Market Research Proposal

TOTAL COST OF OWNERSHIP (TCO) MODELS

FOR MOBILE COMPUTING AND COMMUNICATION PLATFORMS, THIRD EDITION

Mobile and Wireless Practice

April 2009
TOTAL COST OF OWNERSHIP (TCO) FOR MOBILE COMPUTING AND COMMUNICATION PLATFORMS

INDUSTRY FOCUS

Enterprises continue their transformation into distributed organizations where key decisions are being made at the point of interaction. VDC’s Enterprise Mobility research continues to demonstrate that the ability to improve decision-making speed and scalability at the edge of an organization offers organizations significant competitive leverage. These real-time remote transactions are increasingly being enabled by mobile computing and wireless communications solutions. However, in today’s economic environment with increasing budget scrutiny, organizations are more apt to make investment decisions based more on upfront investment as opposed to long term cost of ownership. Providing organizations with the necessary information and assurance they are making the correct investment – not only in terms of return on investment (ROI), but also total cost of ownership (TCO) – is perhaps more important now than ever before.

VDC Research believes that a TCO model that focuses on the most powerful technical and operational cost drivers will provide customers with an accurate baseline from which they can make mobile and wireless investment decisions. A critical aspect of any successful TCO analysis needs to include the business elements of TCO in addition to the upfront technology acquisition and deployment costs. These include length of deployment/replacement cycles, failure rates and causes, opportunity cost of lost productivity, to name a few. Through such a full analysis, organizations can determine the solution which will best serve the company.

To address these critical requirements, VDC is proposing an update to its pioneering TCO research. This research will use a rigorous primary research methodology designed to leverage real world mobile computing usage models across a variety of industries supporting many of the leading applications. In addition to drawing comparisons by mobile computer type – form factor, ruggedness, etc. – VDC is extending its research scope to include the evaluation of mobile printing solutions in addition to the impact of mobile device management (MDM) on the overall TCO. VDC has developed the definitive unbiased third-party research on mobile computing TCO analysis.

RESEARCH SUMMARY

This study will once again deliver Total Cost of Ownership (TCO) models and analysis for mobile computing platforms, with added coverage of mobile printers and mobile device management software (MDM). All TCO analyses will include:

- **Model framework development**
  VDC will develop and validate TCO models for the acquisition, maintenance, and support for mobile computing and communications platforms, mobile printers and mobile device management software.

- **Model application and execution**
  After validating the model, VDC will apply the model to execute TCO analysis for several types of mobile platform form factors, mobile printer form factors, and MDM software options, across a series of deployment environments. TCO analyses will be calculated over a 3- and 5-year Net Present Value forecast.

- **Comparative analyses**
  The model will then be used to run comparative TCO analyses between (1) rugged and commercial-grade mobile platforms within specific deployment/installation environments (2) rugged and commercial-grade mobile printers within specific deployment/installation environments (3) impact of MDM solutions on mobile computing deployments.
This research will also provide detailed solution requirements analysis (including product evaluation criteria and decision-making processes for mobile solutions purchases) and how these requirements align with TCO inputs.

<table>
<thead>
<tr>
<th>MOBILE SOLUTION AND VERTICAL MARKET COVERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mobile Platforms</strong></td>
</tr>
<tr>
<td>Notebooks / Laptops</td>
</tr>
<tr>
<td>PDAs / Handheld Computers</td>
</tr>
<tr>
<td>Smart phones</td>
</tr>
<tr>
<td>Slate Tablets</td>
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<tr>
<td>UMPCs/ Netbooks</td>
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</tbody>
</table>

**Vertical Markets**
- Field Mobility (Sales and Service)
- Healthcare Services / Point of Care
- Industrial / Warehouse
- Public Safety / Code Enforcement
- Retail / Hospitality
- Transportation / Distribution

**RESEARCH SCOPE**

**MOBILE COMPUTING PLATFORMS, MOBILE PRINTERS & MOBILE DEVICE MANAGEMENT SOFTWARE COVERAGE**

**MOBILE PLATFORMS**
- Form Factors:
  - Notebooks / Laptops
  - PDAs / Handheld Computers
  - Smartphones
  - Slate Tablets
  - UMPCs / Netbooks

**MOBILE PRINTERS**
- Form Factors:
  - Workboard
  - Handheld / Portable
  - Belt-worn

**MOBILE DEVICE MANAGEMENT SOFTWARE (MDM)**
- Functionality:
  - Provisioning
  - Remote Monitoring
  - Remote Control / Support
  - Security Management

**LEVEL OF RUGGEDIZATION**
- Fully Rugged
- Rugged
- Durable
- Consumer / Commercial Grade

**VERTICAL MARKETS**

**FIELD MOBILITY (SALES AND SERVICE)**

**HEALTHCARE SERVICES / POINT OF CARE**

**INDUSTRIAL/WAREHOUSE**

**PUBLIC SAFETY/CODE ENFORCEMENT**

**RETAIL / COMMERCIAL**

**TRANSPORTATION / DISTRIBUTION**

**VERTICAL MARKET AND INDUSTRY COVERAGE**

<table>
<thead>
<tr>
<th>Field Mobility (Sales and Service)</th>
<th>Health Services / Point of Care</th>
<th>Industrial / Warehouse</th>
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<tbody>
<tr>
<td>Utilities</td>
<td>Hospital</td>
<td>Consumer packaged goods</td>
</tr>
<tr>
<td>Telco/broadband</td>
<td>Physician offices</td>
<td>Automotive</td>
</tr>
<tr>
<td>Industrial equipment</td>
<td>Home care</td>
<td>Electrical</td>
</tr>
<tr>
<td>Facility management</td>
<td>Long term care</td>
<td>Pharmaceutical</td>
</tr>
<tr>
<td>Insurance/real estate</td>
<td>Other</td>
<td>Petroleum</td>
</tr>
<tr>
<td>Financial services</td>
<td>Other</td>
<td>Other</td>
</tr>
<tr>
<td>Construction</td>
<td></td>
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<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Safety / Code Enforcement</td>
<td>Retail / Hospitality</td>
<td>Transportation/Distribution</td>
</tr>
<tr>
<td>Public safety/EMS</td>
<td>Mass merchants</td>
<td>Trucking (TL/LTL)</td>
</tr>
<tr>
<td>Homeland security</td>
<td>Grocery</td>
<td>Mail/courier</td>
</tr>
<tr>
<td>Federal Nonmilitary</td>
<td>Convenience stores</td>
<td>Multimode</td>
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<tr>
<td>Other</td>
<td>Department stores</td>
<td>Airlines</td>
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<td>Other</td>
<td>Other</td>
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</table>
RESEARCH CONTENTS
The 2009 TCO program has six (6) volumes, each focusing on a specific vertical market. The research contents outlined below are specific to each vertical market volume (unless noted otherwise):

EXECUTIVE SUMMARY
- Deployment Environment definition, segmentation, and overview
- Installed base of mobile computing and communications solutions
- Installed base of mobile printers
- Mobile device management utilization
- Solution Requirements, evaluation criteria, and decision-making
- Total cost of ownership (TCO) models
- Summary observations and key success requirements

INSTALLED BASE OF MOBILE COMPUTING PLATFORMS, MOBILE PRINTERS AND MOBILE DEVICE MANAGEMENT SOFTWARE

MOBILE USER PROFILE
- Primary sectors/industries
- Organization size
- Mobile computing deployment experience

MOBILE PLATFORMS
- Form Factors:
  - Notebooks / Laptops
  - PDAs / Handheld Computers
  - Smartphones
  - Slate Tablets
  - UMPCs / Netbooks

MOBILE PRINTERS
- Form Factors:
  - Workboard
  - Handheld / Portable
  - Belt-worn

MOBILE DEVICE MANAGEMENT SOFTWARE (MDM)
- Functionality:
  - Provisioning
  - Remote Monitoring
  - Remote Control / Support
  - Security Management

COMMUNICATIONS SUPPORT

DEVICE SUPPLIERS USED

LEVEL OF RUGGEDIZATION FOR DEPLOYED SOLUTIONS
- Fully Rugged
- Rugged
- Durable
- Consumer/Commercial Grade

SOLUTION REQUIREMENTS, EVALUATION CRITERIA, AND DECISION-MAKING

MOBILE PLATFORM AND PRINTER REQUIREMENTS
- Durability requirements:
  - Operating and storage temp
  - Ruggedness/durability (drop spec)
  - Shock/vibration resistant
  - Dust resistant
  - ESD resistant
  - Water/liquid resistant
  - Other
- Product specifications:
  - Device weight
  - Device form factor
  - Battery life
  - Operating system
  - Communications
  - Input/output
  - Other
- Length of warranty period:
  - 12 months
  - 24 months
  - 36 months
  - More than 36 months
- Mobile device replacement cycles
  - Length of cycle (years)
  - Factors driving replacement cycle
- Ratio of deployed devices to backups/spares
- Number of external or integrated modules being run on a mobile computer at one time

MOBILE PLATFORM AND PRINTER USAGE MODELS
- Environment exposure
  - Extreme temperatures (<32°F, >100°F)
  - Water
  - Humidity
  - Vibration
  - Other
- Average length of use per day
• Device failure rates
  – Failure factors:
    o Hardware-related
    o Communications-related
    o Peripheral-related
  – Failure reasons
  – Failure sequence (what happens when device fails)
  – Average replacement length

**MOBILE DEVICE MANAGEMENT (MDM) SOFTWARE AND SERVICE REQUIREMENTS**

• Source of installation/integration:
  – Internal only
  – External only (3rd party)
  – Both internal and external

• Functionality:
  – Provisioning
  – Remote Monitoring
  – Remote Control / Support
  – Security Management

• Maintenance

• Ratio of mobile users to IT support staff

**TOTAL COST OF OWNERSHIP (TCO) MODEL**

**UPFRONT COSTS**

• Hardware costs
  – Platforms
    o Notebooks / Laptops
    o PDAs / Handheld Computers
    o Smartphones
    o Slate Tablets
    o UMPCs / Netbooks
  – Printers
    o Workboards
    o Handheld / Portable
    o Belt-worn
  – Peripherals
    o Docking station (in vehicle or in building)
    o Plug-in WLAN/WWAN/PAN card
    o Tethered bar code scanner
    o Plug-in GPS/AVL
    o Digital camera
    o Other

  – Spares/backups
    o Mobile computers
    o Mobile printers
    o Peripherals

• MDM Software costs
  – Provisioning
  – Remote Monitoring
  – Remote Control / Support
  – Security Management
  – Upfront fees
  – License fees
  – Development/customization

• Development costs
  – Application design/development (standard and customized)
  – Integration (internal and third party)
  – Staging
  – Testing

**SUPPORT COSTS**

• Training costs:
  – Initial user training
  – Ongoing user training

• Operational costs:
  – System maintenance and application management
  – IT services and repair depot
  – Help desk (internal and/or third party)
  – Software distribution and management
  – Peripheral replacement
  – Communications (voice/data)

• Downtime/device failure costs
  – Hardware replacement
  – Lost manpower/wages
  – Lost revenues

**KEY SUCCESS REQUIREMENTS**

• Future use of TCO models
• Changes in TCO models
• VDC recommendations on TCO model development, and use in marketing and sales
• TCO Best Practices to support mobile wireless investments
• Impact of device management on mobile computing TCO
• Impact of ruggedness on mobile computing TCO
RESEARCH SCHEDULE

Monthly status reports ................................................................. Begin May 2009
Interim findings by volume....................................................... One month prior to publication of each final report volume
Final deliverables........................................................................... September/October 2009

For More Information Contact:

<table>
<thead>
<tr>
<th>Research Analysts</th>
<th>Account Representative</th>
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<tbody>
<tr>
<td>David Krebs</td>
<td><a href="mailto:davidk@vdcresearch.com">davidk@vdcresearch.com</a></td>
</tr>
<tr>
<td>Gerrald Smith</td>
<td><a href="mailto:gsmith@vdcresearch.com">gsmith@vdcresearch.com</a></td>
</tr>
</tbody>
</table>

PROCESS AND METHODOLOGY

VDC Research strives to create valid and accurate primary market research using a structured approach, analytic tools, and proven analytic methods reinforced by information from secondary sources when appropriate.

METHODOLOGY

The rigor of VDC’s research methodology yields data we translate into information and knowledge to create insights that lead to innovation and business results for our clients. The geographic scope of this study is global. This market research service includes a number of data collection and analytic methods:

- **Market Segmentation and Definition**: Definition of market segments, target customers, and competing solutions are critical to building accurate TCO models.
- **Data Verification**: Via primary and secondary research within the same target communities and companies. Verification includes conducting supplemental interviews with multiple personnel at target firms, crosschecking with target firm channels and partners, requesting estimates from competing firms, and reviewing historical performance.

STRUCTURED APPROACH AND TOOLS

- **TCO model and framework development**: VDC will take input from platform suppliers, systems integrators, and previous VDC research to develop and validate TCO models for the acquisition, maintenance, and support for rugged/commercial-grade mobile computing and communications platforms.
- **Market segmentations**: VDC will model the rugged/commercial-grade mobile computing and communications market through detailed accounts of the products/technologies, vertical markets, regional markets, and customer class communities.
- **Survey Tools**: Includes in-depth telephone interviews and supplemental Web-based surveys.
- **Survey Target Databases**: Includes VDC proprietary sources, research program sponsors, and industry-specific third parties (trade publications, Web sites, conferences, etc.).

PRIMARY RESEARCH

<table>
<thead>
<tr>
<th>Target Communities</th>
<th>Target Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Phone Interviews</td>
<td>Users of rugged/commercial-grade mobile computing and communications platforms</td>
</tr>
<tr>
<td></td>
<td>Systems Integrators (Tier I Enterprise &amp; Tier II/III Mobile Application-Specific)</td>
</tr>
<tr>
<td>Web / Email Surveys</td>
<td>Users of mobile computing and communications platforms</td>
</tr>
</tbody>
</table>

SECONDARY RESEARCH

- **Internet searches** – VDC will comb the corporate Web sites of rugged/commercial-grade mobile computing and communications platforms to obtain all relevant information, including product offerings, specifications, press releases, channel structure, and other corporate information. Some of the material that will be gathered includes examples of TCO analysis or related materials.

- **Trade press search and analysis** – VDC will conduct a detailed search and analysis of the relevant trade press to supplement our research and findings in product developments and market trends. Examples of trade press include: Wireless Design & Development, Portable Design, Mobile Enterprise Magazine, Business Solutions, Wireless Week, Supply Chain Systems, RCR News, etc.

- **Other sources** – To build and develop TCO models, VDC will also target industry associations, standards organizations, independent consultancies, academic institutions, government agencies, public forums and consortia, industrial computer supplier and integrator public documents and a host of similar sources.

- **Proprietary Databases** – Use of VDC proprietary databases covering the markets related to the market under study.
RESEARCH TEAM

- **David Krebs**, Research Director

  David has more than ten years experience in mobile computing systems, wireless data communication and automated data-capture research and consulting. David’s experience in consulting includes: end-user segmentation and adoption analyses for next-generation mobile platforms and communication networks, automatic data-capture technology migration mobile software middleware and interfaces; development of proprietary forecast methodologies; comparative product performance evaluation; missionary sales and market expansion requirements analysis; and merger and acquisition due diligence advisory support.

  David is a graduate of Boston University.

- **Casey Holmes**, Research Analyst

  At VDC, Casey is responsible for multi-client studies as well as custom research projects where she works closely with the practice director, David Krebs and other VDC analysts. Recent reports conducted by Casey include *Mobile Device Accessories: Global Market Demand Analysis* and *Enterprise Mobility Solutions: Health Care Vertical Market Analysis*.

  Casey is a 2006 graduate of Cornell University where she received a B.S. in communication, cum laude with distinction in research. At Cornell, she attended graduate-level research methodology classes and conducted an independent honors research thesis in social science. Casey was a writer for the *Cornell Daily Sun* where she specialized in political analysis articles.

- **Christopher J. Rezendes**, Executive Vice President

  Chris has 17 years experience in industrial technology market research and consulting. He has more than 12 years experience in senior management and leadership positions at a number of IT systems and professional services organizations.

  Chris has advised many of the largest and most respected companies in industrial and information technology industries worldwide. He has also worked with many of the most successful private equity and venture capital firms in the Americas and Europe. His work with the financial services community includes proprietary engagements with most of the leading investment banking firms in the world.

  Chris is a graduate of Harvard University.
## ORDER FORM

### TOTAL COST OF OWNERSHIP (TCO) MODELS
**FOR MOBILE COMPUTING AND COMMUNICATIONS PLATFORMS, THIRD EDITION**

| Volume 1: Field Mobility (Sales & Service) | $3,950 |
| Volume 2: Healthcare / Point of Service | $3,950 |
| Volume 3: Industrial / Warehouse | $3,950 |
| Volume 4: Public Safety / Code Enforcement | $3,950 |
| Volume 5: Retail / Hospitality | $3,950 |
| Volume 6: Transportation / Distribution | $3,950 |

Package pricing available - Please call for details

**Enterprise License**
Provided the right to post purchased research on portal/corporate network for sharing within organization. 25% of research fees

**Subtotal**

**MA Companies add 5% tax**

**TOTAL**

I want to order **Total Cost of Ownership (TCO) Models for Mobile Platforms, Mobile Printers and Mobile Device Management Software, Third Edition**. I have read the Contractual Provisions of this proposal, which can be found [here](#) and agree to its terms.

Authorized Signature: __________________________

| Name: __________________________ | Check Enclosed | Amount: __________________________ |
| Title: __________________________ | Purchase Order Enclosed | PO Number: __________________________ |
| Company: __________________________ | VISA | Master Card | American Express |
| Street: __________________________ | Account Number: __________________________ |
| City: __________________________ State: __________________________ | Expiration Date: __________________________ |
| Zip: __________________________ Country: __________________________ | Name on Card: __________________________ |
| E-mail: __________________________ | Bill my company without a purchase order, but with my consent. |
| Telephone: __________________________ Fax: __________________________ | Signature: __________________________ |

New Accounts: Orders must be pre-paid.
Foreign Orders: Payable in U.S. Dollars drawn on a U.S. bank, wire transfer, or by credit card.