Information technology innovation for the BOP: a personal perspective from within a corporate multinational

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Questions

- What are the challenges in achieving disruptive innovation in large corporations?
- Why is innovation for the BOP a particularly difficult challenge?
- What challenges are specific to ICT for the BOP?
- What can be done to meet these challenges?

HP today

- Fortune 11 company, with $80 billion annual run rate
- #1 or #2 in virtually every market, customer segment and region
- >21,000 patents, 650 products introduced last year
- Four major businesses
  - Imaging and printing
  - Personal systems (PCs, PDAs)
  - Technology solutions (enterprise computing)
  - Customer solutions (services)

Disruptive innovation within HP

"One of the things that has made them successful has been a relentless ability to focus on just their business and to treat distractions, not just as annoyances, but to go annihilate them, because they cannot afford to be distracted.

Unfortunately, a new business is indistinguishable from a distraction."

Chief Technology Officer,
Global Business Unit

A timeline of World e-Inclusion at HP

- 1938 – HP formed, "HP Way" begins
- 1966 – Bill and Dave establish HP Laboratories
- 1998 – Sustainable Development grassroots initiative begins in HPL
- 1999 – Carly Fiorina named CEO
- July, 2000 – HPL-India conceived
- October, 2000 – World e-Inclusion initiative launched – HPL-India announced

what could 1 company do in 1 year for 1 world ?

in 1 year
we could touch
1000 villages

in 1 year

we could enlist

1 million partners

in 1 year

we could target

$1 billion

in hp products and services
sold, leased, or donated
through special e-Inclusion programs

Tensions

- Do Good, vs. Do Well
- Brand promise vs. technology, product, business creation
- Poorest of the poor, vs. emerging middle class
- "White space" experiments vs. leverage on HP businesses
- New business incubation vs. driver of fundamental structural change in HP
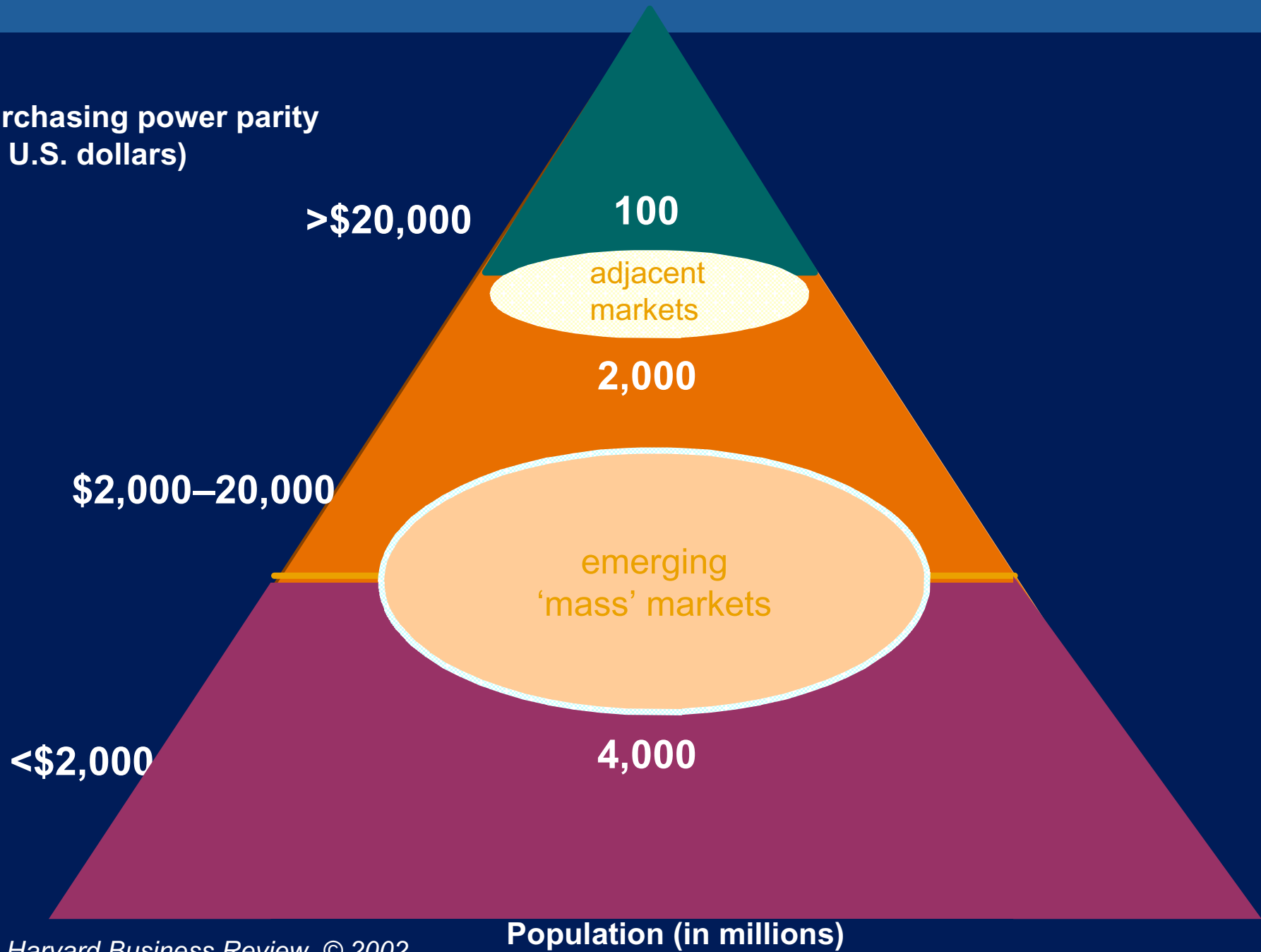
A timeline of World e-Inclusion at HP

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- July, 2000 – HPL-India conceived
- October, 2000 – World e-Inclusion initiative launched
    – HPL-India announced
- September, 2001 – Emerging Markets Solutions launched
    – HPL-India begins
- February, 2002 – HP i-Community in Kuppam announced

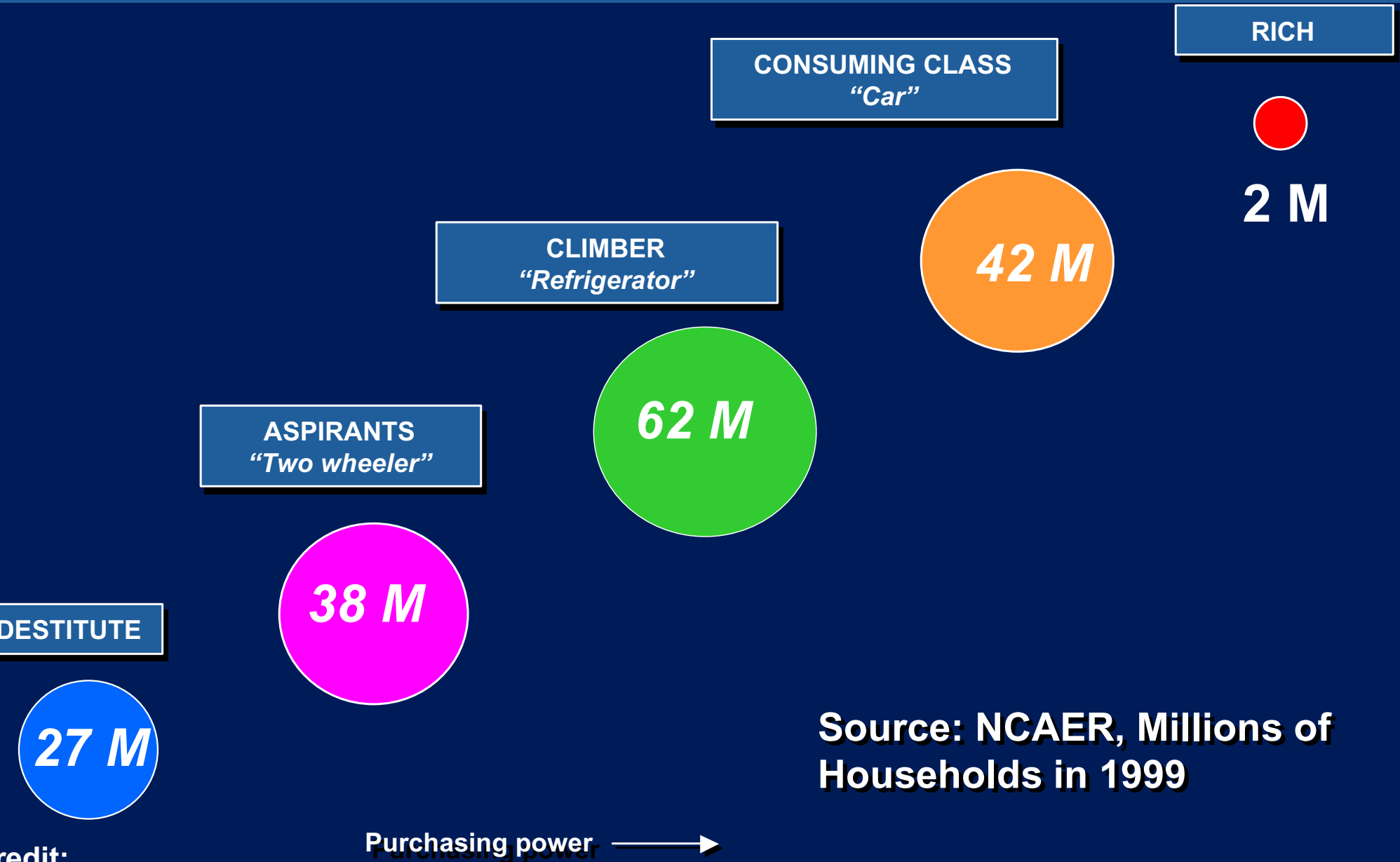Debra Dunn et. al., "Microcapitalism and the Megacorporation", HBR, Aug. 2003

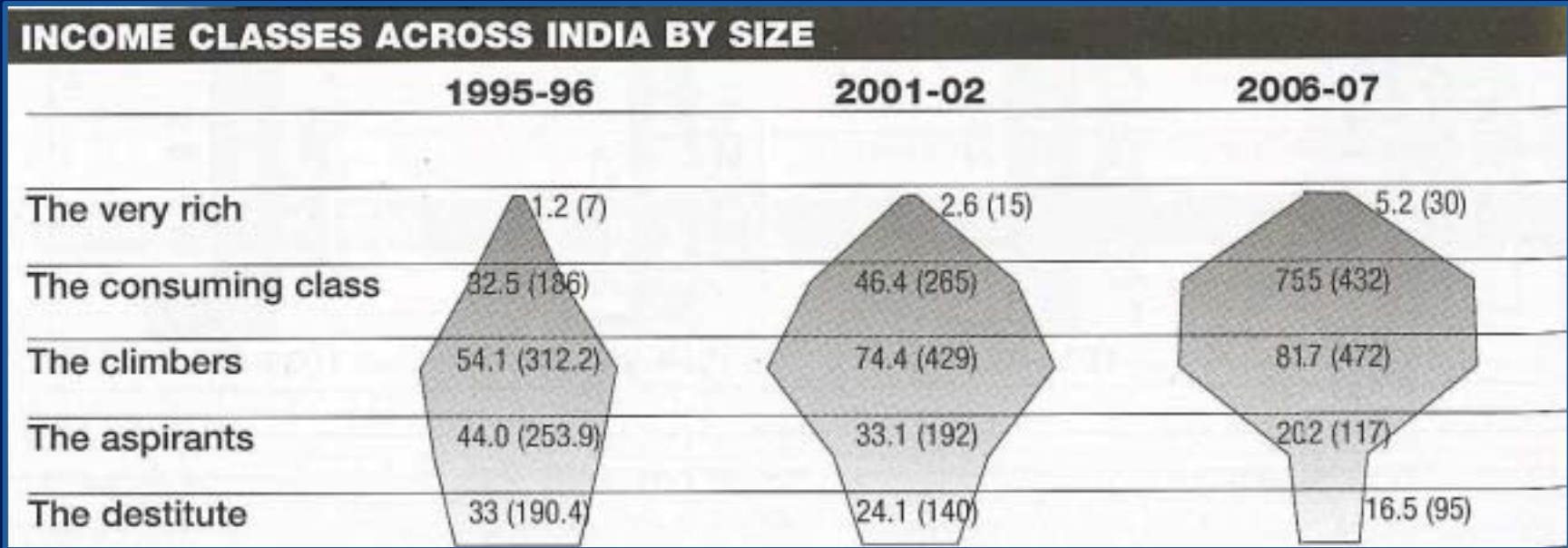# Market opportunities

Purchasing power parity (in U.S. dollars)

>$20,000 — 100 — adjacent markets

$2,000–20,000 — 2,000 — emerging 'mass' markets

<$2,000 — 4,000

Population (in millions)

source: Harvard Business Review © 2002

The Indian market: a "consumption" perspective

RICH

CONSUMING CLASS
"Car"

2 M

42 M

CLIMBER
"Refrigerator"

62 M

ASPIRANTS
"Two wheeler"

38 M

DESTITUTE

27 M

Source: NCAER, Millions of Households in 1999

Purchasing power →

redit:
ama Bijapurkar

'Middle-tier' market size estimation

INCOME CLASSES ACROSS INDIA BY SIZE

	1995-96	2001-02	2006-07
The very rich	1.2 (7)	2.6 (15)	5.2 (30)
The consuming class	32.5 (186)	46.4 (265)	75.5 (432)
The climbers	54.1 (312.2)	74.4 (429)	81.7 (472)
The aspirants	44.0 (253.9)	33.1 (192)	20.2 (117)
The destitute	33 (190.4)	24.1 (140)	16.5 (95)

Number of households in mn

Enterprise

IT firms

Government

5.2 (30)
75.5 (432)
81.7 (472)
20.2 (117)
16.5 (95)
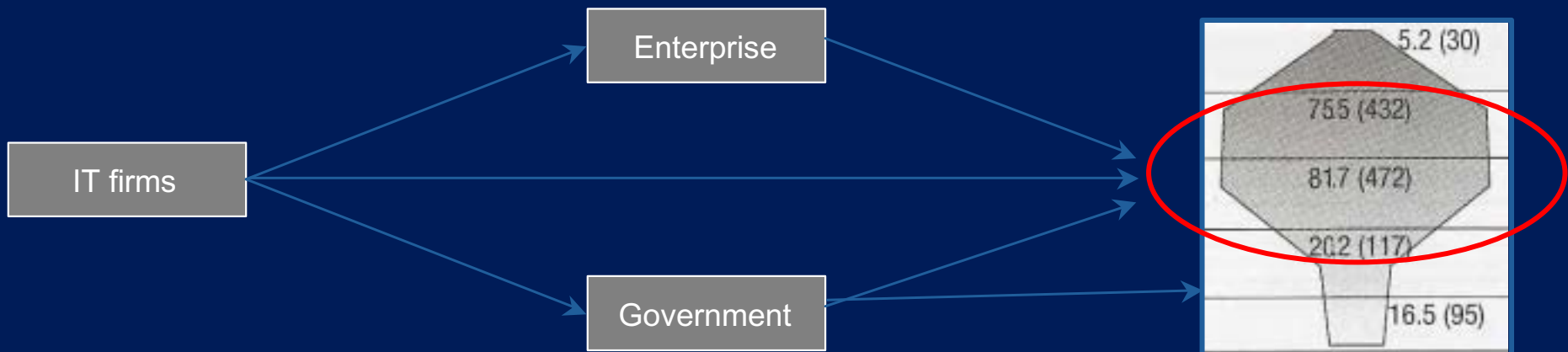
ICT for the BOP - issues

- Industry cost structure
  - H/W capital intensive w/ minimal labor component
  - economies of scale
  - feature/capability rich
  - obsolescence principle
- Usability barriers
  - keyboard, font/character
  - written literacy
  - local language
  - IT skills
- Value proposition
  - Not convenience, not labor productivity
  - System productivity
- Lack of power, coms. infrastructure
- Channels and support

Themes and customer value propositions

Make access devices affordable

Simultaneous Sharing 4-4-1: shared use PC ✓

Pay per use Cheap ✓ Photoshop

Targeted appliance Small business device Scriptmail ✓ device

Remove language barriers in access to information and services

...hone access to ...cal language ...rvices

Handwriting input for forms

Literacy testing

Digital re-masterin... of local language documents

Make info. communications more viable

...ortfolio for a kiosk

Info. distr. over TV networks

Wi-Fi for rural mesh networ...

Learn from the environment

Field study of rich media in people's lives

Culturally rooted user interfaces

Make access devices affordable

Ways to reduce cost barriers

Simultaneous sharing

4-4-1, the community computer

Pay per use
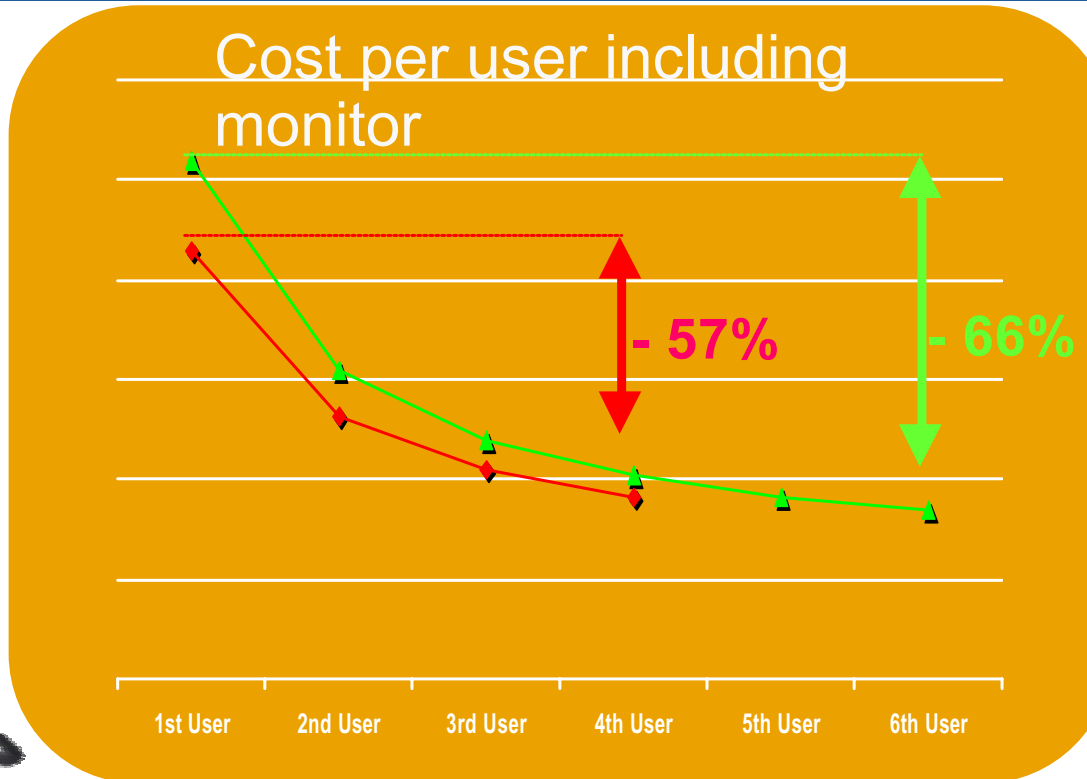
Targeted functionality appliances

HP's "community computer" (aka, 441)

441 solution

•from 4 users 4 (for) 1
PC…..

Cost per user including monitor

- 57%

- 66%

1st User   2nd User   3rd User   4th User   5th User   6th User

Eric Rueda, "Linux Around the World",
LinuxWorld 2002, San Francisco.

•…..up to 6 users 4 (for)
1 PC

441 in South Africa

Make access devices affordable

Ways to reduce cost

Simultaneous sharing

4-4-1

Pay per use

HP Photo Shop

Targeted functionality appliances

HP Digital Studio

- camera, scanner, PC, printer
- $3000 price to operator
- 1500+ deployments, growing
- significant cost advantage vs. Polaroid for ID photos, etc.
- profitable for operator, HP
- annuity revenue/profit stream for HP
- potential for PC-less photo kit for <<$200

- "PCs pull printers pull supplies" business model in India and similar markets limited by magnitude and rate of PC penetration
  - affordability of PC, printer, supplies
  - consumers must purchase our products to gain their benefit
- Photo Shop model delivers consumer imaging benefit as a service
  - service provider purchases equipment
  - consumers pay on a per-print basis
- Can the Photo Shop model expand (significantly)?
- What is the potential financial scale of this business?
  - does this model apply in other geographies?

Digital photography opportunity

Phogenix DFX complete system for $39,900

Enterprise

Digital studio for $3,000

SME (1000)s

Cheap Digital Studio for $1,000

adjacent markets

"critical mass"

Entrepreneur markets

100,000s

Village Photographer, PCO operators, cyber-café chains

Target $400 -> $200

A variety of outlets

Unanticipated (functional) photography needs

Courtesy: Village Photographer, EMS

"Village photographer" meets Comdex

Make access devices affordable

Ways to reduce cost

Simultaneous sharing
4-4-1

Pay per use
HP Photo Shop

Targeted functionality appliances
SOMA small business appliance

Customer Value Proposition

    SOMA: (1) Targeted appliance for small business providing customizable, language independent, numeric computing to support business processes (2) Allow consumer goods and other companies to realize supply chain efficiencies in reaching their retailers

Motivation

- Large number of small businesses (retail, microfinance, home accounting…)
- 98% unorganized (compared to less than 15% in US)
- Over 5 million outlets less than 500 sq. feet in size
- Numerically literate but not computer savvy or English literate

Methodology – multi-disciplinary approach

**Brainstorming
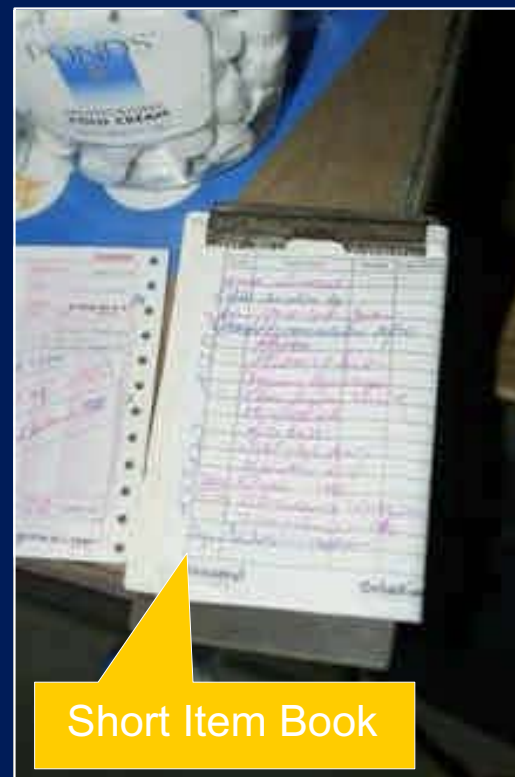Focus groups
Concept refinement**

**Technology
concepts**

**Design
Exploration**

**Users Needs/
Aspirations**

**Ideal
Solution(s)**

**Technology
Architecture**

**Business
Analysis**

Contextual Inquiry
**Mumbai, Chandigarh,
Coimbatore, Kuppam**
**14-16 interviews
Range of shopkeepers**

**Business models
Competitive landscape
Business case**
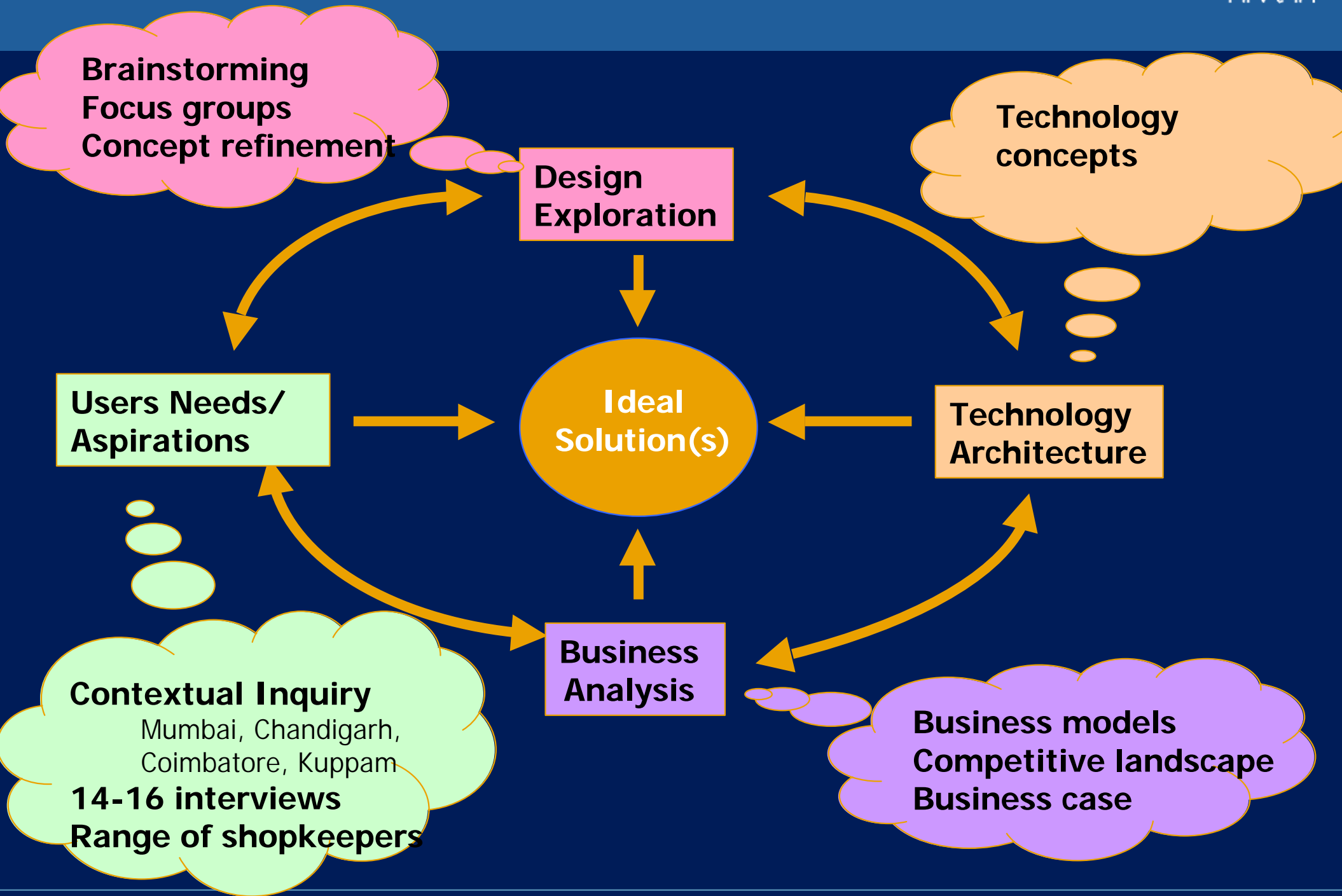
"High frequency retail"

Work spaces

Artifacts
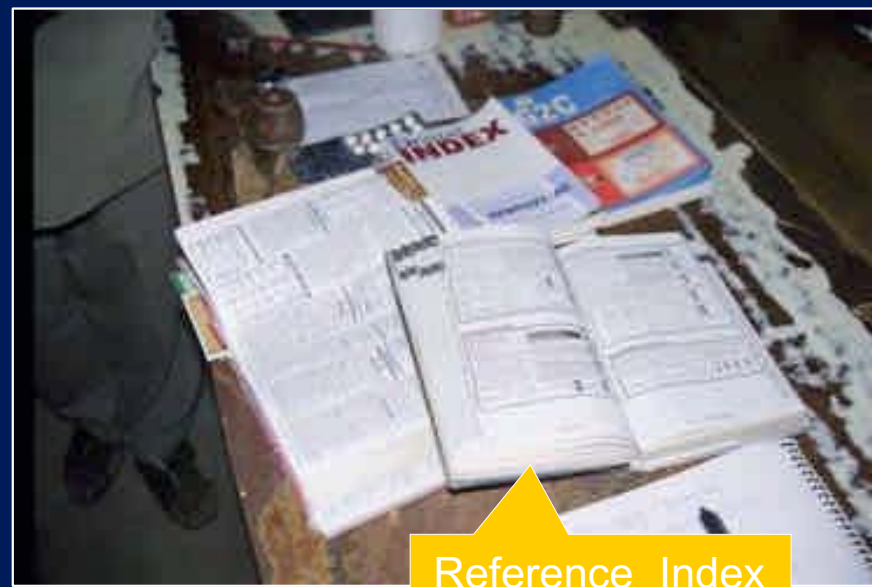
Reference Index

Short Item Book

Customer credit Record
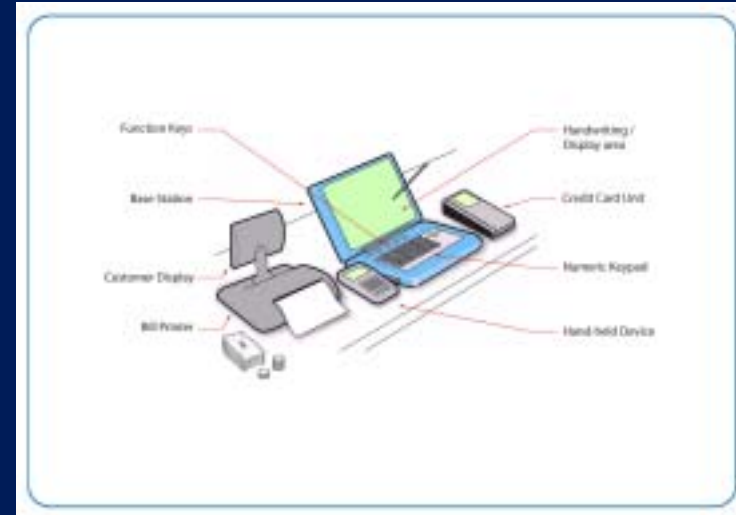

Postcards sent by supplier to shopkeeper
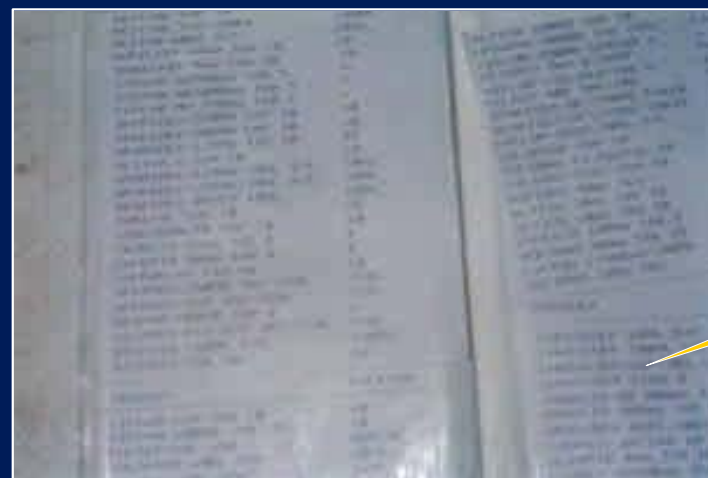
Salesman's Catalogue

Design concepts
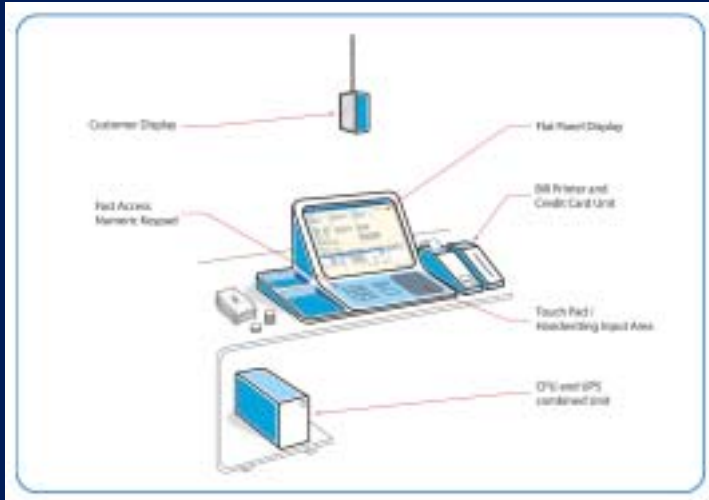
Low cost PC

Base Station

Handheld
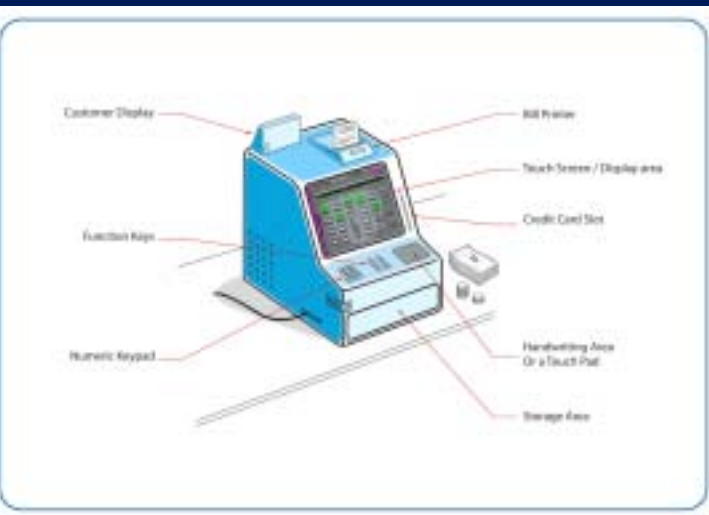
Cash Register
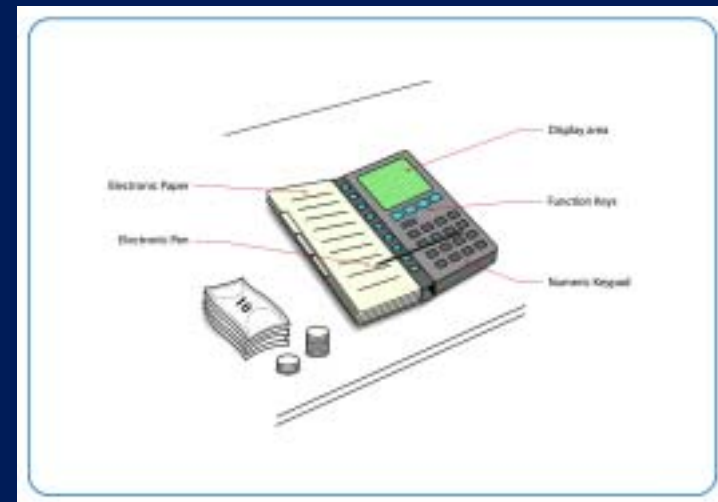
Notebook

Technical/design features

Compact, ½ the size of TVSE Sprint

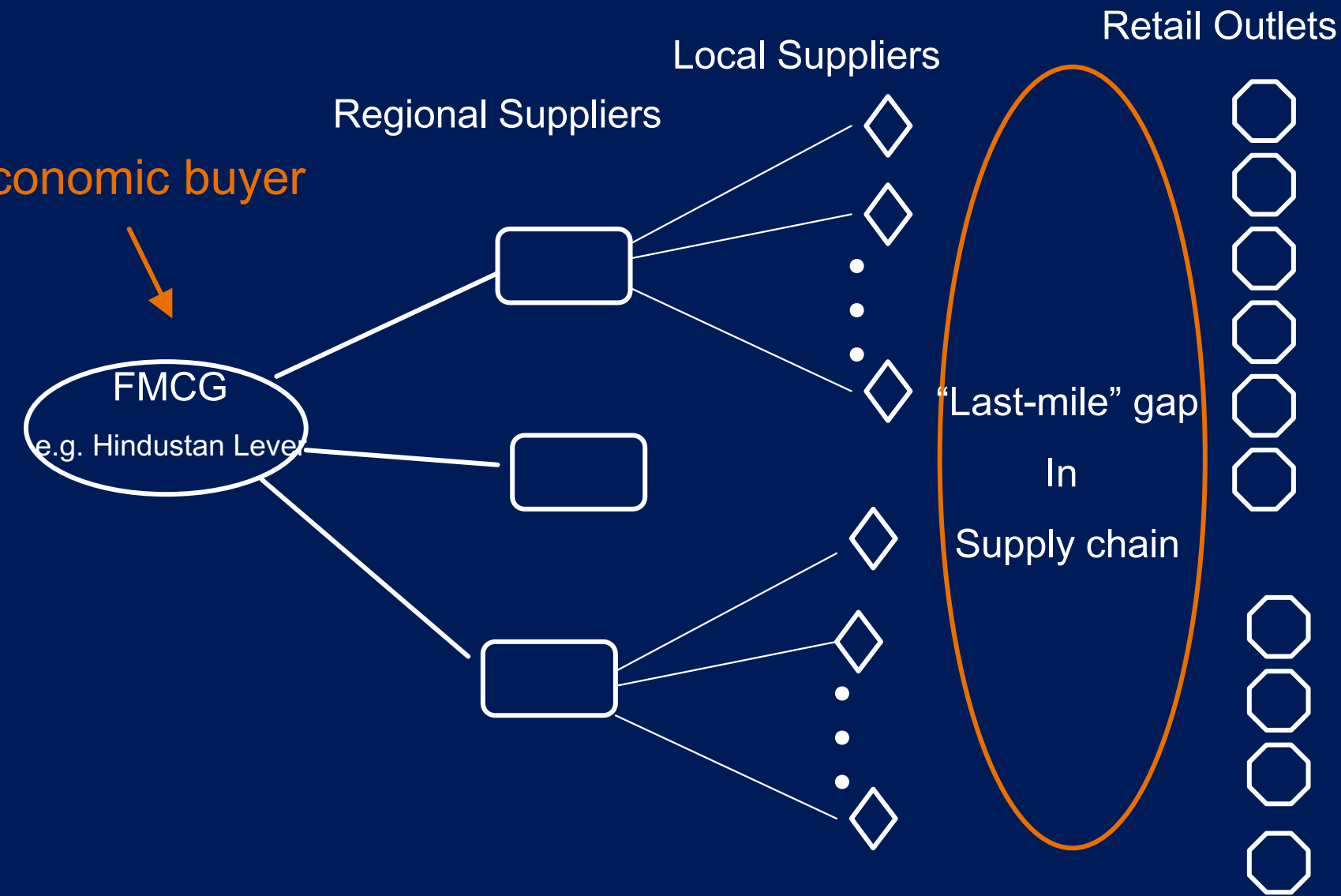Integrated printer but modular architecture

Parallel billing with the help of dock-able, IR based handhelds

Simple UI - Iconic keypad, Pen based soft keypad to provide Indic data entry
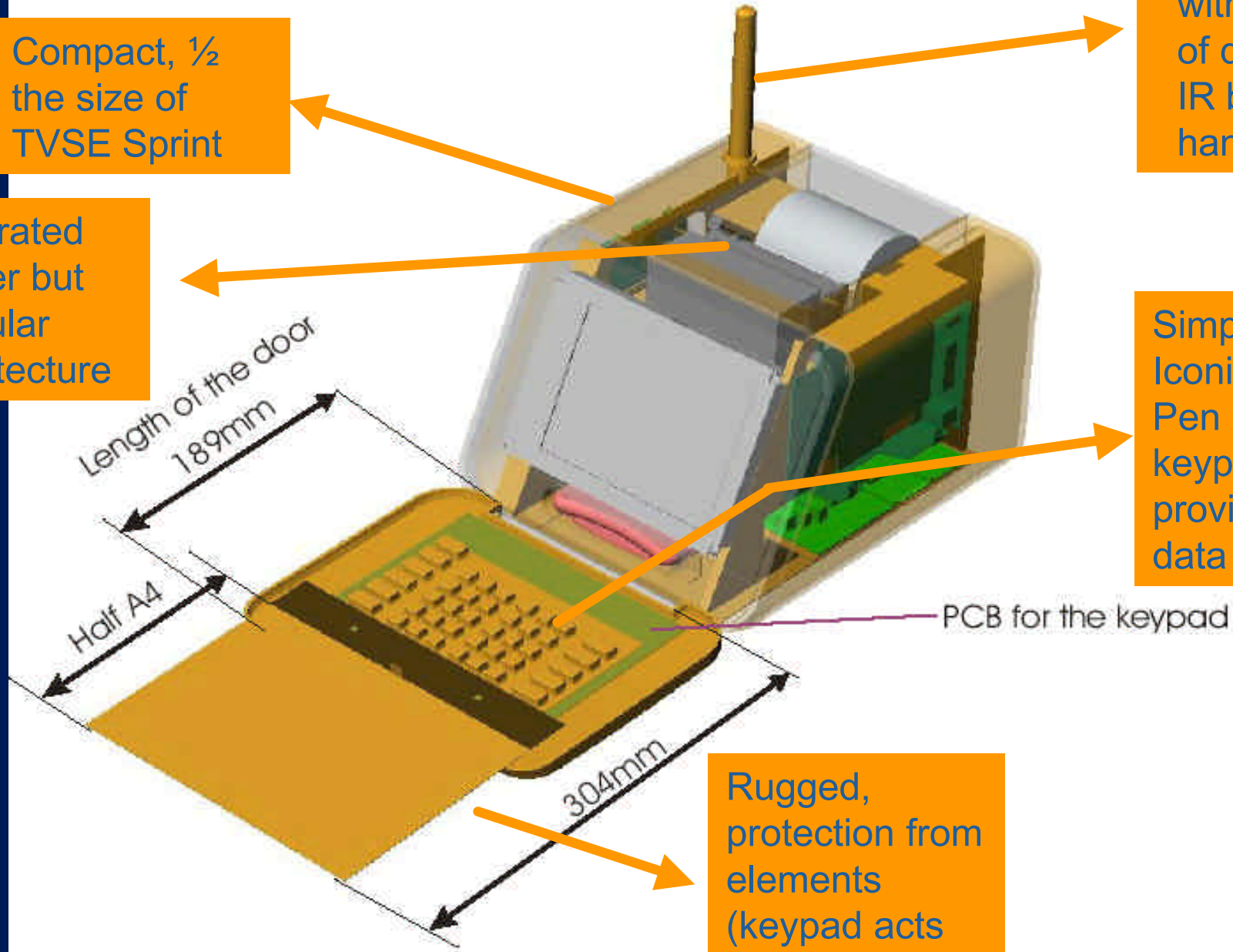
Rugged, protection from elements (keypad acts LCD cover)

Length of the door 189mm

Half A4

304mm

PCB for the keypad

Retail supply chain

Retail Outlets

Local Suppliers

Regional Suppliers

conomic buyer

FMCG
e.g. Hindustan Lever

"Last-mile" gap

In

Supply chain

Solution: Back-end supply chain system + appropriate technology for retai

Is this working at HP?

Yes.

(but it's not finished yet.)

summary

this is hard…

…but it's possible.

"The sign of a first rate intelligence is the ability to hold two opposing views in the mind … and still have the ability to function".

"Luck is the residue of design".

Leadership matters (vision + execution) (but is hard to find).

Innovation enters through the "window of necessity".