Blockchain and Artificial Intelligence and Opportunities for Healthcare in Pakistan

Khurram Hamid
Chief Marketing and Strategy Officer
Investech Partners
ABOUT ME

I have had the humbled privilege to have worked and led digital transformation for some of the biggest companies in the world unlocking approx. $300 million in value through digital transformation strategy and execution.

Today I will talk about the use of Blockchain and Artificial Intelligence in Healthcare and the opportunities it presents in Pakistan
ABOUT INVESTECH PARTNERS

Investech Partners is a global investment management and advisory firm with over $2bn under management. Our Vision is to build and invest in disruptive technologies that drive the 4th industrial revolution.

This is achieved via our Venture Fund called “The Fusion Fund”

What is the Fusion Fund?

• An Emerging Markets $100m Digital Growth Fund
• Focused on investing in disruptive technologies that can solve Billion + people problems
• Creating new Billion $ companies in the emerging markets, with Pakistan as a major focus

Sector Focus

• Healthcare
• Retail
• Media
• Education
• Agriculture

Technology Focus

• Blockchain
• Artificial Intelligence/Big Data
• IOT
INVESTECH PARTNERS AND INBOX ENTER INTO STRATEGIC PARTNERSHIP FOR PAKISTAN

Partnership will cover

1) Bringing new Blockchain Digital Platforms into Pakistan
2) Investing in Pakistani Startups through the Fusion Venture Fund

“We are excited to be partnering with Inbox, a key player in Pakistan’s technology landscape. We believe Pakistan has untapped potential as an investment location for digital platforms. With over 60 million smart phone users accessing high speed internet, the country represents a significant domestic market for new innovative digital products and services. Blockchain has significant opportunities especially in areas of financial services focused on the unbanked, education, healthcare and retail.”

Thomas Stray - CEO Investech Partners.

“Our partnership with Investech Partners is part of our strategic plan to become a transformative digital platform organization in the country and the region. We believe in harnessing partnerships with global disruptive technology companies wanting to enter Pakistan as well as promote and invest in innovative Pakistani organizations that drive our digital economy.”

Mir Nasir - CEO Inbox.
WE LIVE IN THE 4TH INDUSTRIAL REVOLUTION
Data- and intelligence-driven enterprises win.
BIG DATA, BLOCKCHAIN AND ARTIFICIAL INTELLIGENCE IS A TRISECTA

They complement and are interlinked with each other and are required to deliver next generation digital solutions and services.
Blockchain, called the “tech breakthrough megatrend” by PWC, is rapidly gaining broad acceptance. According to IDC, global spending on this innovative technology is expected to reach $2.1 billion in 2018.

Across the globe, industries are investigating ways to use blockchain to increase trust across their business value chains and address primary challenges around complexity, transparency, and security.

- **83%** of executives believe trust is the cornerstone of the digital economy.
- **10%** Global GDP that is likely to be stored on Blockchains by 2027.
- **$9.7B** expected Blockchain market by 2021.
THE BASIS OF BLOCKCHAIN IS A SMART CONTRACT

Smart contracts are digitized agreements between transacting parties that are written in computer code and deployed to the blockchain, where they will self-execute when predetermined conditions using artificial intelligence, all parties within the chain need to agree before the smart contract is executed.
WHAT IS THE OPPORTUNITY FOR HEALTHCARE?

Healthcare-related blockchain projects

**Healthcare Data Infrastructure** (e.g., Blockchain-as-a-Service)

<table>
<thead>
<tr>
<th>Healthcare Data Infrastructure</th>
<th>Personal Health Record Management</th>
<th>Advisory, Dev Shop &amp; More</th>
</tr>
</thead>
<tbody>
<tr>
<td>DeepMind Health</td>
<td>Health Analytics</td>
<td>doc.ai</td>
</tr>
<tr>
<td>Hyperledger</td>
<td>Hyperledger</td>
<td>Enigma</td>
</tr>
<tr>
<td>Hashed Health</td>
<td>Healthcombix</td>
<td>Open Mining</td>
</tr>
<tr>
<td>Tierion</td>
<td>Bitmark</td>
<td>ASTRI</td>
</tr>
<tr>
<td>Factom</td>
<td>Healthlinkages</td>
<td></td>
</tr>
<tr>
<td>Gem</td>
<td>Guardtime</td>
<td></td>
</tr>
<tr>
<td>Microsoft Azure</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Personal Health Record Management** (e.g., data-as-a-service)

<table>
<thead>
<tr>
<th>Personal Health Record Management</th>
<th>Advisory, Dev Shop &amp; More</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nebula Genomics</td>
<td>doc.ai</td>
</tr>
<tr>
<td>HealthcombiX</td>
<td>Open Mining</td>
</tr>
<tr>
<td>Burst IQ</td>
<td>ASTRI</td>
</tr>
<tr>
<td>Curism</td>
<td></td>
</tr>
<tr>
<td>Healthlinkages</td>
<td></td>
</tr>
<tr>
<td>Youbase</td>
<td></td>
</tr>
<tr>
<td>Iryo</td>
<td></td>
</tr>
<tr>
<td>Minhealth</td>
<td></td>
</tr>
<tr>
<td>Simply Vital Health</td>
<td></td>
</tr>
</tbody>
</table>

**Supply Chain & Care Delivery**

<table>
<thead>
<tr>
<th>Supply Chain &amp; Care Delivery</th>
<th>Advisory, Dev Shop &amp; More</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blockpharma</td>
<td>doc.ai</td>
</tr>
<tr>
<td>Blocktrax</td>
<td>Open Mining</td>
</tr>
<tr>
<td>The Link Lab</td>
<td>ASTRI</td>
</tr>
<tr>
<td>CareChain</td>
<td></td>
</tr>
<tr>
<td>Healthcoin</td>
<td></td>
</tr>
<tr>
<td>HealthLinkages</td>
<td></td>
</tr>
</tbody>
</table>

**Med Device & IoT Security**

<table>
<thead>
<tr>
<th>Med Device &amp; IoT Security</th>
<th>Advisory, Dev Shop &amp; More</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neuromesh</td>
<td>doc.ai</td>
</tr>
<tr>
<td>Netki</td>
<td>Open Mining</td>
</tr>
<tr>
<td>Chronicled</td>
<td>ASTRI</td>
</tr>
<tr>
<td>Accenture</td>
<td></td>
</tr>
</tbody>
</table>

**Identity**

<table>
<thead>
<tr>
<th>Identity</th>
<th>Advisory, Dev Shop &amp; More</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hashed Health</td>
<td>doc.ai</td>
</tr>
<tr>
<td>Netki</td>
<td>Open Mining</td>
</tr>
<tr>
<td>Chronicled</td>
<td>ASTRI</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Digital Medicine &amp; Care Delivery</th>
<th>Advisory, Dev Shop &amp; More</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pointnurse</td>
<td>doc.ai</td>
</tr>
<tr>
<td>Patientory</td>
<td>Open Mining</td>
</tr>
<tr>
<td>BOW HEAD</td>
<td>ASTRI</td>
</tr>
<tr>
<td>Simply Vital Health</td>
<td></td>
</tr>
</tbody>
</table>

Have an update for the map? DM @andreacoravos or submit a pull request via our GitHub repo.
GROWING ACCEPTANCE OF BLOCKCHAIN IN PHARMA

There is a growing acceptance of blockchain in the pharmaceutical industry.

60% of pharmaceutical and life science professionals are either using or experimenting with blockchain today, compared to 22% when asked in 2017.

Data from The Pistoia Alliance
WHERE IS THE BIG OPPORTUNITY FOR PHARMA?

Greatest areas for blockchain according to pharmaceutical managers

- Medical Supply Chain: 30%
- Electronic Medical Records: 25%
- Clinical Trials Management: 20%
- Scientific Data Sharing: 15%

Data from The Pistoia Alliance
BENEFITS OF BLOCKCHAIN

- Immutable, Incorruptible: Once written, cannot be changed, removes disputes
- Enable reconciliation: In real time, at a global level
- Security: The whole system is based on cryptography
- Privacy: Ultimate Control - most secure secure system available
- Zero knowledge proof: Confirm a transaction without seeing underlying data
- Provenance: You know who had what and when
PAKISTAN - THE FOUNDATIONS OF A DIGITAL ECONOMY

Data from Pakistan Telecommunication Authority

159 Million
Cellular Subscribers

66 Million
3G/4G Subscribers

3 Million
Basic Telephony Subscribers

68 Million
Broadband Subscribers

75.87%
Teledensity

31.55%
Penetration

1.30%
Teledensity

32.56%
Penetration

* Figures are updated as on March 2019
DIGITAL HEALTHCARE SUPER APPS EMERGING

One Stop Shop, Pharmacy Delivery, Remote Dr, Book Appointment, Lab Services and In Home Visits

Halo Doc
Indonesia

Augment Care
Pakistan

Dr 2 U
Malaysia

One Stop, Healthcare App
OPPORTUNITIES FOR BLOCKCHAIN IN PAKISTAN

Patient Access  Electronic Medical Records  Medical Supply Chain Management  Tackling Counterfeit Medication

Now I will share some available solutions being implemented in various countries.........
EXAMPLE – PATIENT ACCESS TO BASIC GP SERVICES

PERSONLISED ON DEMAND DR (POD) KIOSK

POD is a smart, low-cost and efficient wellness kiosk. Powered by Face ID, FDA Diagnosis, Live Doctor, Smart Vending, Blockchain technology ID Management currently being deployed in Vietnam and China.
EXAMPLE – ELECTRONIC MEDICAL RECORDS

MONIIC – DIGITAL IDENTIFICATION WALLET

Currently being deployed in GCC and Sub Saharan Africa
EXAMPLE – MEDICAL SUPPLY CHAIN MANAGEMENT

PECUNIA ENTERPRISE BLOCKCHAIN PLATFORM

Track and Trace App

- View orders, Track & Trace current product status all in one place using bar code and QR code technology
- Verify the product's provenance via Blockchain and AI technology
- Adaptable to any regulation standards
- GS1 Compliant
EXAMPLE – TRACKING COUNTERFEIT MEDICATION

PECUNIA ENTERPRISE BLOCKCHAIN PLATFORM

Medical Counterfeit Tracker Consumer App

- Cross check the product on our blockchain record, determine any falsified information
- Using QR and Barcodes
- Identify suspicious medicines and pharmacies
- Alerts are automatically sent to local law enforcement dashboards via SMS or email

Pecunia Blockchain currently being used for 2 major pharma company and 2 developing market countries
DIGITAL HEALTHCARE INNOVATION Needs a Regulatory Sandbox Example – Pfizer, UAE Government Healthcare Lab

Area 2071, a UAE Government Accelerator, is a regulatory sandbox where large multinational and startups work together on solutions and pilots that can then inform changes to regulation.

Partners of the Future

We have forged partnerships with a number of powerful organizations with a collective reach to over 200 countries – these are our Partners of the Future, driven by a common purpose to positively impact a billion or more people worldwide.