Business Models for Smart Applications and Systems in the Future Internet – Healthcare Services and Applications Intermediary

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Motivation, problem area

- **Motivation**
  - Examine the practicability of exploiting purchasing power of UK Healthcare system for greater benefit of local communities and business.
  - Develop a business model for a community based SME Services & Application Intermediary
  - Healthcare delivery shift of focus:
    - Prevention rather than Treatment
    - Total system cost v Treatment cost
    - Wealth creation drives Wellbeing – reduce overall healthcare demand
Motivation, problem area

• Challenges
  – Increasing Number of Systems and Applications; diversity driving complexity within the ecosystem(s)
  – Typical ecosystem SME mix of low to high technology adopters
  – Healthcare Procurement aggregation driving new levels of supplier integration both horizontal (scale) and vertical (complexity)
  – Average UK - NHS contract value has increased, the ratio compared to the average SME turnover (static) is widening.
  – SME solutions developed for local markets are limited due to lack of globally accessible and cost effective interoperability standards.
  – ‘New’ Healthcare markets developing outside the traditional providers:
    • Community Commissioning
    • ‘in the home personalised care’
Research Objectives

• Objectives
  – To propose a SaaS-U business model approach, for use by a SME service and application intermediary in a regional healthcare ecosystem.
  – Highlight the potential challenges involved with creating and sustaining the intermediary business model.
  – Review if the business model can be successfully deployed, shifting from traditional healthcare high cost ‘centralised’ care to patient led ‘on-demand’ customised services.

• Methodology
  – Market context
  – Definition of the business model construct and modelling process
  – Role of researcher in applying these steps within an ecosystem
Major Outcomes/Results

- Construct the initial model
- Intermediary Value Proposition & draft Business Plan
- Identify: Collaborative Innovative and Baseline utility services
  - Generic Service Platform
  - Service discovery & negotiation
  - Human Interaction
  - Collaborative Product Development
  - Semantic Supporting services
  - Competency Development
High Level Model

Health Drivers
- Occupational
- Consumption patterns
- Education
- Income

Health – Value proposition
- Perceived attributes
- Health status
- Indexes
- Value of Life

Demand for Healthcare
- Behaviours
- Barriers
- Access
- Need

Micro-Economic
- Effect at Treatment Level
- Cost effectiveness & cost benefits
- Choice of mode
- Aftercare

Supply of Healthcare
- Costs of Production
- Alternative production
- Markets
- Pay and Incentives

Market Equilibrium
- Price, Times
- Waiting times
- Non-price factors
- Equilibrating mechanisms

Evaluation at Whole System Level
- Equity & Allocative efficiency
- Inter-regional & International Benchmarking

Planning, Budgeting & Monitoring Mechanisms
- Evaluation of effectiveness
- Optimising the system

Commissioning

Providers

Regulator

Commissioning

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Model Variables

- **Costs**
  - Utility Investment Costs
  - Generic Service Platform - Operator
  - Healthcare Dividend
  - Start-up Costs Intermediary
  - Operating Costs

- **Revenue**
  - Subscription
  - Transaction
  - Application
  - Success & Incentive
  - Dynamic Pricing
    - Inventory
    - Data
    - Game
    - Machine Learning
    - Simulation
    - Auction
Output Variables & Implementation

• Output Variables
  – Financial: NPV/IRR
  – Commercial: P&L/Cash flow/Market Share
  – Economic: GVA
  – Social: Jobs/Wellbeing
  – Consumer: Self Directed Budgets

• Implementation
  – Economies of scale
  – Economies of scope
  – Vertical Enterprise Integration
  – Core Competence
## SaaS-U Scenarios

### Centralised
**Buying Power**

**As IS - 'Corporate' Health**
- overhead costs increase
- high vertical integration of services
- fixed prices - treatment productivity key driver (lean health)
- standard products and services - one size fits all
- traditional large scale PPP - investment recovery key drivers
- requires above real term inflation investment year on year
- national health delivery strategy - defocus on 'local' conditions

### Distributed
**Buying Power**

**Disruptive - Retail Health**
- politically seen as shift from public to private with additional payments
- large private providers, charities and insurance companies
- provision of healthcare marketing driven and technology sensitive
- high opportunity for cost reductions of service overheads and delivery
- threat to secondary care providers
- free market healthcare
- healthcare by consumer shopping
- virtual suppliers become the norm

### SME Organisations

**Large Organisations**

**Dominates Market**

**Adoption by default - Health hubs**
- regional centre commissioning
- post code health
- horizontal integration of services - primary care
- integration and turf wars with secondary care providers
- Local Authorities retain control of large portions of spend
- Quick fix for budget cuts in healthcare
- Regional healthcare projects emerge
- piggyback national contracts for service delivery
- Duplication and complexity of managing funding is created
- Focus of healthcare issue upon league tables and regional 'hot topics'

**Emerging - Big Society**
- National Care Service - federation of healthcare ecosystems
- Local authorities become stakeholders
- Cost and prices vary
- local focus of solutions - professional community of commissioners created
- patient centric - customer relationship management fundamental service
- league tables yardstick of performance
- health dividend key measure of impact of services upon future costs
- local providers have greater influence
- direct payments to patients the norm
- lack of access to core systems - data & systems gaps need closing
- competition fragmented and dependant upon clear set of delivery rules
- innovation fragmented - standards under pressure to keep pace
- mass customisation of services

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**S3**

**S2**

**S1**
Competitive Advantage: SaaS-U

• diversity - addressed by innovative Search, Discovery & Ranking of services
• mix of low and high tech users - addressed by Service creation that caters for maturity of providers and their customers.
• investment and management burden in complex ICT infrastructures – addressed by provision and federation of ‘local’ intermediary service provider.
• New forms of co-operation – addressed by provision of Enterprise Collaboration Human Interaction & SaaS-U services.
• Procurement aggregation; horizontal (scale) and vertical (complexity) – addressed by innovative collaborative services: i.e. Trust, Legal and Commercial SaaS-U platform services.
Potential Beneficiaries

- **Tax payer** – adoption of the Health Dividend using utility type services lowers the cost of healthcare delivery, increases local spend driving wealth creation and hence reducing local demand.

- **Patient** – Wellbeing is a key factor in health; Utility services offer the scope for greater patient ‘**customer**’ control, supporting services and chiefly customised services.

- **SME** – Business gain greater market share and face reduced barriers to market entry.

- **Local Community** – particularly communities with poor health indicators can benefit from localised investment and secondary services creation.
Conclusion and outlook

• Co-incident factors at work
  – EU ICT and e-Health policy
  – UK Government Policy: growth strategy to offset the economic recession.
  – UK growth driven by UK public procurement directed to SMEs.
  – Greater awareness in a recession; the poor become poorer and exposed to greater hardship – increases service demand.
  – Growing use of Personalised Care Budgets for long term and end of life conditions – Expanding Primary Care market
  – Increasing need to manage complexity by integration of many to many relationships both supplier and customer.

• Conclusion good possibilities for Intermediaries using utility SaaS services
Please contact for further information and updates of the business model for health

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