



Creating wireless connected health devices

Developing a Continua Certified™ Product

Sixth Annual Healthcare Unbound

Paul Williamosn
ChrisFickle - A&D

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Commercially Confidential

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Agenda:

- 1** **Introductions**
- 2** **Creating a Continua Certified product**
 - 2.1** **The optimum solution**
 - 2.2** **Qualification and Certification**
- 3** **Success factors and the future**

faster**to**marketsolutions





A&D has established a global market leadership position in providing telemedicine sensors

- Providing oscillometric blood pressure monitors for both professional and home use since 1980
- Simple but effective technology
- The A&D sensor provides a high level of precision .
- Clinically Validated devices give our customers confidence in the accuracy.

- Quality assurance and inspection methods ensure a a level of reliability that has created a trusted brand for Blood pressure measurement





A&D has established a global market leadership position in providing telemedicine sensors

- A&D have been in the weighing industry for over 20 years
- Specialise in developing high precision load cells
- A&D scales are manufactured in the same factory as the sensor.
- Precision and accuracy are at the core of our technology for our wired and wireless weight scales.





A&D has focused on innovation in telehealth since 1995

- 1998 - The first standard telemedicine blood pressure monitor was introduced using bidirectional RS232
- 2000 – Introduction of a weight scale for remote patient management
- 2005 - A&D announces yet another breakthrough in telemedicine to broaden patient access and take convenience to the next level with the introduction of wireless communication.
- September 27, 2006 – A&D Medical announces that it has joined the Continua Health Alliance as a Founding Promoter



Why did we use Bluetooth technology?

- Bluetooth technology enabled our customers to realize all of the benefits of wireless technology:
- Compliance with a global standard in wireless communication – *designs can be approved for applications worldwide*
- Wide selection of chip sources – *enables custom design of Access Points*
- Secured communication – *built-in encryption and frequency hopping ensures data security and integrity*
- Flexibility – *a variety of Access Points to choose from including PDA, mobile phone, PC, etc.*

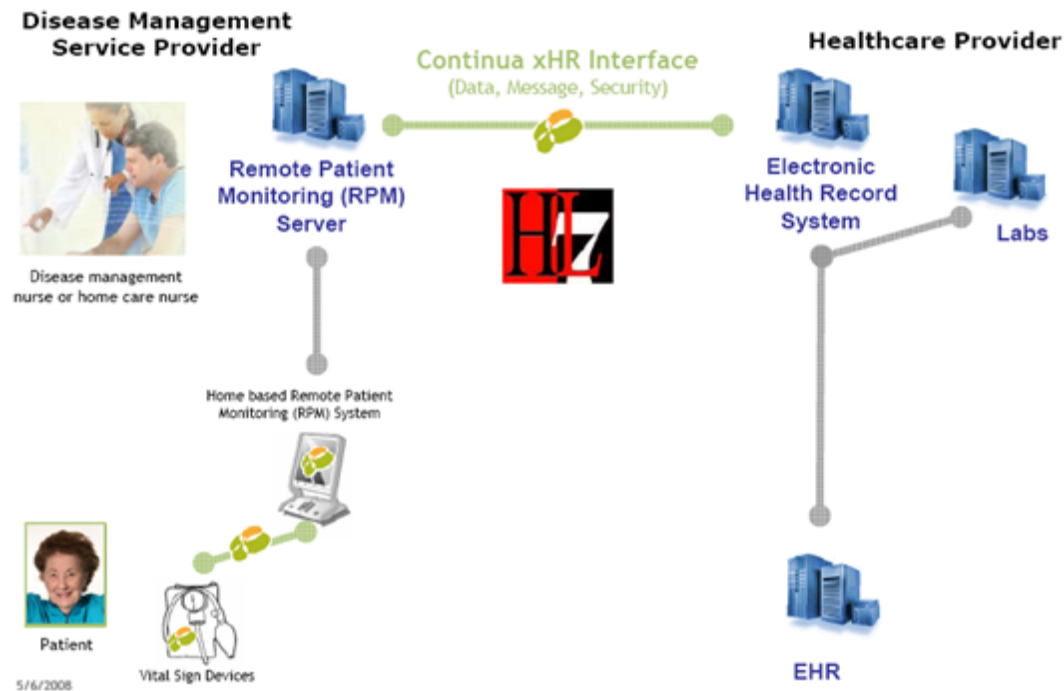


The Continua Health Alliance

“Our Mission is to establish an eco-system of interoperable personal health systems that empower people & organizations to better manage their health and wellness”

Continua Guidelines

- The guidelines select standards for the communication of data from patient and device through to healthcare providers



5/6/2008

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V1 PAN Interface Using ISO/IEEE PHD Standards

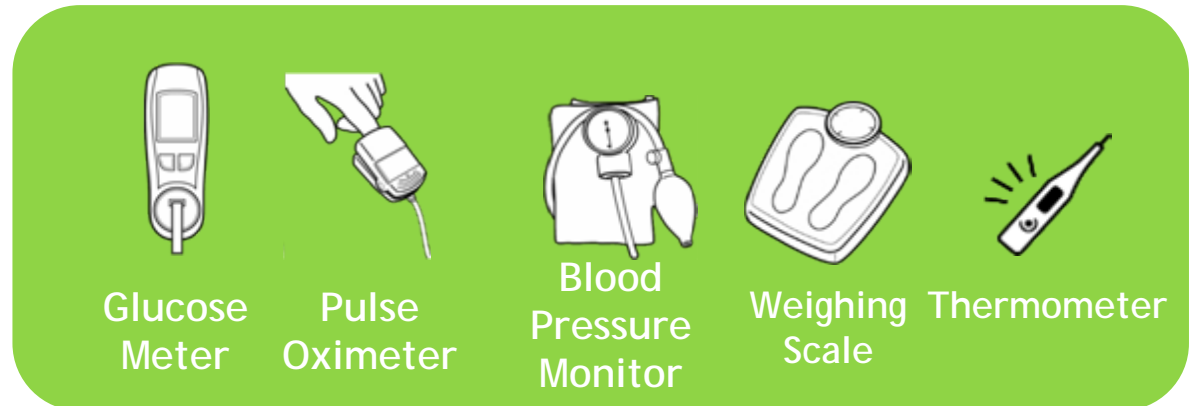
Manager or AHD



2 PAN Interface Transports



Device Specialisations



Glucose
Meter

Pulse
Oximeter

Blood
Pressure
Monitor

Weighing
Scale

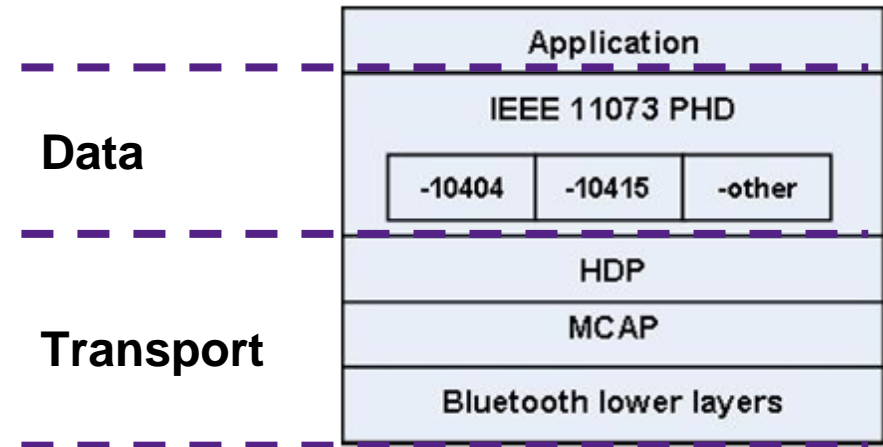
Thermometer

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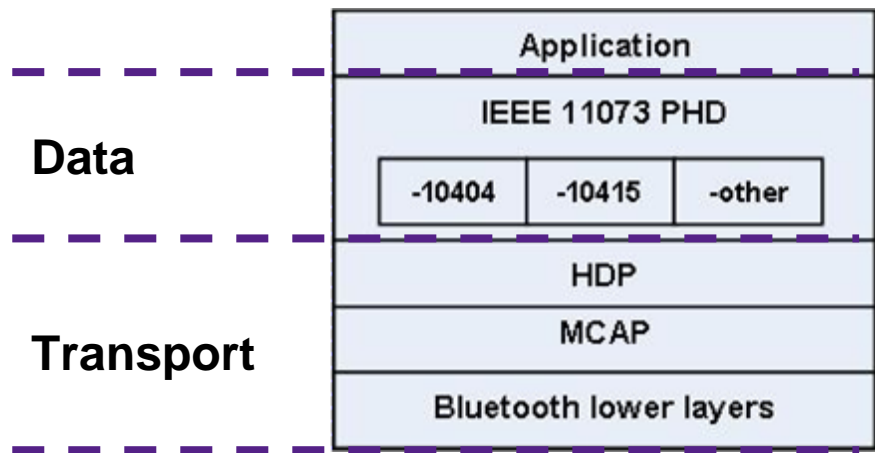
Creating a Continua Certified product

- Version One Device Connectivity standard
 - Selects Bluetooth as the transport
 - Mandates the use of Health Device Profile
 - Requires a data standard – IEEE11073
 - Appropriate device specialisation



The Challenge

- Add this capability to A&D existing Bluetooth devices



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What is Vena ?

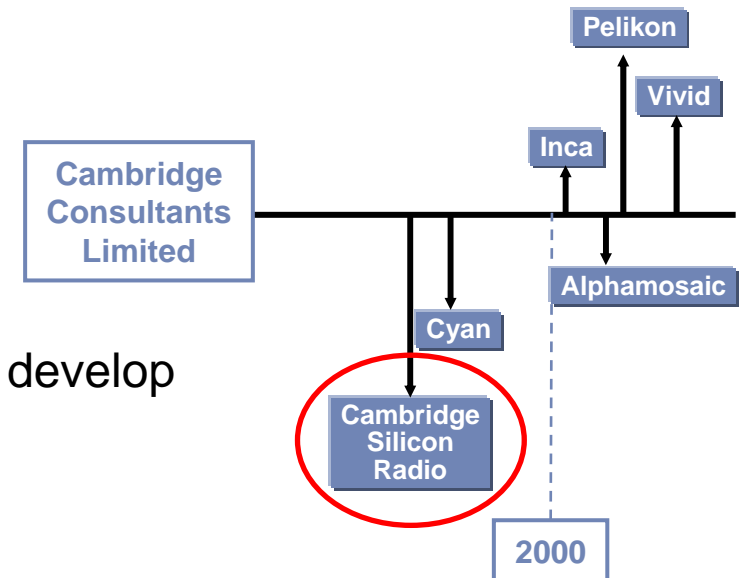
- Cambridge Consultants software platform for creating Continua certified products
- Compliance with the Continua standards
 - IEEE 11073 Personal Health Data
 - Bluetooth Health Device Profile (HDP)
 - USB Personal Health Device
- We have the rare ability to bring all of this capability onto a single Bluetooth chip
- Works with silicon from Cambridge Silicon Radio - CSR



Continua[®]
HEALTH ALLIANCE

Why can we do this?

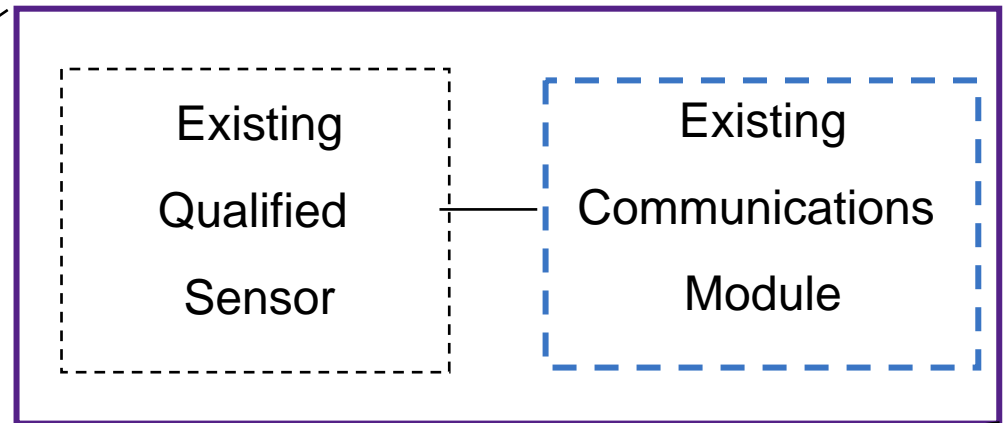
- Cambridge Silicon Radio CSR was formed from Cambridge Consultants in 1998
- CSR are now a fully independent publicly listed company, and the leading supplier of Bluetooth silicon



- We have a unique toolkit which enables clients to develop advanced applications on CSR

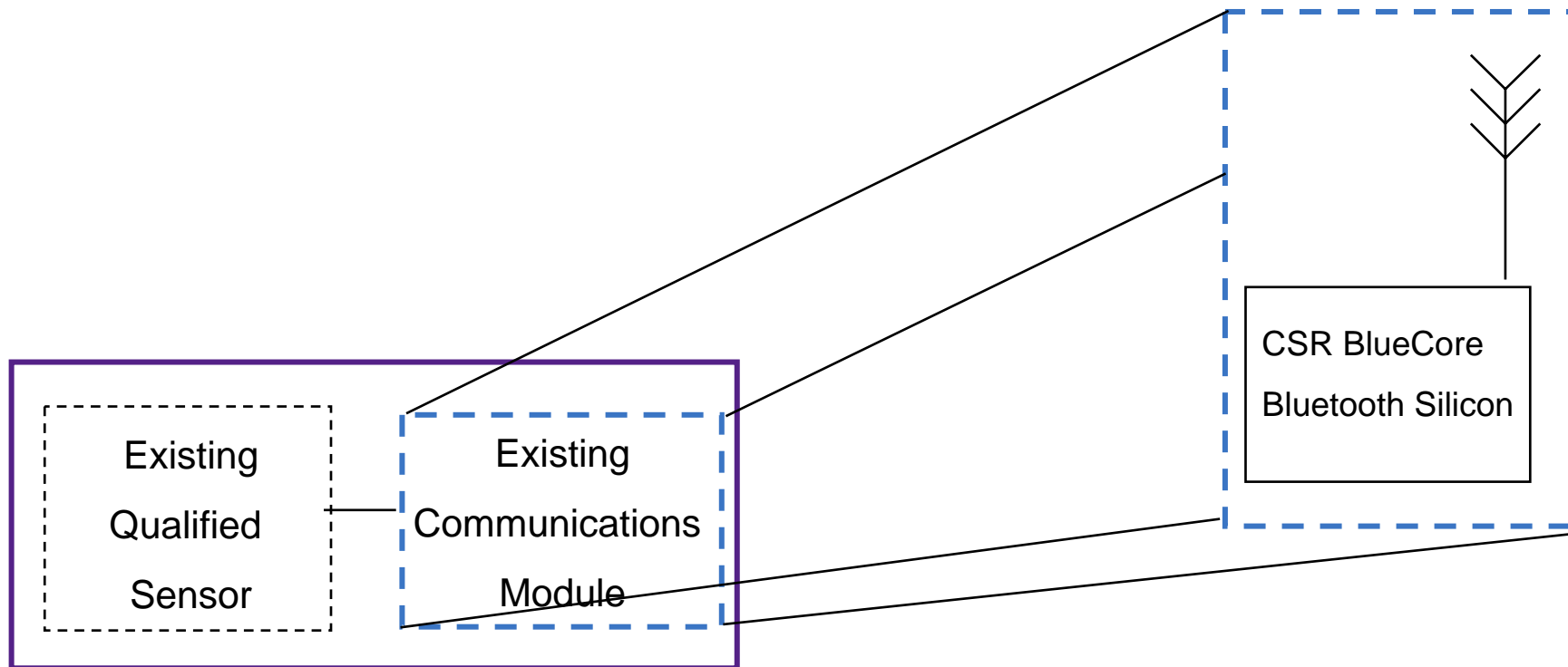
The Solution

- Minimise hardware changes
- Retain existing simple user interface
- Support existing customers with Bluetooth products



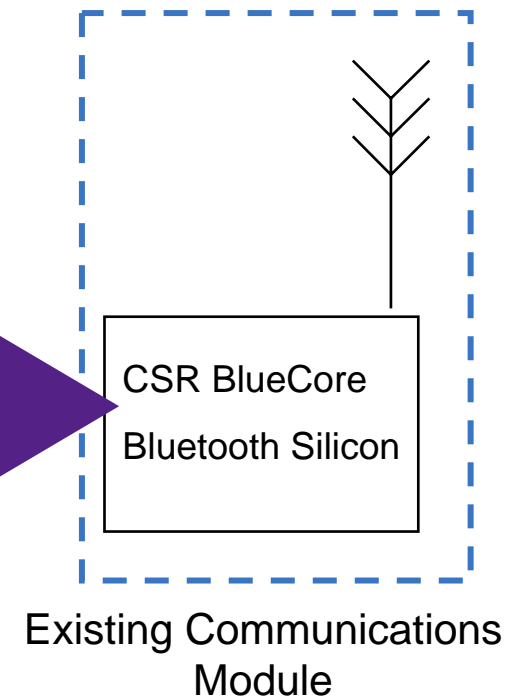
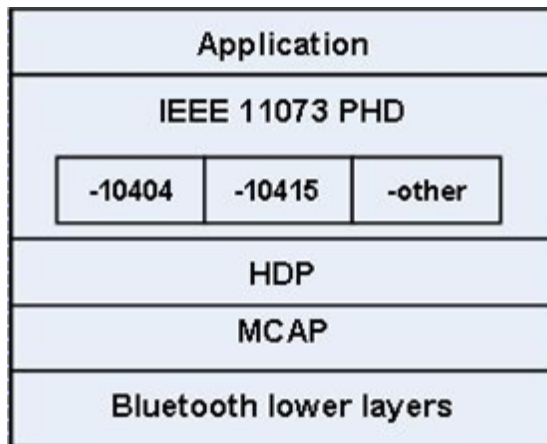
The existing hardware

- Bluetooth chip from CSR – leading supplier of Bluetooth silicon



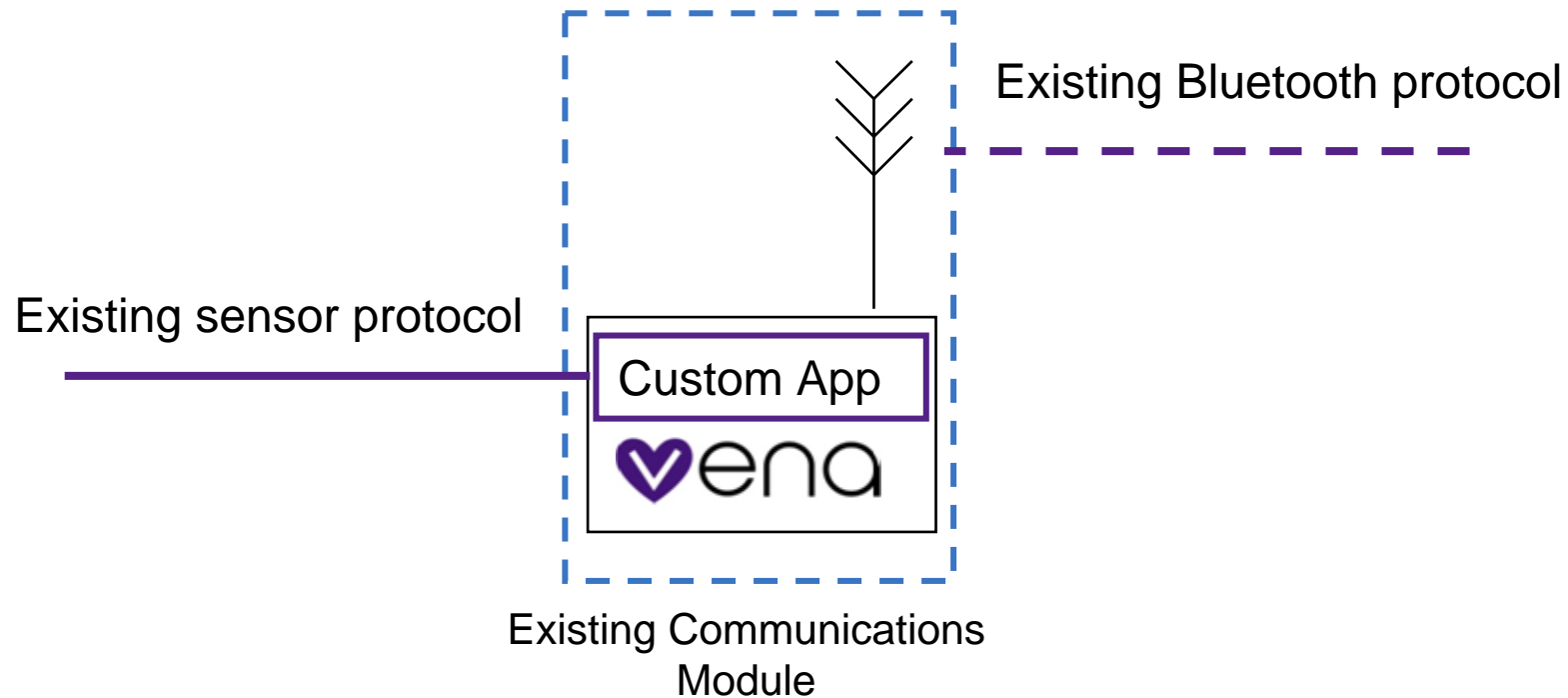
Applying the Vena platform

- Vena example application provides all of the Continua requirements
- But we still need to interface with the sensor and support existing Bluetooth device customers



Applying the Vena platform

- Working with A&D, we customised the application layer to support their existing protocol
 - Communicating with the sensor
 - Communicating via Bluetooth with SPP



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Qualification and Certification

- Step 1: Bluetooth Qualification
 - Testing normally can be performed by the manufacturer
 - Run tests against the Bluetooth PTS (Profile Tuning Suite)
 - Vena software has already been qualified

- However – Bluetooth HDP is a new profile
 - Introduces new layers below the profile (MCAP Enhanced L2CAP)
 - PTS not yet ready to use (coming soon)

- Solution:
 - Generate manual test evidence to demonstrate that the device complies with standards



Qualification and Certification

- Step 2: Continua Certification
 - Testing carried out by Continua test house
 - Run through test procedure to ensure device meets guidelines

- However – What do you use to test the first devices?
 - Continua provides CESL code – implementation of IEEE
 - Work with other Bluetooth vendors to ensure interoperability.

- Solution:
 - Work closely with Continua members to ensure interoperability
 - Test manually with CESL prior to submission for certification



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A&D are committed to the future of telehealth

- A&D Medical is committed to working with customers on a wide range of data transport models
- A&D's existing hardware platform creates a strong starting point for creating Continua Certified Products
- A&D will select and source the technology they need to meet their device roadmap
- Bringing devices into the market with a new set of standards is challenging
 - Overcoming these challenges creates an opportunity for future devices



The Future of Telehealth

- A&D now has a technology platform for the creation of Continua Certified devices
 - USB, Bluetooth, and low power wireless
- A&D is committed to providing a range of innovative solutions



A&D will be at the centre of a growing ecosystem of Telehealth devices

Growing the ecosystem

- Cambridge Consultants continue to innovate with the Vena platform
- Implementing new and exiting applications
- Combining with our skills in medical device development
- Creating connected health devices in emerging market segments
- Example
 - Medication monitoring
 - Vena enabled inhaler
 - Working with online services for:
 - Pharmaceutical trials
 - Adherence monitoring
 - Health 2.0 Disease communities



Contact details:

Cambridge Consultants Ltd

Science Park, Milton Road
Cambridge, CB4 0DW
England

Tel: +44(0)1223 420024
Fax: +44(0)1223 423373

Registered No. 1036298 England

info@CambridgeConsultants.com
www.CambridgeConsultants.com

Cambridge Consultants Inc

101 Main Street
Cambridge MA 02142
USA

Tel: +1 617 532 4700
Fax: +1 617 737 9889

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