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United Villages: M-Commerce Solutions

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Overview

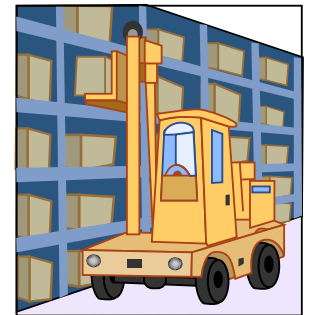
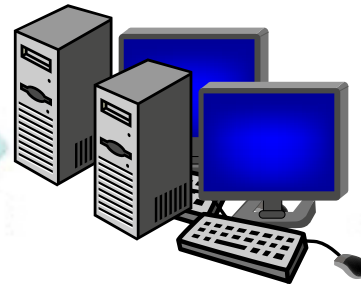
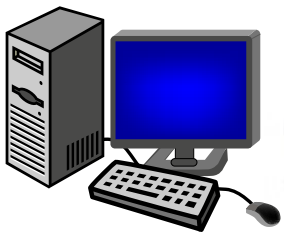
- Our team is developing mobile solutions to increase supply chain efficiencies in the developing world.

Developed World

Customers

Businesses

Suppliers



Figures by MIT OpenCourseWare.

Overview

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Developed World

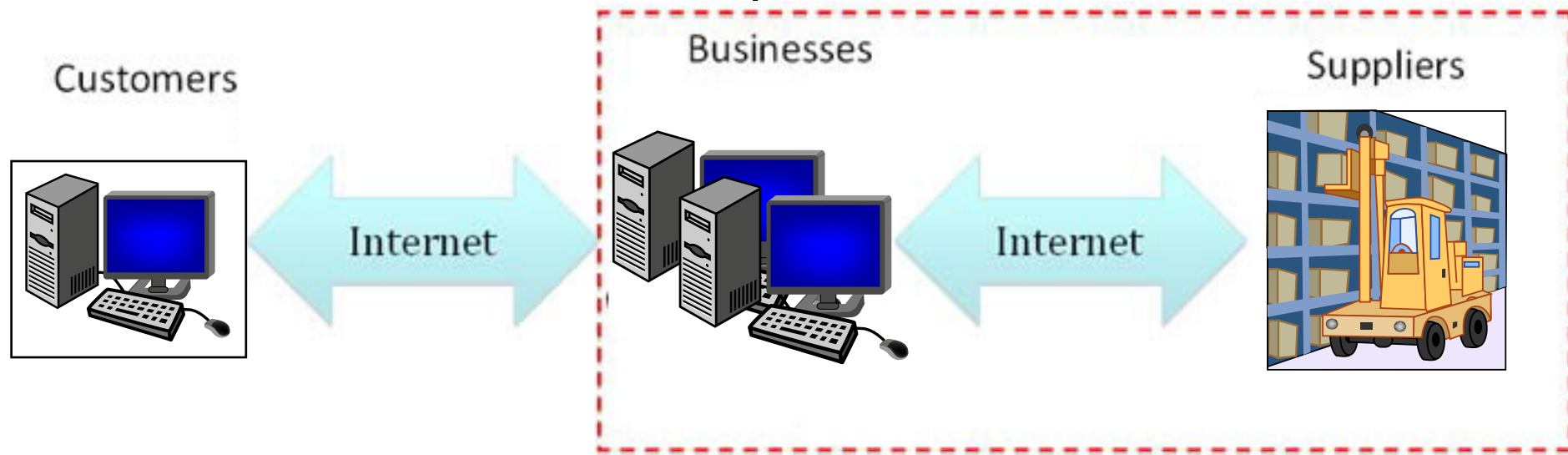
Advantages:

- Business saves times
- Business can make more informed decisions
- Software solutions are scalable
- More choice for consumer
- Cheaper goods through competition and efficiency
- Anticipate market trends and supply problems
- Customer tracking and targeting

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Developed World

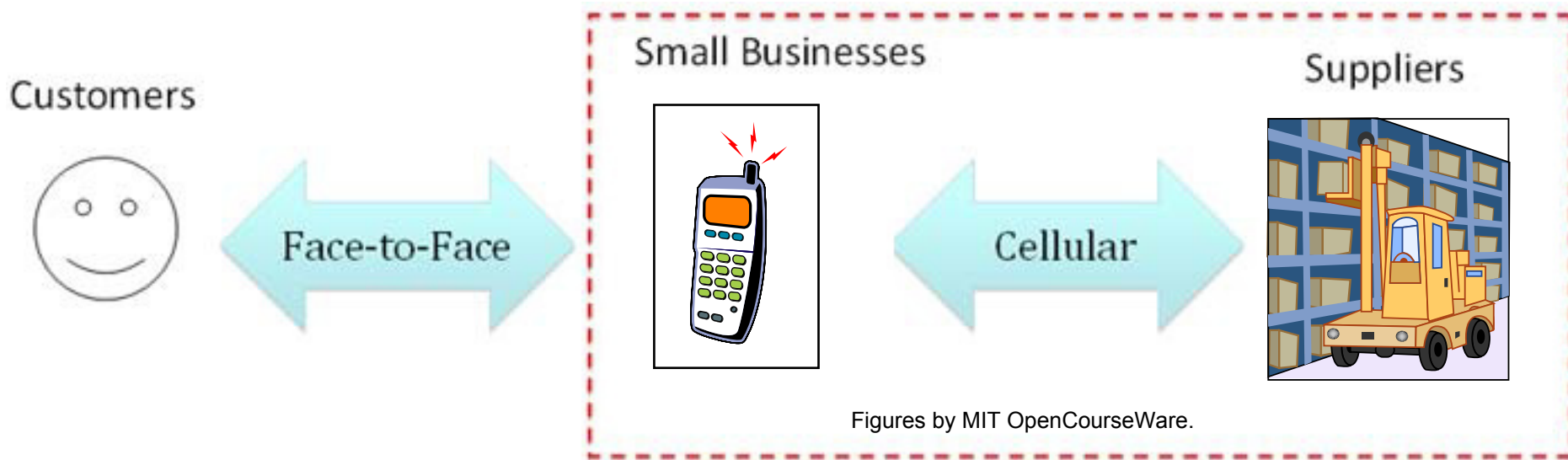


Figures by MIT OpenCourseWare.

Overview

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Proposal for Developing World



Figures by MIT OpenCourseWare.



- MIT Startup founded in 2003
- Empower two billion rural people by delivering information, communication, goods, and services.
- Started with store and forward, drive-by wifi for rural connectivity
- Evolved into rural information and goods distributor

United Villages E-Shop



United Villages E-Shop



United Villages E-Shop



United Villages E-Shop



United Villages E-Shop



Problems with Current Situation

- **Expensive**
 - Airtime & staff operators
 - Catalog is expensive to print
- **Error Prone**
 - Transcription of order by UV operator
- **Inefficient**
 - Time consuming
 - Not optimized for reoccurring orders
 - Searching catalog is not intuitive
- **Not Scalable**
- **Record-less**
 - No persistent record of transaction
- **Hard to support UV's future plans**

Needs Assessment

- Technological requirements:
 - J2ME for phone application
 - SMS for transport layer
 - Appropriate tech. with ability to support advanced features
- Catalog updates required
 - Prices and products require monthly updates
- English literacy is high across mDSPs



Needs Assessment

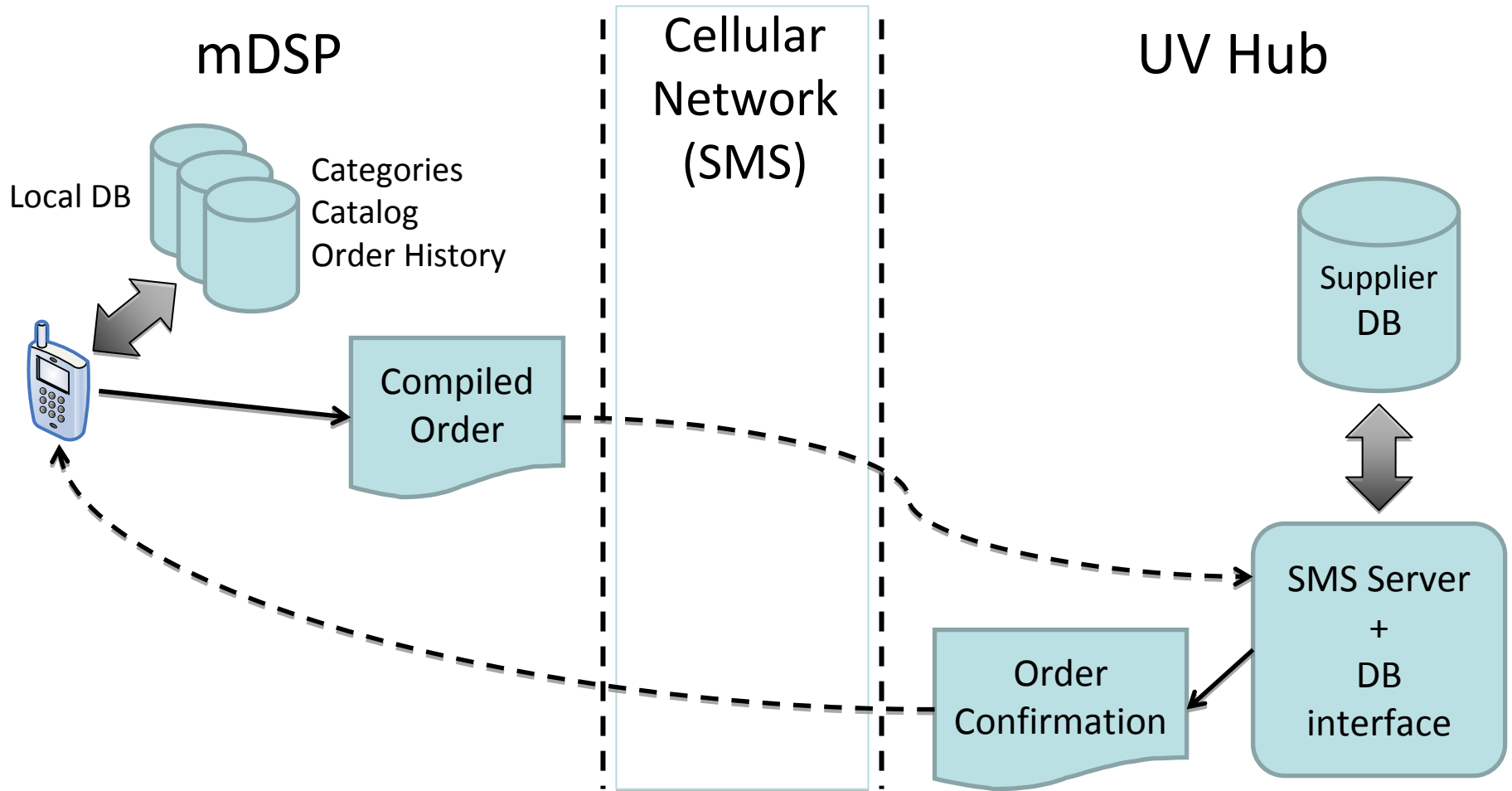
- 75% of mDSPs do not own a J2ME-enabled phone
 - Solution: incentivize purchase of J2ME-enabled phone
- At \$75 for a phone, the average mDSP can break even after 2 months
 - Assuming \$46 monthly profit and various travel expenses (see Appendix)

Our Solution

- Design a J2ME application with tested e-commerce modalities:
 - Search by product code
 - Search in product name and description
 - Shopping basket
 - Order multiple products per order (per SMS)
 - Order confirmation
 - Order history
 - Data on costs and profit
 - Ability to reorder a past order



System Diagram



Sustainability Overview



- No upfront costs for United Villages, low continuing costs of operations
- Mobile DSP break even on new phone purchases within two months
- Utilizing Open Source and industry standards
- Recommendations to engage developer or future NextLab teams
- Focus on clear documentation and training materials
- Identified key behavioral changes needed
- Defining process and documentation to ensure sustainability
- Focused on building and strengthening relationships with key stakeholders at all levels of the United Villages organization

Pilot Plans

- 3 team members are traveling to Rajasthan in January for a pilot
 - Funding generously provided by nextlab and UV
- 10-day pilot:
 - Iterate over the design of the new system
 - Compare the new system to the old workflow
 - Test the robustness of the SMS layer
 - Begin working on hand-off to UV

Conclusions

- Successful in developing a system that meets the needs of United Villages.
- Broader impact because the system is open-source and can be adopted by other parties.
- Will the system be embraced by mDSPs?

Future Plans

- Develop system into a fully-featured m-commerce platform:
 - Access to customer information
 - Business analysis features for mDSPs
 - Pre-paid card support for payment
 - Targeting sales and promotions
 - Anticipate supply problems
- Develop solutions for end-customers (villagers)

APPENDIX

Financial Mobile DSPs Economics

Key Question # 1: Will mDSPs purchase J2ME phones?

Upfront Costs

- J2ME-enabled phone: \$75
- Training costs: \$17 (5 hours for travel and training at \$3.50 / hour)¹

On-going Costs
(Monthly)

- SMS: \$0.04 (\$0.02 per message x 2 orders per month)
- Monthly catalog updates: \$14.00
 - 4 hour round trip (travel + time in head office)
 - Average hourly salary \$3.50

Gross Profits
(Monthly)

- Average Monthly Gross Profit = \$45.96

Break Even

$$\begin{aligned}
 \text{Monthly Gross Profit} \times \text{Months} &= \text{Upfront Costs} \\
 \$45.96 \times M &= \$92.50 \\
 M &= \$92.50 / \\
 M &= 2.01 \\
 &\text{months to break even}
 \end{aligned}$$

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MAS.965 / 6.976 / ES.S06 NextLab I: Designing Mobile Technologies for the Next Billion Users
Fall 2008

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