin protocol for creating specific markers or tokens representing different forms of value or assets. By attaching additional data ('metadata') to the data associated with bitcoins it is possible to 'color' the coins (or more precisely 'color' the bitcoin transaction data) in order to signify alternative value. Specialized wallets allow users to assign and read 'labels' which can be attached to the underlying bitcoin transaction data. Through this process the bitcoin data can serve as identifiers for various assets (stocks, coupons, real property, commodities etc.) allowing them to be securely transferred and traded between various parties.

Blockstream - Offers an open source framework for developing 'sidechains'. A sidechain is in essence a separate blockchain, with its own set of defined characteristics, yet linked ('pegged') and interoperable with the main Bitcoin blockchain, allowing for the transfer of assets between the two. The sidechains can include new and enhanced features, not available or sufficiently addressed in the Bitcoin blockchain, such as increased scripting capabilities, shorter confirmation periods or complete privacy protection. However at the same time by being linked to the bitcoin blockchain, they possess the ability to make use of the existing Bitcoin cryptocurrency, negating the need for additional cryptocurrencies, and afforded the benefits and strengths associated with the Bitcoin decentralized model.

Independent protocols and platforms:

Ethereum - Offers a blockchain based infrastructure coupled with an incorporated programming language, serving as a straightforward means for creating various customized blockchain implementations such as smart contracts, token systems and other decentralized applications.

"Smart contracts" enlist the blockchain's unique characteristics, in order to automatically perform and execute specific condition - dependent operations. They are essentially computer programs, which are synced with the ledger. These programs are set to be activated when certain predefined conditions have been met, recorded and verified by the blockchain. This provides for a secure, reliable and independent means of enforcing and maintaining the terms of a contract.

For instance, if an online purchase was made, transfer of funds can be conditioned upon GPS delivery tracking data being transmitted and registered on the blockchain, confirming that the purchase was indeed delivered and triggering an automated command to release the funds. A more advanced implementation envisioned by blockchain pioneer Nick Szabo would involve actual interaction with an interconnected network of real-world objects, such as those enabled in "Internet of Things" (IoT).

Ethereum has its own cryptocurrency known as 'Ether'. However unlike other cryptocurrencies, it is not meant to serve as a currency for trading value per se, but rather as a means of payment for computational resources consumed by programs running on the platform.

Ripple - Provides the infrastructure for creating global financial transfer networks. The technology is meant to be compatible with existing financial systems and customizable to meet specific requirements. The incorporated network contains a distributed ledger which settles transactions through a 'consensus process'. The process consists of independent servers repeatedly reviewing and comparing transactions and balances, with each iteration requiring an increasing level of certainty, until reaching a 100% consensus on the veracity of the remaining data. An additional element is a 'path-finding' algorithm which enables locating the lowest foreign exchange rate across all order books and currency pairs.



Sources

<http://dupress.com/articles/trends-blockchain-bitcoin-security-transparency/>

<http://dupress.com/articles/bitcoin-fact-fiction-future/>

<https://www2.deloitte.com/content/dam/Deloitte/us/Documents/financial-services/us-fsi-bitcoin-the-new-gold-rush-031814.pdf>

<http://www2.deloitte.com/us/en/pages/consulting/articles/state-sponsored-cryptocurrency-adpating-bitcoin-innovation.html>

Deloitte "The Future of Financial Services Infrastructure. Overview of Blockchain and its transformative potential", December 2015

<http://rubixbydeloitte.com/>

<http://crunchbase.com/>

<http://startupnationcentral.org/>

<http://www.timesofisrael.com/decades-worth-of-israeli-tech-success-worth-50-billion/>

<http://www.globes.co.il/en/article-deloitte-israel-best-for-investment-after-silicon-valley-1001069595>

<http://www.newsbtc.com/2015/09/24/vc-head-believes-israel-will-lead-blockchain-app-industry/>

<http://techcrunch.com/2015/12/19/israels-flourishing-fintech-has-many-fathers/>

<http://www.israelfintech.com/IsraeliFintechIndustryReview.htm>;

<http://www.globes.co.il/en/article-deloitte-israel-best-for-investment-after-silicon-valley-1001069595>

<http://www.globes.co.il/en/article-fintech-one-of-israel-fastest-growing-high-tech-sectors-1001082804>

<http://www.israel21c.org/2015-was-red-hot-year-for-israeli-high-tech-scene/>

<https://www.google.com/trends/explore?q=blockchain#q=blockchain&cmpt=date&tz=Etc%2FGMT-2>

<http://www.geektime.co.il/geektime-zirra-2015-startups-report/>

<http://www.geekwire.com/2015/jeff-bezos-and-ashton-kutcher-just-backed-a-startup-that-helps-other-startups-better-manage-cash-flow/>

<http://www.geektime.com/2015/08/19/backfeed-wants-to-decentralize-the-internet-and-help-you-earn-what-you-deserve/>

<http://cointelegraph.com/news/112802/with-crypto-next-plc-anyone-can-setup-a-digital-currency-exchange-in-a-matter-of-hours>

<http://www.bitcoincasinos.com/blog/crypto-next-integrates-all-cryptocurrencies-for-trading/>

<http://www.viola-notes.com/how-israel-came-to-be-at-the-forefront-of-fintech-innovation/>

<http://www.coindesk.com/information/how-bitcoin-mining-works>

<http://www.coindesk.com/coinspark-blockchain-notarized-messaging/>

<http://www.coindesk.com/israels-dna-bits-moves-beyond-currency-with-genes-blockchain/>

<http://www.coindesk.com/bitcoin-messenger-app-getgems-raises-400k-waze-investor/>

<http://www.coindesk.com/israelis-can-now-buy-bitcoins-in-person-with-bits-of-gold-and-local-exchange-bureau/>

<http://www.coindesk.com/epiphyte-wins-sibos-startup-challenge-crypto-solution-banks/>

<http://www.coindesk.com/2016-blockchain-reality-deloitte/>

<http://www.timesofisrael.com/meet-the-kibbutznik-who-wants-to-disrupt-the-global-banking-system/>

<http://www.forbes.com/sites/investopedia/2013/08/01/how-bitcoin-works/#2715e4857a0b787df96f25ee>

<http://www.timesofisrael.com/israeli-made-tech-behind-bitcoins-is-changing-everything-expert-says/>

<http://www.vbprofiles.com/companies/54c7ca75b229c3db5400823c>;

<http://www.barclaysaccelerator.com/#/about///>

<http://www.newsbtc.com/2015/03/13/how-will-2017s-block-reward-halving-affect-bitcoin-price/>

<http://www.coindesk.com/spondoolies-bitcoin-shop-merger-mining/>

Sources

<https://bitcoinmagazine.com/articles/400000-people-gradually-adopting-bitcoin-tel-aviv-1433881829>;

<https://www.cryptocoinsnews.com/bitcoin-inevitable-say-israeli-politicians-central-bankers/>;

<http://www.newsbtc.com/2015/09/24/vc-head-believes-israel-will-lead-blockchain-app-industry/>

www.economist.com

www.forbes.com: "How Bitcoin works"

<https://www.crunchbase.com/>

<http://techcrunch.com/2014/07/21/startupbootcamp-fintech-2014-cohort/>;

<http://techcrunch.com/2015/12/19/israels-flourishing-fintech-has-many-fathers/>

<http://www.israelfintech.com/IsraeliFintechIndustryReview.htm>

<http://www.ivc-online.com/Portals/0/RC/Exits/2015/IVC-Meitar%20Exits%20Report%202015-Final.pdf>

<http://recode.net/2015/07/05/forget-bitcoin-what-is-the-blockchain-and-why-should-you-care/>

<http://www.extremetech.com/extreme/219651-what-is-blockchain-and-can-ibm-intel-and-big-banks-use-it-to-remake-the-internet>

<http://www.ofnumbers.com/wp-content/uploads/2015/04/Permissioned-distributed-ledgers.pdf>

<http://storj.io/TheBlockchainReport.pdf>

https://www.barclayscorporate.com/content/dam/corppublic/corporate/Documents/insight/blockchain_understanding_the_potential.pdf

<http://www.coindesk.com/companies/ripple-labs/>

<http://motherboard.vice.com/blog/beyond-bitcoin-a-guide-to-the-most-promising-cryptocurrencies>

https://ripple.com/knowledge_center/market-makers-2/

<http://www.coindesk.com/colored-coins-paint-sophisticated-future-for-bitcoin/>

<http://bravenewcoin.com/news/ten-companies-using-the-blockchain-for-non-financial-innovation/>

<http://www.fastcolabs.com/3035723/app-economy/smart-contracts-could-be-cryptocurrencys-killer-app>

<https://docs.erisindustries.com/explainers/>

<http://mapofcoins.com/technologies/ripple>

<https://bitcoinmagazine.com/articles/introducing-ripple-1361931577>

<http://bluzelle.com/blog/ripple-and-blockchain>

<https://www.ethereum.org/>

<http://insidebitcoins.com/news/ethereum-launches-frontier-ether-mining-begins-trading-to-follow/34124>

<https://blog.ethereum.org/2014/07/22/launching-the-ether-sale/>

<http://siliconangle.com/blog/2014/04/21/bitcoin-sidechains/>

<http://gandal.me/2014/10/26/a-simple-explanation-of-bitcoin-sidechains/>

<https://bitcoinmagazine.com/articles/blockstream-moves-ahead-sidechain-elements-first-implementation-sidechains-1433883105>

<https://blockstream.com/fact-sheet/>

<http://www.ibtimes.co.uk/ripple-chief-chris-larsen-sorting-out-payments-will-aid-innovation-securities-settlements-1533687>

<https://github.com/Colored-Coins/Colored-Coins-Protocol-Specification/wiki/Faq>

<http://www.bitcoinisle.com/2016/02/04/simplex-raises-7-million-for-credit-card-bitcoin-buying-service/>

<http://www.geektime.co.il/simplex-raises-7m/>

Antonopoulos, A. M. (2014). Mastering Bitcoin: unlocking digital cryptocurrencies. O'Reilly Media, Inc.
Firstpartner: 2016 The Blockchain Ecosystem

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