Smart Healthcare
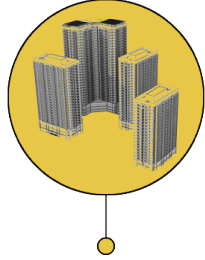
Hiving
Enabling my World

Company in a Nutshell

The Company

Established the **UAE in 2015** with head-office in Dubai

Presence in:
The UK - London
Ireland - Dublin
South Africa – Johannesburg

Team

Strong **visionary team** with the vision and the ability to take the technology to Market.

Partners

Strong sales and implementation partner network in Europe, South East Asia and Southern Africa.

Advisors

Security and IoT Strategy Advisor:
Prof Jon Howes
Go to market Advisor:
Used Gartner as a go-to-market advisor in our start-up phase

Patents

PCT Patents with final patents in progress in **38 countries**.

Company in a Nutshell

Product

- Hive One ID™ is a single wireless identity with a Root of Trust and **state of the art security features**.
- The One ID transmits instructions to the wireless reader that allow the reader to transmit **data to multiple applications**.
- The One ID is ideally suited for Decentralized **Self-Sovereign Identity** enabling privacy and security of personal data.
- The One ID can be used as a **single identity for multiple applications** as per the next slide.
- All **data is authenticated** as it is recorded with every event or interaction, ensuring trusted data.
- Ideally suited to **analyze the movement** and likely contact of people in public places for **pandemic control**.
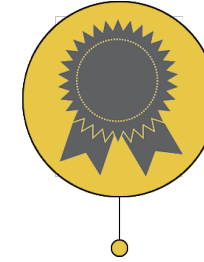
Track Record

- Product currently deployed in **large retail solutions in Europe** – Identifying Shoppers and enhance their shopping experience by providing information according to the shopper's preferences as they move through different zones.
- The UAE – National Identity Authority demonstrate the Hive One ID as the **identity of the future** at GITEX 2018 in Dubai.
- First comprehensive **Decentralised Self-Sovereign Identity Solution**.
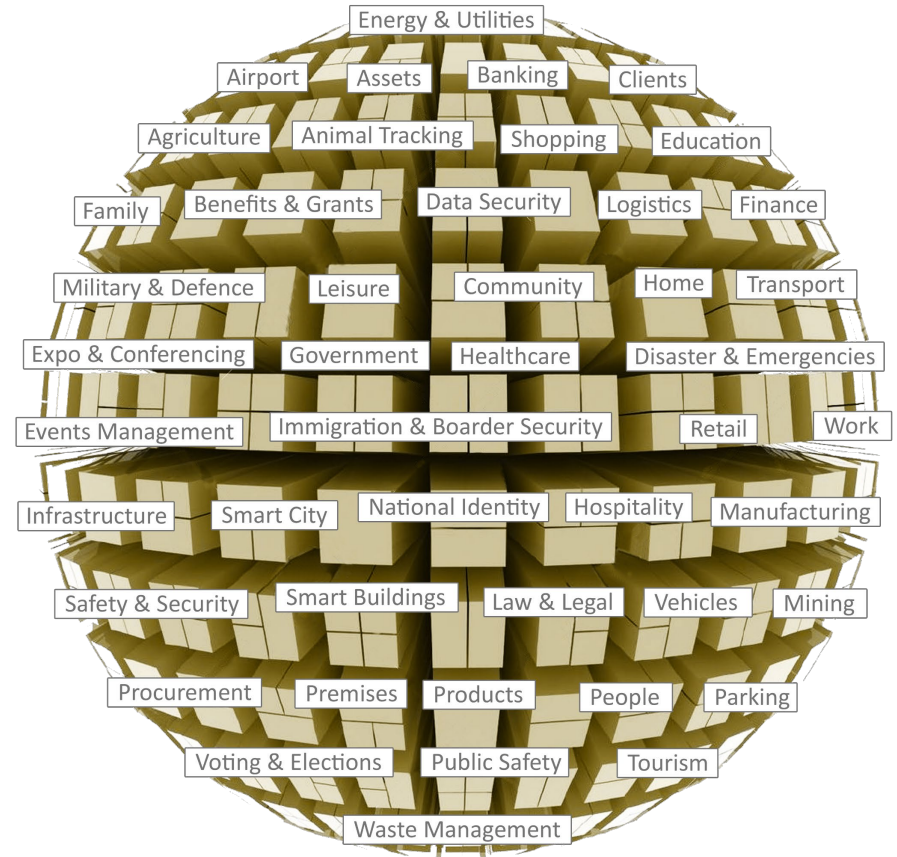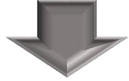- Various **IoT Awards** and recognised as a **Gartner Cool Vendor**.
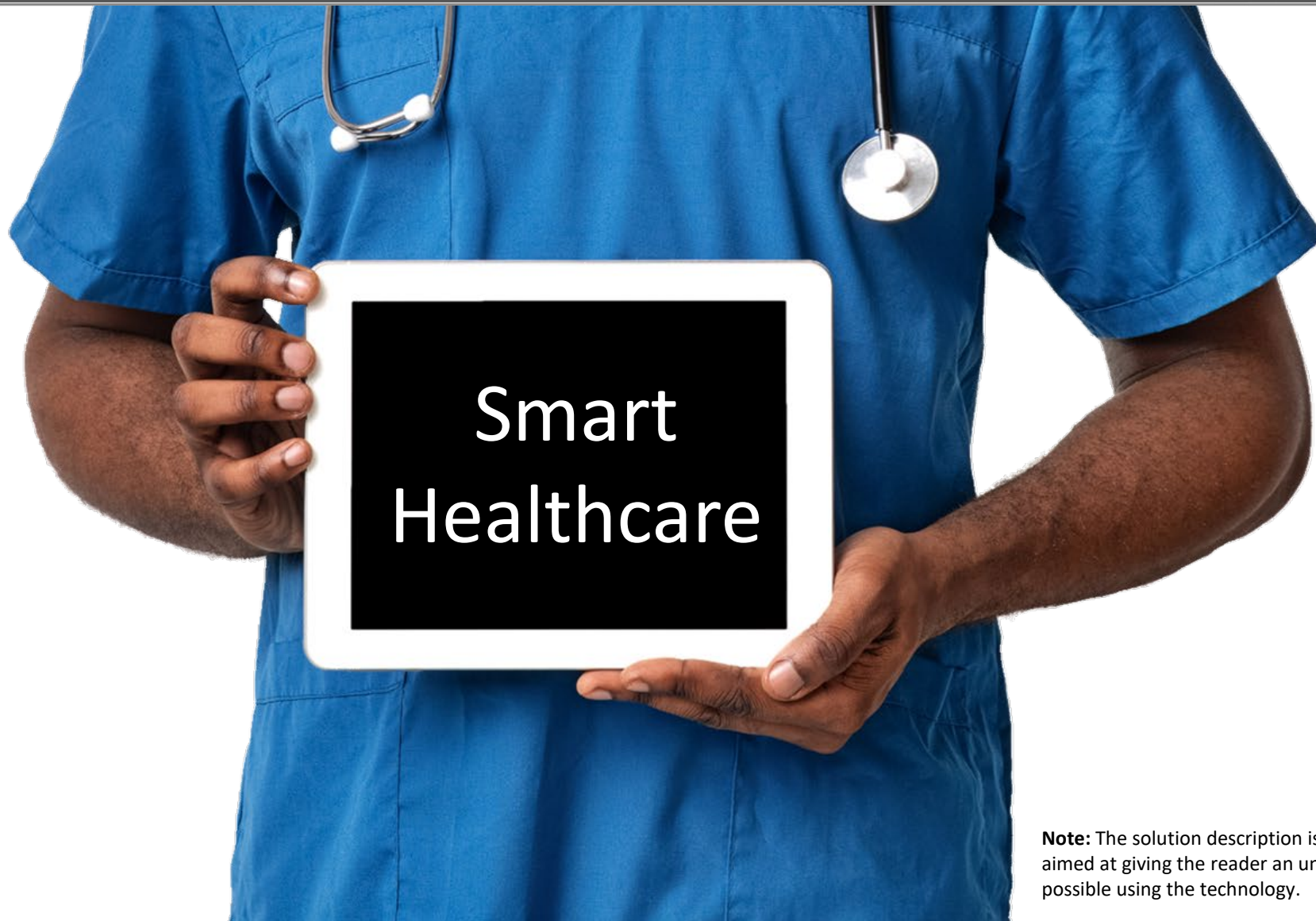
Use Cases

Governments

Everyone can use it

Energy & Utilities

Airport | Assets | Banking | Clients

Agriculture | Animal Tracking | Shopping | Education

Family | Benefits & Grants | Data Security | Logistics | Finance

Military & Defence | Leisure | Community | Home | Transport

Expo & Conferencing | Government | Healthcare | Disaster & Emergencies

Events Management | Immigration & Boarder Security | Retail | Work

Infrastructure | Smart City | National Identity | Hospitality | Manufacturing

Safety & Security | Smart Buildings | Law & Legal | Vehicles | Mining

Procurement | Premises | Products | People | Parking

Voting & Elections | Public Safety | Tourism

Waste Management

Verticals

**Digital Trust
Security & Privacy
Data Integrity**

Smart Healthcare

Note: The solution description is not complete but aimed at giving the reader an understanding of what is possible using the technology.

- Current healthcare systems fall short due to rising costs, inconsistent quality, limited access to timely information.

- While requirements change all the time, systems are not designed to be flexible enough.

- Healthcare practices and institutions exist in silos, isolating information as known by a specific party at a specific point in time.

- The lack of transparency has a considerable cost implication on government and/or private healthcare insurance due to duplication and as a result limits the quality of healthcare that the patient receives.

- National Health systems fail in many counties globally due to:

  - Standard best practice protocols can't be enforced due to the lack of trusted real-time data, causing the healthcare system to be reactive.

  - Similarly, utilization of facilities and capital equipment can't be managed in real-time resulting in wastage of resources.

  - Similarly staff, one of the most expensive components are either over or under utilized and carry a considerable admin burden that can be alleviated.

Integrated Healthcare System
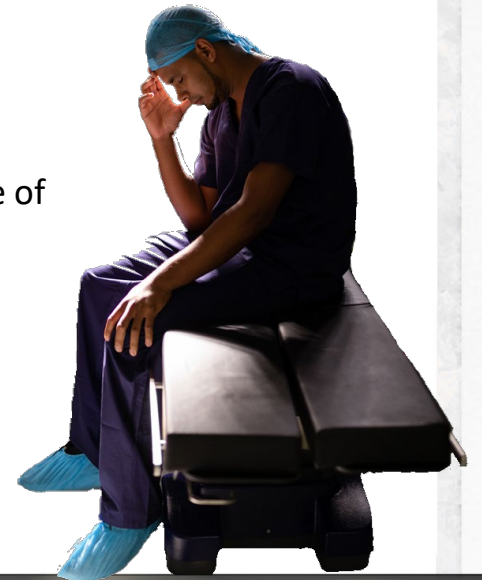
The Hive One ID's identify people and objects wirelessly as they enter a zone. This non-intrusive, rule-based architecture collects data about the person in the zone even if it is just presence. Once identified patient interactions are based on all the real-time patient data, enabling the following:

- Artificial Intelligence can be used to guide service providers in the care of patients taking trusted up to date medical history & insurance benefit data into account.

- Connecting patients, medical service providers, insurers, pharmacies & retailers, pharma companies and the government; enabling all to receive relevant predefined data securely in real-time.

- Provide real-time information about the utilization of capital equipment and facilities.
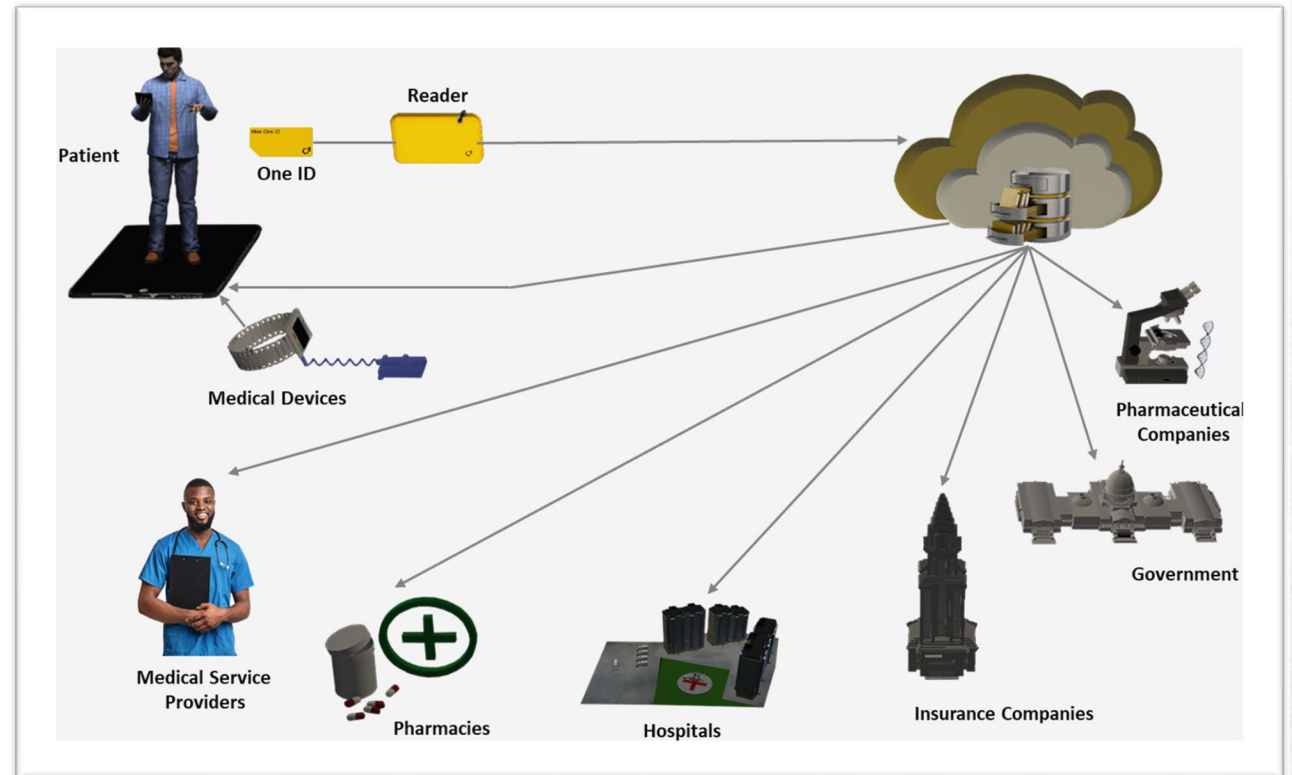
Smart Healthcare takes a holistic approach to healthcare by tearing down the silos, connecting doctors, patients and insurers, enabling all to share real-time relevant data seamlessly and securely.

- Smart Healthcare supports a wide variety of features while ensuring the security and privacy of patient information, making secure up to date medical records available when required.

- Reduce the administrative burden

- It reduces healthcare fraud.

- Provides the platform to implement additional functionality fast when needed like for example managing a pandemic like COVID-19.

- Remove duplication of services.

- Provides real-time visibility, enabling management to act as problems occur rather than retrospectively.

- Ensure that standard protocols are followed, and corrective action taken when it deviates.

- Artificial intelligence can be deployed to automate and guide healthcare practitioners as they care for patients.

- The cost can be managed and contained.

- Enables compliance with government initiatives and mandates.

- The Hive One ID™ solution provides the platform required to move the Department of Health into the digital era (4IR).

Practical
Examples
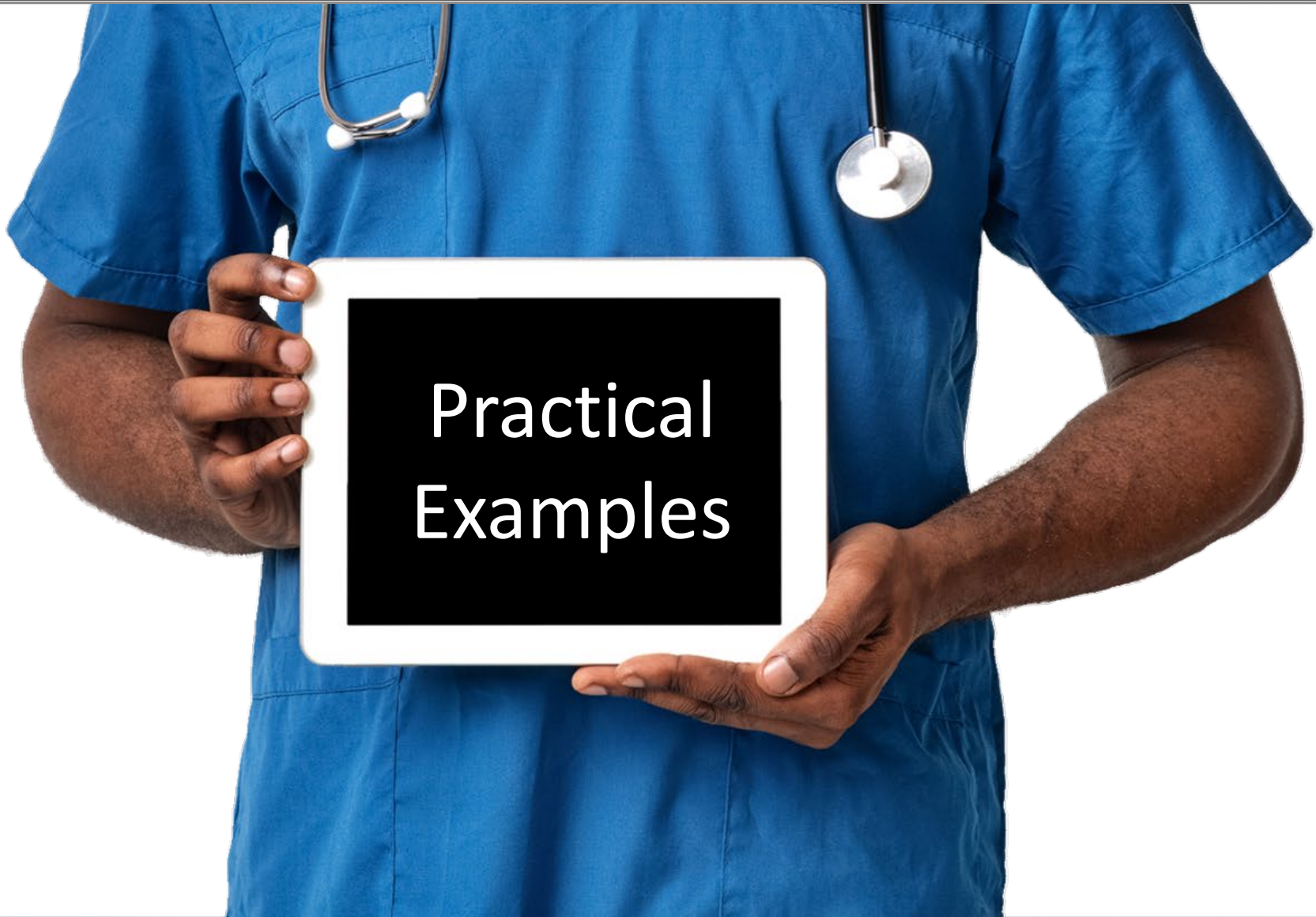
- Patients are wirelessly identified once they enter the facility and with the help of artificial intelligence the diagnostic process can start while the patient waits to see the healthcare practitioner. This could start with answering questions, either assisted or self, based on medical history and current condition.

- Automated or assisted diagnostics can be done as recommended by the AI.

- Once done, the AI could make a preliminary diagnosis and recommend a cause of action that could include a prescription, a referral, or the patient can then see the healthcare practitioner with all the diagnostic information already available.

- As the patient goes through the process, the patient is authenticated, and the data collected is automatically updated on the patient record.

- Should the patient need to attend another facility for additional diagnostics or treatment the insurance authorisation and scheduling of the appointment is done automatically.

- Billing and insurance claims are automated and done in real-time.
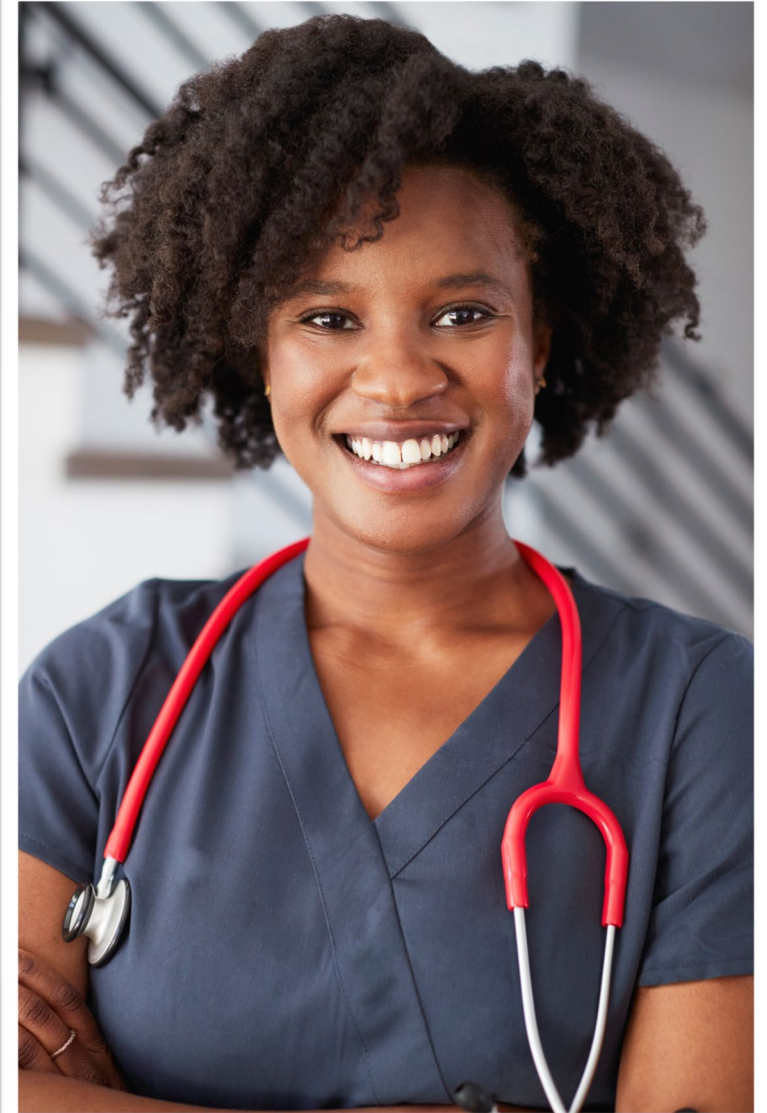
HOSPITALISATION

- On arrival at the hospital the patient will be identified before they reach the admissions.

- At admissions everything happens almost automatically as the hospital will have access to all information required.

- All data interactions with patients are directly logged in the patient's central medical record.

- The patient journey through the hospital is monitored step by step. While the patient is for example in an operating theatre the time spent, staff present, and equipment used is logged.

- Medication issued and aftercare prescriptions are updated as staff can also be linked to Hive One ID.

- Monitor and track access and movement of patients within a facility, prohibiting unauthorised exit from a facility (e.g. Alzheimer Patients and kidnapping of babies).

- Billing is linked to medical insurance making submitting medical claims a seamless process.

- Patient details and prescription data are available to the pharmacist as soon as the patient is identified.

- Should the patient require medication for a minor ailment the best medication can be recommended taking the patients medical history into account.

- Pharma 4 will allow artificial intelligence to suggest the most effective medication taking the patient history and results from diagnostics into account. The effectiveness is then tracked, and feedback can automatically be provided to pharmaceutical companies.

- All medical purchases can be submitted to the medical insurance company automatically.

- All purchase records will be available online.

- The Hive One ID™ contains the location (IP address) of where the patients' medical data is stored. This enables us to update home diagnostics through a phone app on the medical record. The AI can analyse the diagnostics and alert the patient should a cause of action be required.

- In future medical devices can be manufactured (OEM) with Hive One ID capability. This will allow the devices to upload data to the patient medical record.

Supporting Applications

Using the same technology & infrastructure

- Hive One ID™ can be used to manage not only medical staff but also security and cleaning staff. Hive One Id™ can track employees, making it easy to find them on the floor.   It can also report on where staff spend time.

- Hive One Id™ can manage access to zones.

- It can also record time management which can also be
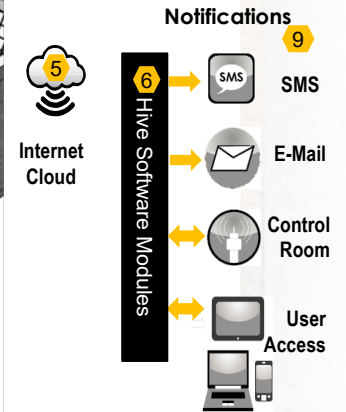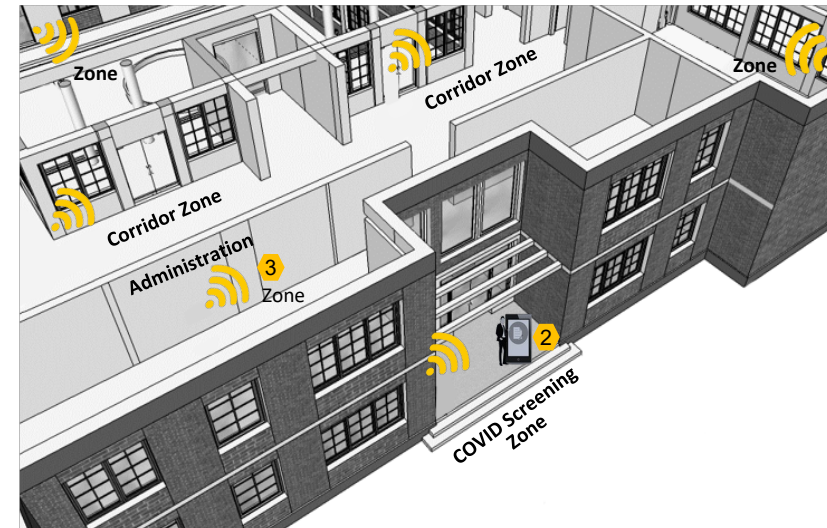
   integrated into a payroll.

- Medical equipment and higher value assets can be equipped with Hive One ID™ asset tags making it easy to locate and manage.

- The equipment just like patients, can be located in the facility in real-time. Equipment can be assigned to patients for billing purposes.

- It can be used to manage equipment that requires calibration or serviced externally. Hive One ID™ can also be built into equipment and electronic devices or retrofitted.

- Tagged equipment that is not allowed to be removed from the facility will raise alarms should it be removed from the zone it is assigned to. If removed from the facility, it can trigger an alarm at the exit.

- The equipment and asset monitoring system can be integrated with the facilities asset register.
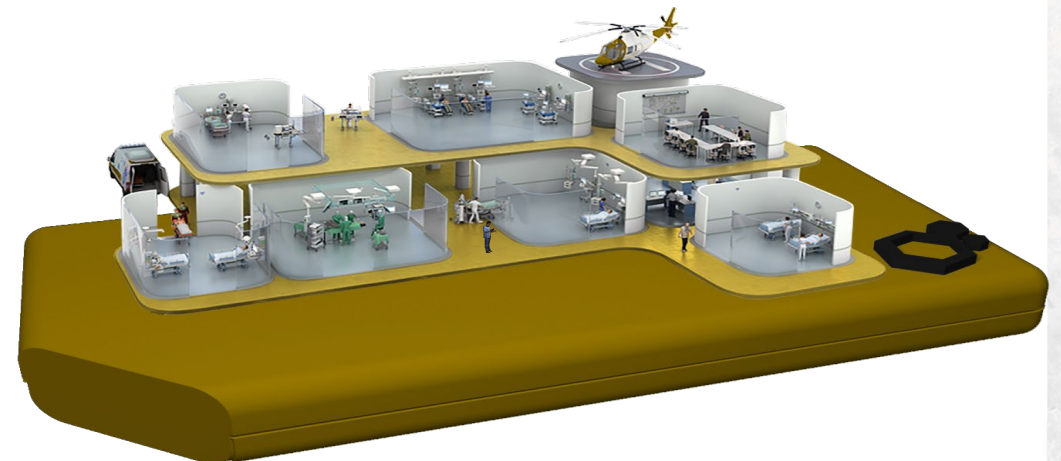
1. Staff, patients and visitors can answer pre-screening questions on a mobile application before they visit the healthcare facility.

2. Anyone that did not pre-screen on the mobile application can do the pre-screening on arrival at a kiosk.

3. Staff with One ID's proceed. Once cleared visitors and patients receive a temporary One ID linked to their data. People that show symptoms are referred for testing.

4. While in the facility the One ID transmits data to the zone Wi-Fi readers every 3 to 5 seconds with data about approximately how close the person is to the reader.

5. This data collected in 4 is sent via the internet to a cloud database.

6. The data remains in the database for a predefined period. If a person that was in the facility contracts the virus, the analytic and artificial intelligence module will calculate who was likely to contract the virus based on predefined and learned rules.

7. The software module keeps a record of every entry and exit, and should a person show symptoms when screened the status will be cleared once a negative test result is received.

8. The software dashboard displays relevant summarised management information in real-time.

9. Anyone at risk of contracting the disease will be notified.

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