ePAT Technologies Ltd

## Presentation
July 19th 2017

Highlights

ePAT

- A digital healthcare company
- Mobile apps to assess and monitor pain
  - pain the most common reason to see a doctor
  - accurate pain assessment is a big problem
- Very large global market opportunities
- Multiple products and revenue channels
- Innovative technology with patent protection
- Commercialisation in Q4 2017
- Experienced board and management
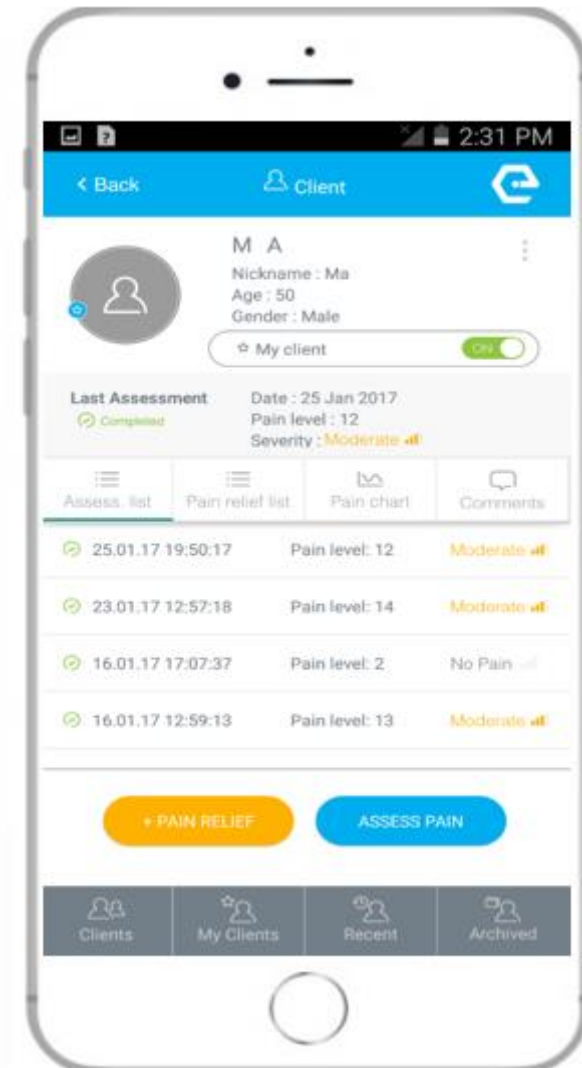
Our Target Markets

Carers of non-communicative people with pain:

- Dementia sufferers
- Pre-verbal children

Children, Parents & Grandparents

Nannies, Babysitters Day Care Staff

Doctors

Nurses

Day Care Centres

Carers of people who cannot self-report their pain

Trained Carers

GP, Outpatient, First Aid Clinics

Allied Health

Hospitals

Residential Aged Care Homes

First Responder Fire & Ambulance

Large initial market in dementia care

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- Advanced dementia associated with inability to communicate pain
- Dementia care in residential aged care and home care

Carers of people with dementia

Healthcare Professionals
Trained Carers
Allied Health
Family Members

47 Million with Dementia[1]
- **growing at 3% p.a.**

400,000+ people in Australia[2]

[1] World Alzheimer Report 2016
[2] Alzheimer's Australia Key Facts and Statistics 2017

Blue sky market is pre-verbal children

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- Neonates (0-1 month), infants and toddlers (1 month – 3 years)

- Sources of pain include: rashes, teething, middle ear infections, headaches, gastro-intestinal.

- Current pain assessments are often subjective and based on intuitions, assumptions and personal beliefs

Carers
of pre-verbal children

Mums & Dads
Grandparents
Health care professionals
Nannies
Babysitters
Day care workers

~ 130 million[1]
Births per year in world

~ 1.25 million[2]
0-3 year olds in Australia

[1] http://www.ecology.com/birth-death-rates
[2] ABS 2016

The pain problem in dementia care

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- Up to 85% of people in aged care suffer pain regularly[1]

- More than 50% of people in Australian aged care have dementia[2]

- Pain is often poorly assessed, documented, monitored and managed

- Tools are subjective and manually based

- Adverse impact on quality of care, operational efficiency and compliance

[1] Aged Care Awareness
[2] Australian Govt. Dept. of Health data at 30 June 2015

Current pain assessment tools lack objectivity and require specialist skills

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Abbey Pain Scale - For measurement of pain in patients who cannot verbalise

Addressograph

Name and designation of person completing the scale: ....

Date: .... Time: ....

Q1. Vocalisation
eg. **Whimpering, groaning, crying**
  Absent 0   Mild 1   Moderate 2   Severe 3

Q1 ☐

Q2. Facial Expression
eg. **Looking tense, frowning, grimacing, looking frightened**
  Absent 0   Mild 1   Moderate 2   Severe 3

Q2 ☐

Q3. Change in body language
eg. **Fidgeting, rocking, guarding part of body, withdrawn**
  Absent 0   Mild 1   Moderate 2   Severe 3

Q3 ☐

Q4. Behavioural Change
eg. **Increased confusion, refusing to eat, alteration in usual patterns**
  Absent 0   Mild 1   Moderate 2   Severe 3

Q4 ☐

Q5. Physiological change
eg. **Temperature, pulse or blood pressure outside normal limits, perspiring, flushing or pallor**
  Absent 0   Mild 1   Moderate 2   Severe 3

Q5 ☐

Q6. Physical changes
eg. **Skin tears, pressure areas, arthritis, contractures, previous injuries**
  Absent 0   Mild 1   Moderate 2   Severe 3

Q6 ☐

Add scores for 1-6 and record here ➞   Total Pain Score ☐

Now tick the box that matches the
Total Pain Score ➞

0-2 No Pain	3-7 Mild	8-13 Moderate	14+ Severe

Finally, tick the box which matches the type of pain ➞

Chronic	Acute	Acute on Chronic

> Facial expression analysis on the Abby Pain Scale requires the user to both detect and quantify facial expression indicative of pain: this is subjective and vulnerable to user bias.

The ePAT solution

- A secure, validated, medical device in the form of a mobile app

- Uses existing smartphone and tablet hardware

- Artificial Intelligence (AI) technology to analyze facial expressions indicative of pain in real time
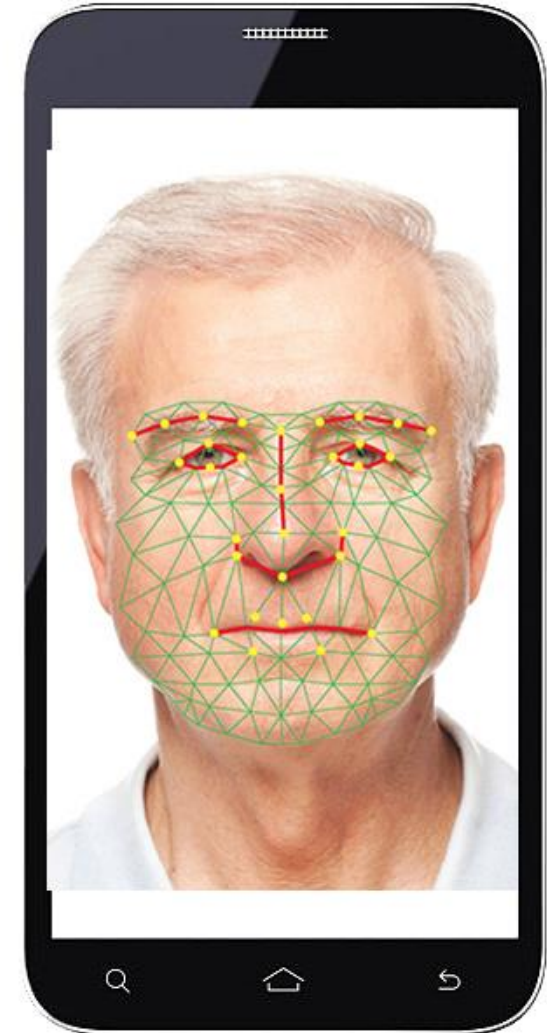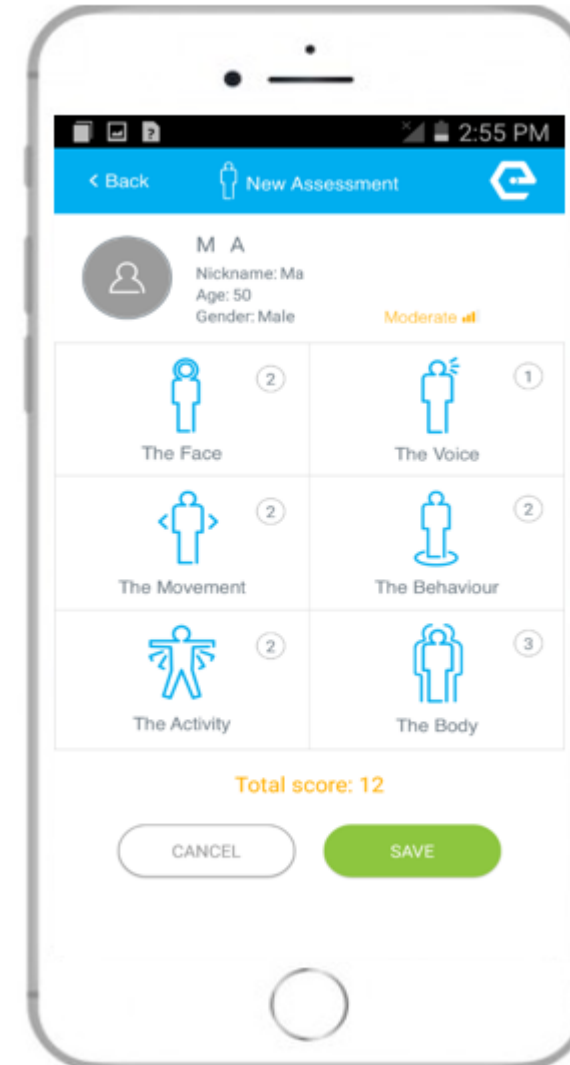
The ePAT Dementia App

- **Automated facial pain analysis:**
  - 3 second video of patient face
  - recognises 9 micro-facial expressions that indicate pain

- **Digital questionnaire checklist:**
  - guide the carer in other pain assessment factors e.g. movement, vocalization
  - leading questions with Yes/No decisions

- **Automated pain assessment score:**
  - based on 42 test points

- **Documented electronically via cloud backend:**
  - pain trend line and monitoring of treatment
  - integrated into patient medical records

- **iOS beta App currently being tested**

Dementia App key benefits

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- ✓ **Automate** key assessment processes, saving time and reducing the risk of error
- ✓ **Empower** caregivers to monitor and manage pain accurately without expert support
- ✓ **Reduce** patients' need to seek medical advice for pain, enabling better in-home care
- ✓ **Improve** health outcomes for people in pain and reduce operational cost for healthcare providers
- ✓ **Document** assessment for compliance and monitoring effectiveness of treatment

Our technology development partners

nViso

- Licenses AI enabled facial recognition technology

Darwin Digital

- Designs and develops the Dementia App and backend system

Curtin University

- Contracts services of ePAT founders:
  - Professor Jeff Hughes, Chief Scientific Officer, pharmacist
  - Mustafa Atee, Senior Clinical Research Scientist, pharmacist
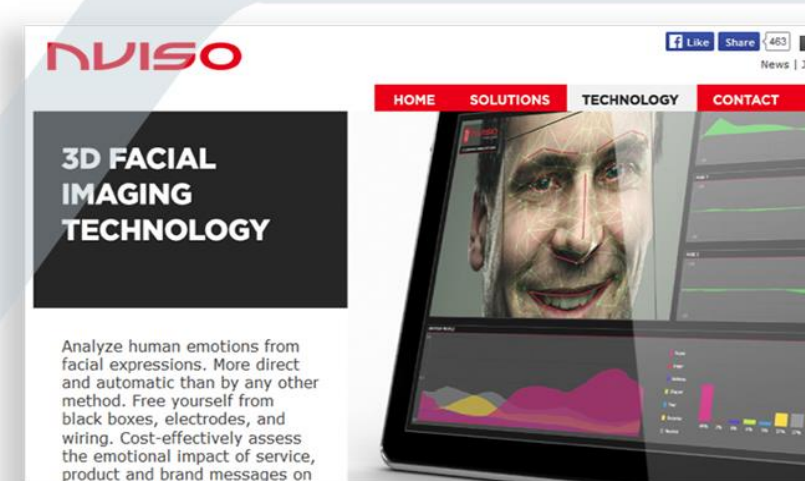
Timeline to Commercialisation and Revenue

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Dementia App

01
Q4 2016
Validation studies completed

02
Q3 2017
Implementation studies completed

03
Q3 2017
Target for regulatory approval in Australia and EU

04
Q4 2017
Target for commercialisation in Australia

05
Q1 2018
Target for FDA approval in the USA

06
Q2 2018
Target for commercialisation in Europe and USA

Pre-Verbal Children Apps

Q4 2017
Completion of children video library, data model and algorithm

Q1 2018
Development of App

Q2 2018
Clinical studies and validation

Q2 2018
Finalise App and build regulatory file for approvals

Q3 2018
Target for regulatory approval in Australia and EU

Q4 2018
Target for commercialisation in Australia and Europe

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Dementia App: Validation Study

Location

- Bethanie, Brightwater and Juniper Aged Care Groups, WA

Findings

- 40 residents, 353 paired assessments
- Excellent performance
  - \> 88% accuracy for detection of pain
- Excellent validity results

June 2017: Accepted for publication in Alzheimer's Disease Journal

Dementia App:
TGA and CE Mark clearance – July 19th 2017

- ePAT App is now cleared for use as a Class 1 medical device in Australia (TGA) and CE Marked for European markets

- The ePAT App's intended use is "to assess and monitor pain in people who cannot verbalise such as people with dementia or communication difficulties"

- Regulatory clearance is key business milestone and requirement by our customer base

- Australia Commercialization of ePAT App remains on schedule for Q4 2017 and Europe during 2018.

ePAT Patent Status

- Patent clearance for PCT filing received in August 2016
- National filings commenced Feb 2017 in all key global markets;
  - Europe
  - US
  - Australia
  - China
  - Japan

ePAT market entry strategy for dementia care
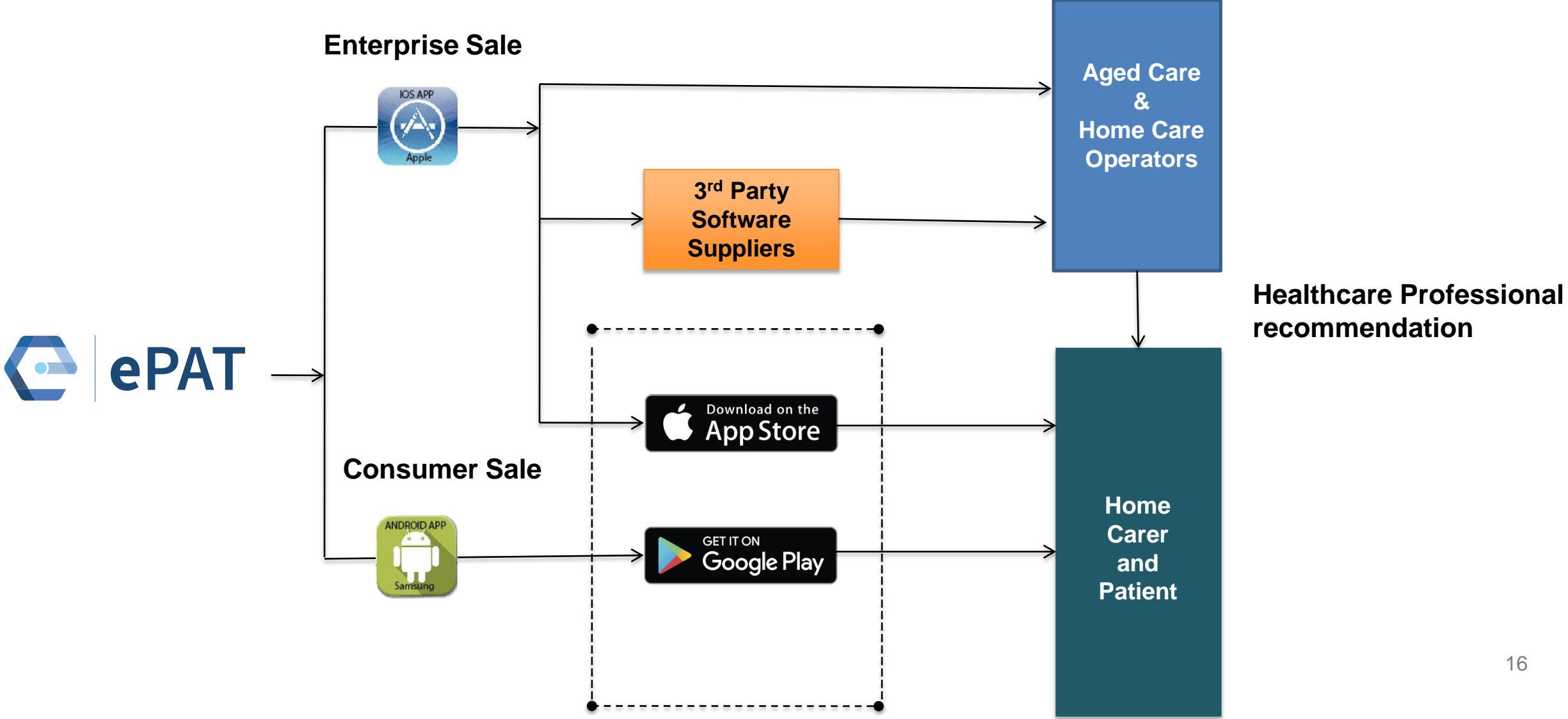
Business Model

- Recurring revenues
- Software sold as a service
  - via software enterprise partners and direct to business
  - direct to consumers via App Store and Google Play
- Pricing not yet released

Experienced Board

- ## John Murray, Chair
  - 25 years in tech VC, multiple board roles including aged care

- ## Philip Daffas, MD
  - Senior global healthcare exec: Roche, Cochlear

- ## Ross Harricks, NED
  - Senior global medical device exec with Nucleus and healthcare NED

- ## Adam Davey, NED
  - Corporate finance exec and director Patersons Securities

Dementia App – Progress Summary

On schedule for commercial launch Q4 2017

- Beta version App now available

- Validation Studies accepted to Clinical publication in Alzheimer's Journal

- TGA and CE regulatory clearance completed ahead of schedule

- "ePAT in Practise" trials to commence with a leading Australian aged care operator specialising in dementia in Q3 2017

- Initial relationships established with two aged care software providers

- Business model being finalised

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