Wireless Communications Review

December, 2010
April, 2011

Preamble

As part of the 2010/2011 Work Plan of the Office of the Auditor General (OAG), the Auditor General planned a review of cellular telephones, Blackberrys and other wireless devices. The project was included in the work plan for a variety of reasons including:

- Observations around numbers of units which appeared to be in use at HRM.
- Observations around the overall usage of devices.
- Observations with respect to the employment profile of many HRM employees who have a wireless device issued to them.
- Possible savings through changes in the contract terms which appeared to be principle drivers of HRM costs.
- Possible savings through better management of HRM cost drivers which are actually contained in contracts.

The focus of the project was to evaluate current policies around the deployment of wireless devices and the consumption of wireless services throughout HRM line departments and those agencies, boards and commissions using the HRM wireless contract.

While the OAG review was underway, Management became engaged in the process of updating policies and negotiating contract extensions and with this in mind, the OAG delayed the completion of this report until these were in place.

Objectives

The objectives of the project were to:

1. Follow up on matters which came to light as a result of the preliminary analysis of wireless use from the early work carried out by the OAG.
2. Specifically follow up on preliminary observations provided by the OAG to Management to determine if policy changes being developed by Management address early concerns around excessive usage patterns noted.
3. Using previous policies as a benchmark, gain an understanding of proposed policy changes by Management and assess their impact.
4. Using the previous year's usage data, create benchmarks for both usage and device numbers to be available for use in performance measurements on a go-forward basis.
5. Assess the degree to which Management creates performance measures to be used as a basis for management both at the business unit and organizational levels.

Specific matters considered under this review included:
1. Wireless devices
   a. Cellular Telephones
   b. PDAs – Personal Digital Assistant (Blackberry)
   c. Data Communication Devices (DCD) which includes data modems, air cards, turbo sticks, etc.
2. Overall awareness of corporate and business unit policies both prior to and after updating by Management
3. Usage patterns
4. Business unit controls
5. Overall corporate processes and procedures surrounding the delivery of wireless services
6. Monitoring and reporting on usage and cost and the performance measures in place

Surveys were conducted across all business units in May 2010 to assess corporate understanding of existing policies and practices, to identify business practices for the approval and use of wireless devices and to attempt to validate the allocation of the different types of devices in business units.

Scope

The review looked at the 12-month billing period from March 1, 2009 (for April 2009) to February 28, 2010 (for March 2010). Highlights of the 2010 negotiated contract extension were also reviewed.

Trunked Mobile Radio (TMR) and land line telephones were not included as part of this project.
Note: The device counts provided in tables and diagrams are based on annualized averages, unless otherwise stated. All dollar amounts, for fiscal 2009/10 data include the non-refundable portion of HST, unless otherwise stated.

Background

Halifax Regional Municipality (HRM) is comprised of 10 business units and administratively supports a number of external organizations (Agencies, Boards and Commissions, etc.), of which 7 use the HRM wireless contract and are included in the data for this project.

During the review period, HRM had contracts with three wireless service providers: Bell, as the primary provider, delivered 98.7% of wireless services, Telus (0.1%) and Rogers (1.2%). For data purposes, our review focussed on services and costs provided by Bell.[1]

The contract and internal business models in effect during the period under review became effective in the fall of 2007. At that time, HRM changed the internal costing process from individual business units managing their own wireless devices and costs, to a centralized model where Business Planning and Information Management (BPIM) managed and financed the wireless contract centrally. Prior to this point, HRM had completed an analysis of landline communications and realized significant savings. One full time position Telecommunications Billing Analyst (T.B.A.) was created and funded from the savings realized and assigned to administer the central service delivery for the wireless devices program.

In January 2008, the Information, Communication and Technology (ICT) Committee, approved the plan to centralize management of HRM's wireless communications devices under the authority of BPIM. Phase One of the project dealt with the migration of the program administration from the business units to BPIM. In Phase Two of the approved plan, BPIM committed to draft a corporate policy which would include among other things the criteria for obtaining a wireless communication device and to provide additional guidance to the organization on the use of wireless devices (e.g. FOIPOP legislation). Phase Two of the plan was completed in January 2011.

During Phase One, an internal budget transfer totalling $828,700 was made from HRM's business units to BPIM for the year one operation of the wireless contract. The functions centralized under BPIM (IT) included:

- Management of the Corporate Contract with Bell.
- Internal contract administration.
- Technical and administrative user support (e.g. loaner service, purchasing of licenses, infrastructure (Blackberry Enterprise Servers).
- Consulting services (e.g. hardware purchasing):
    - **Procurement support for wireless communication devices and peripherals**
      Although the decision-making ability to acquire a wireless device was retained by business units, the Telecommunications Billing Analyst became available to consult on products and services, verify requisitions, and forward purchasing documents to HRM's hardware supplier.

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[1] Fire and Emergency & Police Services hold phones with each cell phone provider to ensure continuous coverage in the event of emergency situations. We did not determine the reasons why CAO, CD, IAMS, Legal, and TPW continue to maintain phones from other than the primary provider.

- **Technical support**

  Collect faulty devices and ensure repairs are completed or the device replaced, also receive and program new devices.
- **User training**
- **Updating of billing information**
- **Invoice verification**
- **Other aspects of contract management.**

The original funding of $828,700 for the annual wireless contract has increased annually over time and in fiscal 2009/10 the budgeted amount was set at $1,012,035, representing a 22% increase.

At the end of fiscal 2009/10, 83% of all wireless communication usage costs were paid centrally by BPIM, while the remaining 17% as well as hardware costs were funded through business unit budgets.   After centralization, as business units identified the need and requested new wireless activations, additional costs (airtime or start up) were absorbed by BPIM (IT).

Organization:

HRM is comprised of 10 business units and administratively supports a number of external organizations (Agencies, Boards and Commissions, etc.), of which 7 are relevant in the context of this project.

1. **Business Planning and Information Management (BPIM)** includes the divisions Data/Business Information Management, Client Services, and IT Services. Cell phones are assigned to managers who travel frequently for work or are provided to individual employees for safety reasons on an as-needed basis (pool/shared phones). Blackberrys are issued: to end-user support analysts who require the PDA features for their job function, to project managers who operate from several different locations, and to some divisional managers. For the most part BPIM employees work regular daytime hours, with the exception of a number of on-call supervisors (Call Centre, Visitor Centres) and technical support staff (IT.) Where necessary, the report will refer to BPIM (IT) as the provider of wireless communication services, as opposed to BPIM as a user of these services.

2. **Chief Administrative Office (CAO)** combines the Office of the Chief Administrative Officer and his Deputies, offices for the Mayor and Halifax Regional Council, as well as External and Corporate Affairs. Managerial staff are issued wireless devices, provided they work extensively away from their office. The Mayor and Councillors use cell phones and PDAs. Work hours would be expected to be regular day-time hours, with some evening and weekend engagements for the Mayor and Councillors.

3. **Community Development (CD)** encompasses the following divisions: Community Relations, Development Engineering, Permits & Inspections, Planning Services, Recreation, Service Delivery (Facilities), and Subdivision & Land Use Compliance. To be assigned a cell phone, staff would be estimated to spend between 10-30% of their time away from their work place on a regular basis, and be required to be accessible during these times. To qualify for a PDA, employees would spend

more than 30% of their time away from the office, and/or need to be reachable via email and phone after-hours, (on a regular basis), and/or be part of emergency operations (on-call), and/or be in a position without designated back-fill staff. While for most divisions within CD work hours are regular, staff in recreation can be expected to be on duty or on call on some weekends and evenings. Also, during the summer months, over 100 phones are provided to mostly seasonal staff (beach and summer/event phones.) Some positions within CD have to enter data off-site, therefore require laptops with DCDs. Some positions (building inspectors) are predominantly mobile and since early 2010 no longer have land lines.

4. **Finance** consists of Corporate Reporting and Financial Policy, Fiscal & Tax Policy, Budget & Financial Analysis, as well as the operational divisions of Payroll, Revenue, Accounting, and Procurement. Most cell phones and PDAs are issued to managers, supervisors, financial analysts, and mobile staff (parking meters.) Some of these employees work or supervise staff at different locations. Staff hours are for the most part regular, Monday through Friday, daytime hours.

5. **Fire Services (Fire & Emergency)** operates 24/7, and wireless devices are assigned to managerial staff, supervisors, and on-call staff (pool/shared or individual). DCDs are also installed in vehicles and at remote locations. Many of these units are for emergency purposes only. Continuous availability of communication channels is essential, and for this reason Fire Services use all three service providers (Bell, Rogers, and Telus).In some cases multiple units are provided to an individual or group. Devices are often used under adverse conditions.

6. **Human Resources (HR)** provides administrative and consulting services to the organization, and consequently, some staff have the requirement to travel frequently to different locations to serve their assigned business unit clients. Cell phones and PDAs are issued to ensure accessibility, flexibility, and high levels of customer service.

7. **Infrastructure & Asset Management (IAM)** is responsible for planning, construction, management and sustainability for various aspects of HRM's infrastructure. Operations may require staff and supervisors to work at various external locations, after-hours and on weekends. To ensure accessibility and safety, cell phones are issued to individuals and groups. PDAs are mainly assigned to managerial staff requiring email and voice communication during frequent travels between locations.

8. **Legal Services (Legal)** includes Risk & Insurance Services. For the most part, work hours are regular Monday through Friday, day time hours. Some staff are required to travel to external appointments. Professional staff are encouraged to request a wireless device to increase accessibility after-hours and on weekends.

9. **Halifax Regional Police (Regional Police)** is a 24/7, highly mobile operation. Wireless communication devices are crucial for the day-to-day delivery of protective services to the citizens of HRM. Cell phones are issued to individuals and groups to ensure accessibility after-hours and where radio communication is insufficient or impractical (under cover). PDAs are issued to managerial staff requiring the ability to communicate simultaneously with multiple recipients (broadcasting ability). Police vehicles carry laptops equipped with DCDs which allow Police officers to access a variety of information sources and also complete administrative tasks (e.g. reporting) while on the road. Hardware often has to withstand heavy outdoor use therefore the equipment has to be water and impact resistant.

10. **Transportation and Public Works (TPW)** plans, operates, and maintains HRM's transportation network and infrastructure including parks, buildings, structures, vehicles, streets, equipment, and solid waste management. A relatively high percentage of employees work in the field, and operations require staff and supervisors to be on-call on a regular basis. Cell phones are issued to individuals and groups for safety considerations. Managers and supervisors, who are expected to be off-site regularly, do receive a PDA if they require email access. As with Fire & Emergency and Regional Police, TPW users often require durable hardware.

The following 7 organizational bodies use (or used) wireless devices and are (or were) included in HRM's processes:

1. **Harbour Solutions** was part of the former Environmental Management Services (EMS) business unit.

2. **Canada Games Society** (Canada Games) is an independent organization currently with 38 employees, organizing the 2011 Canada Games in HRM. Individuals, who are off-site frequently, receive wireless devices depending upon their position: managers receive PDAs, non-managerial staff receive cell phones. The Society grew considerably over the review period and 50% of their 22 devices invoiced in March 2010 were activated in the first quarter of 2010. Therefore, their numbers in some instances cannot be compared to those of other organizational units.

3. **Centennial Arena** is an ice rink. Cell phones are used by management and operations staff (pooled phones).

4. **Halifax Forum** is a multi-purpose event facility. Several pooled/shared phones are used by operational staff, many of whom are part-time employees. Staff are mobile and required to work on weekends and during evening hours on a regular basis.

5. **Halifax Water Commission (Halifax Water)**, formed through the merger of the Halifax Water Commission and the majority of HRM's Environmental Management Services business unit in 2007. Halifax Water participates in HRM's Corporate Contract with Bell, however all costs are charged to Halifax Water.

6. **Halifax Public Libraries (Library)** are governed by the Halifax Public Libraries Board. The corporation, while separate from HRM, is accountable to HRM Regional Council through the budget process. Wireless devices support the service delivery at multiple, sometimes remote or mobile locations. Where position responsibilities have been determined to require email access, a PDA would be assigned; otherwise staff receive a cell phone. The book mobiles are equipped with DCDs to connect to the library system.

7. **HRM Pension Committee (Pension Plan)** Volunteers are involved in member services for which a response time of 48 hours has been committed. Cell phones and PDAs are required to achieve the service standards as the individuals involved travel frequently (more than 25% of the time).

For the convenience of the reader of this report, Centennial Arena, Halifax Forum, Harbour Solutions, and Pension Plan are grouped as "Other".

Corporate Contract for Wireless Services:

RFP 07-047 Cellular and Blackberry Services was issued with the stated goal "to lower overall operating costs to HRM and simplify administration of the cellular service, as well as consolidate service with a single vendor."[2] The contract, awarded to Bell in July 2007, commenced in October 2007 for a term of three years, with a renewal option for two consecutive one-year terms.

Highlights of the 2007 contract with Bell included flat-rate pricing at the subscriber level (i.e. per mobile number), which was expected to result in increased transparency and predictability of costs. Bell combined a number of possible pricing models by offering a corporate airtime minutes pool (capped) from which each user could draw without limitations (uncapped.) The Bell proposal presented several flat-rate options based on the volume of corporate airtime minutes to be contracted. As recommended by Bell (and accepted by HRM), who based their estimates on HRM actual usage data observed in Aliant's billing system over 2006, HRM established a corporate pool of 5,000,000 minutes of airtime per contract year. Another major benefit achieved in the negotiations with Bell was the provider waived early cancellation fees.

Within the corporate voice airtime pool, Bell offered a specified bundle of products and services at the user level, referred to as the "HRM Corporate Plan." These included:
- Uncapped (by device) airtime minutes (voice) for cell phones and PDAs.
- Basic set of features including voicemail, call waiting, three (3)-way calling, Canadian roaming, etc.
- Free or discounted hardware costs (upgrade period of 18 months).

Initially, two capped flat rate packages for data communication were established for Blackberrys (BB):
- Standard Package including 4MB of packet data (in the order of $25.86 per month/unit). Four MB was estimated by Bell to be sufficient to transfer approximately 1,000 emails without attachments.

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2   See: RFP 07-047 Cellular and Blackberry Services, Report to HRM Regional Council, dated June 22, 2007.

> More complex data (html layout, GPS functionality, web-browsing, etc.) would create additional volume.
> - Power User Package including 30MB of packet data (in the order of $44.47 per month/unit).
> - Data exceeding the subscribed package was to be invoiced at $12.41 per additional MB per month.

The contract stipulated HRM's contract conditions would be adjusted over time to reflect any lower market prices and changing requirements.

Table 1.0: HRM Corporate Plan Options & Approximate Rates for Voice and Data (as Valid in 2009/10) (rates per device per month)

Corporate Pool Voice Airtime	Voice Flat Rate	BB 4Mb	BB 8Mb	BB 30Mb	BB 1Gb
5 Million minutes	$38.26	$25.86	$41.37	$62.06	$103.43

In the fall of 2010, HRM entered into and negotiated a two-year contract extension with Bell adjusting the terms and conditions of the contract with a potential two-year savings up to approximately $668,000.[3]

Monthly Bills for Wireless Devices:

As noted above, the corporate base plan for voice was priced at $38.26 per month per device which is comprised of the Bell system access fee, uncapped airtime minutes, and a basic set of features. Other services such as the mandatory NS Government 911 fee ($0.44), optional unlimited text messaging ($10.34), centralized voicemail ($4.09), or 10-4 service (two (2)-way communication used in Regional Police Services, $18.62) could be added. As a result the actual monthly charges for a cell phone ranged from $38.70 to $71.75. Blackberry (or PDA) users could subscribe to the same additional features as voice-only users and also add a packet data plan. The monthly bill for PDAs could run from $64.56 to $170. For travel to the United States, a roaming bundle of either 50 minutes ($30) or 100 minutes ($50) could be added to cover both long-distance and roaming charges. The Corporate Contract did not set standard rates for data communication devices (DCDs) and as a result, the charges were highly variable, ranging from $40.33 to $116.26 (per month per device) depending on usage and units.

Wireless bills consist of two components: monthly recurring charges (fixed costs) and usage charges (variable costs).   Usage charges are invoiced at the end of the billing period. HRM did not differentiate between these two cost groups and posted the bills as usage for the month for which the monthly recurring service charges were invoiced. Example: an invoice dated March 21, 2009 would include monthly recurring charges for the period March 21 to April 20, 2009 and usage charges for February 21 to March 20 2009. The bill would be posted in April 2009, which we have characterized as the "assumed posted month". All tables and diagrams in this report use the assumed posted month.

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[3]   See: Extension of Contract – RFO #07-047 CAO Report dated October 25, 2010

Table of Contents

Detailed Findings and Recommendations

The following information pertains to the contract in place at the time of this review.

1.0 Wireless Hardware Costs

As is common practice in the telecommunications industry, the bundle price (fixed costs) included a portion of the hardware cost for new activations and upgrades. HRM users had a choice of discounted hardware from an established list of cell phones, PDAs, DCDs, and peripherals which included several models from several manufacturers (Nokia, LG, Samsung, Motorola, Blackberry, etc.) The initial list was regularly updated as model availability and pricing changed.

Devices were covered by a one (1)-year warranty and could be upgraded to a newer model at a discounted rate after 18 months. Users requiring new hardware before the expiration of the 18 months would be invoiced at the full (undiscounted) price.

The acquisition of wireless hardware was covered by a price agreement contract. Purchase orders were generated against the contract. As of March 31, 2010, purchase orders valued at $217,190 had been created against this contract.

1.1 Policies and Compliance

In 2009/10, corporate policies did not specifically address the use of all wireless communications. However, a number of other corporate policies and guidelines would have applied. These included:
- Cellular Telephone Policy (OHS Manual, November 2002)
  The policy addresses risks related to the use of cell phones while operating a motor vehicle ("Hands-Free Option".)
- Acceptable Internet Use Policy (May , 2008)
- Email Acceptable Use Policy (November, 2008)

In addition, provincial legislation passed in July 2006, resulted in changes to HRM's procurement and travel procedures and policies. Under the Personal Information International Disclosure Act (PIIDPA), HRM staff were no longer allowed to take data storage and communication devices outside of Canada without permission. This measure was put in place to protect the privacy of information of citizens. Under the new legislation, employees and elected officials wishing to take wireless devices outside of Canada had to obtain permission from HRM Administration and HRM Administration had to report such usage to the Province of Nova Scotia.   An amendment to the Employee Expense Reimbursement Policy is underway to completely restrict the transport of individually issued HRM wireless devices outside of Canada.[4]

While no formal written policy existed during the review period, HRM Administration has recently issued the HRM Mobility Policy (January 2011), and is currently rolling this out to all wireless users. The Mobility Policy addresses many of the initial areas of concern of the Office of the Auditor General as well as those identified by business units when surveyed.

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[4] The HRM Mobility Policy issued January 2011 addresses the restriction on transportation of HRM wireless devices outside of Canada.

The new policy clarifies many areas of which the user community was unsure.   The policy addresses:

- personal usage, acceptable within reason[5]
- minimal text messaging permitted
- use of non- HRM supported applications on Blackberry devices (i.e. browser)
- no tethering allowed (i.e. using Blackberry as wireless modem in connection with laptop)
- devices to be password protected and other security measures
- travel restrictions with wireless devices

Prior to HRM issuing the corporate HRM Mobility Policy in January 2011, some business units had developed user policies to address their specific operational needs. The new policy sets a minimum standard of use. Business units are free to expand upon this policy as long as the changes do not contradict or amend the minimum requirements stated in the corporate policy.

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[5]   HRM Mobility Policy – January 2011 "In recognition of the need for most users to take care of occasional personal matters, limited personal use of cellular phones and Smart Phones is permitted, provided it does not interfere with HRM business or incur additional costs to HRM."

2.0   Processes and Controls

2.1   Approval of Wireless Devices

Business unit managers make the decision as to which staff member should receive a wireless communication device.   Results from the OAG survey of business units indicated the protocols established by individual business units for the issuing and upgrading of wireless communication devices required varying levels of approval, ranging from supervisor to director. The requesting supervisor or employee may have consulted with the Telecommunications Billing Analyst (TBA) to determine the appropriate hardware and service features. A requisition was completed and forwarded to Procurement to create a purchase order (PO) in SAP. Purchase orders are first vetted by the Telecommunications Billing Analyst and then faxed to the Bell hardware dealership.

2.2   Invoice Verification

Bell provides an online billing ('e-care') system where monthly bills for the current as well as previous billing periods are available. At the end of each billing period, the Telecommunication Billing Analyst downloads a flat file with the monthly bill for each business unit (billing account) and scans the billing information for obvious anomalies which are then followed up with the vendor and the business unit if inappropriate or excessive use is suspected. The Billing Analyst forwards the bills to the contact person in the business unit. Business unit coordinators review the data for accuracy and are asked to clarify anomalies and communicate any changes (e.g. subscriber name). Business units request a copy of the individual subscriber invoice if more detailed information is required.

2.3   Updating of Price Agreement

As model availability and prices for wireless communication hardware changed, the price agreement was adjusted by Procurement staff at the request of the Telecommunications Billing Analyst. When questioned on the level of knowledge around hardware options, survey respondents seemed unaware of many of the options.

2.4   Measuring Outcomes of the Wireless Contract Program – Performance Measures (indicators) Insufficiently Defined and Measured

As set out in various sections of OAG procedural documents, performance reviews are intended to measure the effectiveness, efficiency and economies being gained by a particular program or course of action. Once various aspects of wireless costs were more fully understood, review procedures focused on value for money.

BPIM management advised there was no formal performance framework established at the time the wireless program was centralized. Furthermore, they confirmed cost-benefit and service effectiveness reporting at both the operational and strategic levels does not take place on a regular basis.

Benefits expected to materialize from the implementation of the centralized model of administration as stated in "The Information Report to the ICT Committee - Status of Cellular and Blackberry Centralization" dated September 2008, included:

- Reduced administration
- Improved transparency of expenditures (additional visibility into organizational usage)
- Increased predictability of expenditures (budget predictability, flat rates for new devices)
- Reduced hardware 'churn'
- A mechanism to capture organizational savings for future telecommunications projects

The report also provided an indication of the estimated level of achievement of the above goals:

- Surplus of $100,214 in Telecommunications Account[6]
- Reduced administration – partially achieved
- Increased transparency of expenditures – achieved
- Increased predictability of expenditures – partially achieved
- Reduce hardware 'churn' – not achieved
- Flat rates for new devices – achieved
- Mechanism to capture organizational savings – achieved

The report did not speak to the basis for the conclusions, how achievement was measured or what performance benchmarks were used in the assumptions.

A second report to the ICT Committee titled 'Background – HRM Mobile Device Policy', dated March 4, 2010, states "the new agreement has not delivered the savings anticipated in 2007, due to the growth in the number of devices, as well as additional charges beyond the monthly 4MB allocation."

One possible performance measure for program success is a low or nil variance between budget and actual expenditures for the central cost centre. BPIM management advised the budget for the expenditure account (A421) was exceeded by $130,000 in 2008/09 and $60,000 for 2009/10. These values do not include:

- All spending related to the wireless communication program – not all spending occurs from A421, ($1,012,035 was budgeted for 2009/10.) In fact, a total $1,315,064 was spent on wireless communication services of which $1,092,975 (83%) was paid out of the central cost center (A421) and the remaining $222,089 (17%) paid directly by business units.
- The portion of hardware expenditures not embedded in the monthly recurring charges. These were paid out of business unit cost centres ($97,551).[7]

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[6]   The surplus, which was earmarked to fund the ICT reserve was instead diverted to offset the overall corporate deficit in fiscal 2007/08.

[7]   Source: SAP Transaction ZMMRELEASE April 1, 2009 to March 31, 2010, Contract 2090005612, [Named vendor].

- Benchmarking for the internal cost for the delivery of the wireless communication program which has not been established.
- Over-usage of minutes in 2008/09 and 2009/10 which created a billing risk of potentially up to $318,023. In 2008/09 1,610,960 minutes were used above the 5 million established ceiling and in 2009/10 1,569,273 were above the 5 million minute ceiling each to be potentially billed at $0.10 per minute[8]. The final disposition of overage charges was not known until the contract extension in 2010 was negotiated.

On the basis of the information available for 2009/10, we have recalculated the total possible annual cost of the wireless program to be $1,645,923 which translates to an average of $73.27 per user per month.[9] The breakdown is shown in Table 2.1: Costing Components for Wireless Communication Program.

Table 2.1: Costing Components for Wireless Communication Program

Cost Category	2009/10
External	
Wireless Communication Services	$1,315,064
Wireless Communication Hardware	97,551
Internal	
Program Staff (including benefits)	59,250
Technical Support Staff	no information
Technical Infrastructure	Incremental
Business Unit Staff Review (estimated 504 hrs. @ average rate $33.99)	17,131
Risk	
Airtime Consumption in Excess of Corporate Contract from 2009/10	156,927
Total (minimum)	**$1,645,923**
Monthly Average per User	**$73.27**

One of the project objectives was to identify and collect performance benchmarking data available to support conclusions as to benefits being achieved.   OAG survey results indicated most business units expected the centralization of wireless communications to provide benefits such as:

- Productivity increases
- Improved accessibility of staff
- Faster response times
- Improved customer service
- Enhanced employee safety
- Improved information sharing

Unfortunately, we were unable to obtain at the business unit level, wireless specific performance measures or quantifiable eligibility criteria which would allow the validation of existing device pool and associated costs. For example, in our survey, only Human Resources and Finance refer to customer service standards

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[8]   HRM, in the CAO Report to extend RFP #07-047, stated overage minutes at $260,715
[9]   Based on the annualized average of 1,872 users in 2009/10.

and indicate wireless technology supports them in achieving these goals. We had hoped to see quantifiable measures we could review to assess the achievement level.

Recommendations:

2.4.1   Establish and implement appropriate performance goals and measures for the wireless communication program at the business unit level and have these approved by Executive Management Committee.

2.4.2   Once the wireless performance measures have been developed and agreed upon, a defined process of strategic communications of these measures be provided to business unit management.

2.4.3   Strategic reporting of wireless performance measures be provided to senior management on a regular and defined basis to ensure monitoring of actual performance against defined and pre-established performance.

2.4.4   Adopt a full costing approach to calculate the costs to deliver the wireless program.
Total expenditures and funding sources need to be transparent to ensure full accountability for the responsibilities shared between business units and BPIM (IT), but also to allow for a complete assessment of the program, both in terms of operational effectiveness and strategic value.

2.4.5   Break down of high-level goals into operational activities and thresholds, which allow for greater and more efficient controls.

Management Response:

2.4.1   Agree. Performance metrics will be developed in conjunction with other program reporting.

2.4.2   Agree.

2.4.3   Agree.

2.4.4   Agree. BPIM and Financial Service Staff will explore the appropriate methodology to determine a full costing model for wireless services.

2.4.5   Agree.

3.0   Wireless Program Controls

The business case for wireless communications is not consistently defined at all levels and the program appears to lack a structured framework, which likely leads to an accountability gap for its implementation. As no accepted and clearly understood corporate performance measures exist, neither BPIM (IT) as the service provider, nor the business units as the users have all the necessary information, tools, or clear mandate to implement and execute effective controls. As a result, the growth of wireless communication costs is difficult to manage.

Our survey of 17 business units, agencies, boards and commissions regarding the wireless communication program asked questions around policy, process, performance measures, and controls. The responses indicated the majority surveyed were not clear about the full extent of their responsibility within the processes. The issues are compounded as BPIM (IT) management is not completely familiar with (nor should they be expected to) the operations of business units to be able to effectively manage the distribution and costs of various wireless devices. Larger business units, (in particular Regional Police, Fire & Emergency, TPW), face considerable challenges in providing the necessary oversight for the delivery of this program.

3.1   Device Criteria and Processes

Results of the survey indicated the processes for issuing wireless communication devices varied greatly across the organization. The establishment of the new corporate eligibility criteria will provide business units with a common set of minimum criteria which we are very pleased to see has been recently incorporated into the HRM Mobility Policy.

The survey results also indicated business units use a variety of authorization models. Three business units indicated director approval is required for wireless communications, while others allowed approval at the supervisor level.

Recommendation:

3.1.1   HRM should review individual business unit operational policies to determine the level of compliance with the HRM Mobility Policy, and amend or modify operational policies to comply with the minimum corporate standards. Where operational policies exceed the minimum standards, we would recommend the higher standard be retained.

Management Response:

3.1.1   Agree.

3.2   Compliance Monitoring

Prior to release of the HRM Mobility Policy (January 2011), new users were advised of usage guidelines in a number of ways, with no consistent approach: the Telecommunication Billing Analyst (T.B.A.) may have provided advice at the time the device was issued or established users might have received advice should anomalies (such as excessive usage) appear on a bill. The OAG survey results also indicated a number of business units provided users with internal operational written policies and/or informal guidance, mostly through a direct supervisor, either upon issuance of the device or, in the case of non-compliance, through the PDP or progressive discipline process. These informal approaches to the dissemination of information/feedback created inconsistencies in the understanding of acceptable use. With the adoption of the new corporate policy, we are pleased to note a formal process has been established for all existing users who must attend an information session and either sign off or have their attendance and exposure to the policy recorded. A formal process has yet to be established for new users who receive wireless technology after the initial policy rollout has taken place.

For the most part, it is the responsibility of administrative staff in the business units, such as business unit co-ordinators, to review the monthly e-bills provided by the T.B.A. for compliance and accuracy; however, the guidelines and review processes are not consistent across business units.

During the course of the review, common concerns were heard from business units relating to the lack of centralized coordination as well as a lack of timely usage and other details being provided.

There is no formal documented guidance to assist business units in interpreting the monthly cost and usage information. What one business unit might review and find reasonable may vary greatly when reviewed by another business unit. For example, we are aware one business unit reviews only the cost of the wireless service for each subscriber. Based on the minute pooling, capping terms and conditions of the contract, it is unlikely anomalies will be noted. The capped base cost per device (excluding usage) would be at approximately $38.26 regardless of usage. However, upon review of the data, the Office of the Auditor General found users with individual usage in excess of 3,400 minutes per month (on average), with one user peaking above 6,400 minutes in one of the months reviewed. When this was pointed out to the particular business unit, it raised concerns as the usage did not seem reasonable for the position.

- Airtime Consumption
  Based upon information the OAG was able to gather, we found only three business units (or other agencies) monitor for airtime. Two of these have established thresholds and communicated them to staff, advising of follow-up on usage above the thresholds would take place.

- Personal Usage
  Business units for the most part allow for some personal use of wireless services. All business units acknowledge they do not have the means to monitor personal usage for several reasons:
    a) Detailed subscriber level bills (paper) are not distributed
    b) Administrative staff do not have the capacity to evaluate detailed records
    c) No thresholds have been established

As a result, personal use is only examined when it is suspected the usage results in additional charges. This ignores the drawdown of minutes from the pool.

- Additional Cost
Under the contract in place during the review period, sending text messages resulted in additional costs.   Business units have had the ability, through the T.B.A., to add at a cost, an unlimited text messaging option where necessary.   Under the new contract extension, a limited number of text messages (sent) are allowed per device; however, a business unit may still prohibit use for operational purposes. Three business units had prohibited use and advised staff text messaging was not allowed for either business reasons or financial costs under the prior contract.

Recommendation:

3.2.1   A formal training program should be established and offered by BPIM (IT) to business unit staff responsible for compliance monitoring. The program should provide the necessary tools and knowledge to identify potential wireless issues. Business unit staff are not equally and often not sufficiently aware of appropriate review criteria and thresholds. Thresholds and the appropriate response in cases of non-compliance should be standardized across business units.

Management Response:

3.2.1   *Agree. BPIM is in the process of identifying individuals to receive training, which will allow detailed review of individual and group usage. Given the wide range of job functions within HRM, it may not be feasible to apply one standard for usage across the organization. Highlighting comparisons among business units and individuals within business units should assist in monitoring compliance.*

3.3   Reporting and Documentation

Reporting and documentation requirements have not been established either strategically at the corporate level or operationally at the business unit level to assist in monitoring usage. As a result, current monitoring practices are inconsistent and often cumbersome. From a controls perspective, the following specific weaknesses were noted:

- The electronic billing system does not provide at the business unit level detailed plan information for each subscriber number.
- Inconsistent management tools (i.e. data extracted from e-bill) render the review process error-prone, in particular for large subscriber groups (data formatting from e-bill to Excel)
- User and cost centre information provided on the bill is not always accurate due to, for instance, changes to user or business unit.
- The ad hoc process for changing user information is insufficiently supported and tracked, often taking multiple billing cycles for changes to take effect.

The electronic billing information provided by Bell is one of the most important sources of information for the wireless communication services program. Bell provides information in electronic as well as in paper form. In addition to the invoice, the electronic billing module 'e-care' provides historic billing information (13 months) and some management reports for all subscriber numbers. 'e-care' can only be accessed by authorized users through password-protected 'e-care' accounts. Only a few HRM users in BPIM (T.B.A.), Finance, and Regional Police have access. The business unit validation process generally occurs offline based on information compiled and supplied by the T.B.A..

Business units are expected to confirm the accuracy of billing information and report corrections to the T.B.A.. Three business units reported difficulties in getting billing information corrected on a timely basis; sometimes it would take several billing periods before information was adjusted.

Requests from business units to update information in the billing system (i.e. name, account, etc.) are communicated by e-mail or by phone to the T.B.A., who then relays the information to Bell customer service staff. Survey results indicated billing information is not always accurate and some mobile subscriptions had not been terminated on a timely basis.

The Office of the Auditor General survey asked business units to validate the active mobile numbers assigned to their cost centres during fiscal 2009/10. The validation task posed a considerable challenge for the business units, especially the larger units. Ultimately, we were not able to validate all the mobile numbers with the business units; however, the following observations were made:

Table 3.3.1: Observations of Validation Survey

Between 27% and 30% of all mobile numbers are unassigned or assigned to incorrect cost centres
In approximately 10% of all cases, user information is incorrect or missing
7% of all numbers were determined as unknown as to specific user
0.3% of all numbers should have been deactivated prior to 2009/10
An undetermined number of mobile subscriptions were deactivated in 2009 with delay

When billing errors are detected by HRM staff, they are brought to the attention of Bell and an invoice adjustment is requested. Bell may take several billing periods to make the adjustments and when they do occur it is difficult to match to the requests as they are neither documented nor tracked by HRM. In 2009/10, the electronic billing system showed a total of $34,868 ($2,906 per monthly average) in adjustments. With nearly $3,000 of adjustments required each billing period along with the validation results noted above, it would appear the volume of devices and the lack of accurate data create risk.

Recommendations:

3.3.1   HRM Administration should establish and communicate usage thresholds to business units and provide regular performance and compliance reports on these thresholds to SMT, the ICT Committee and the HRM user community.

3.3.2   HRM Administration should develop appropriate "new user" documentation and policy awareness sessions for newly activated wireless services. With the January 2011 HRM Mobility Policy, corporate training is being rolled out to all wireless users; this recommendation looks beyond the initial rollout to new wireless users.

3.3.3   HRM Administration should develop, document, and monitor invoice verification and invoice dispute processes to ensure billing errors are detected, addressed, and resolved.

3.3.4   HRM Administration should ensure timely access to billing information is provided to the business units so usage monitoring and employee usage are appropriately addressed. For business units with large, established user communities, access to Bell's e-bill would be beneficial.

Management Response:

3.3.1   Agree. Administration will communicate usage thresholds which, when exceeded, generate real or potential additional costs for mobility. Business units will evaluate appropriate thresholds based on individual work criteria.

3.3.2   Agree. On-line user training is being developed which will be included in the HRM ITC process, as well as provided on InsideHRM. BPIM is in discussion [sic] [to] implement Bell's "Concierge Service" for new device distribution, and the Mobility Policy will become part of this package.

3.3.3   Agree.

3.3.4   Agree. Access to the Bell e-care system will be provided to every business unit, which will provide additional added value through enhanced monthly usage reports.

3.4 Travelling/Roaming with Wireless

Survey results indicated most business units were aware of the PIIDPA legislation. Users confirmed their understanding of the requirement to obtain management approval before taking a wireless device outside of Canada. Fire & Emergency and Police have operational policies which advise users they can be provided with 'clean' devices for travel instead of taking their issued Blackberry and cellular phones.

Although many business units discourage users from using their PDAs for purposes other than pure email communications, under the old plan, anomalies, such as possible non-compliance with PIIDPA legislation, would only be detected if the subscribed data plan was exceeded. BPIM has an internal process in place where a manager in Information Resource Management is responsible for monitoring and reporting on PIIDPA compliance. This is achieved through a review of roaming charges on wireless bills. Since users are no longer permitted to take HRM issued wireless devices out of the country, BPIM has established a pool of loaner cellular phones which may be taken when required to travel abroad on HRM business.

3.5 Passwords

Most business units had instructed users to password-protect Blackberry devices. However, with the release of the new Mobility Policy, passwords will no longer be optional but forced down corporately to all users.   Cellular users will also be required to set a password on their devices. Unfortunately, this cannot be centrally administered as is the case with Blackberry devices. In our discussions, Management did not clarify how this was to be monitored or how any non-compliance would be addressed.

Recommendation:

3.5.1   HRM Administration should develop and implement a process to occasionally, but regularly, test compliance to the requirement to have cell phones be password protected.

Management Response:

3.5.1   Partially agree. As indicated in the report, there is no way to centrally administer password requirements for cellular phones. While a password prevents unauthorized usage if a device is lost or stolen, the risk of disclosure of personal information contrary to legislation is low. BPIM supports increasing awareness and end user education to promote compliance with policy, and will ensure passwords are set when new devices are issued.

4.0   Costs Associated with Wireless Communication Services

4.1   Monthly Cost Variations

In 2009/10, HRM had subscriptions for a total of 1,872 active wireless communication units on average each month. This included 1,102 cellular phones, 618 Blackberry devices and 152 data communication devices. The average monthly bill varied across device categories with cell phones at $40.99, PDAs at $85.82 and DCDs at $74.63. Total expenses for wireless communication services amounted to in the order of $1,315,064.

The total cost allocations for wireless communication services can be characterized as a combination of high monthly recurring charges (87%) and low variable cost (13%). Since 2006, the year on which cost and usage estimates for the Corporate Contract are based, the number of wireless communication devices under the Corporate Contract with Bell has increased by 39% from 1,350 to 1,872 (annualized average.) This suggests that overall cost is driven by the number of devices rather than usage patterns.

Over the OAG review period, monthly usage cost for wireless communications increased from $101,652 in April 2009 to $114,416 in January 2010, declining slightly to $113,700 in March 2010. This represents a net increase of $12,048 (12%). The number of devices increased from 1,765 in April to 1,956 in September, 2009, and then declined to 1,915 in March 2010. This represents a net increase of 150 units (8.5%).

Figure 4.1.1: Distribution of Units per Device Category (Average monthly number of devices – fiscal 2009/10)
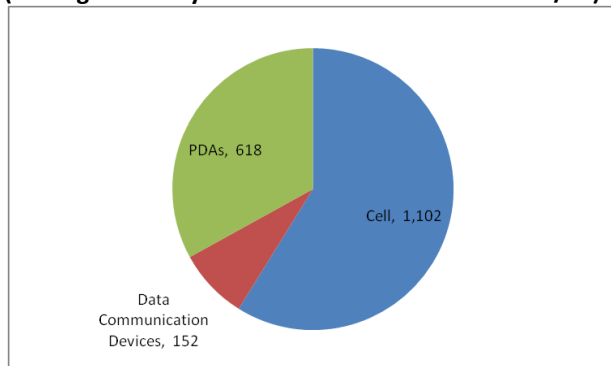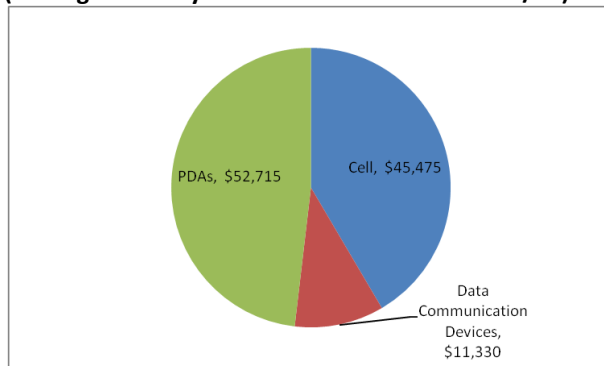

Figure 4.1.2: Cost Distribution ($) per Device Category (Average monthly costs of devices – fiscal 2009/10)


Over the review period, the number of cell phones increased by 17 (1.5%), Blackberrys by 98 (15.9%) and data communication devices by 35 (23%) units.

Consequently, PDAs contribute disproportionally to the cost of wireless communication services. HRM's average monthly bill of $109,589, over the review period comprised:

- Cell phones representing 59% of the total number of devices, accounted for 42% ($45,475) of the total average monthly cost
- DCDs represented 8% of total devices but accounted for 10% ($11,330) of total average monthly cost
- PDAs were 33% of the number of devices and accounted for 48% ($52,784) of total average monthly cost

The cost for PDAs is less predictable than the costs for cell phones because of data usage. Monthly cell phone costs deviated only slightly from the monthly average, while Blackberrys varied by 11% between a low of $82.97 (April 2009) to the maximum of $92.43 (January 2010). The average monthly bill accrued by DCDs fluctuated by 45% between $68.48 (October 2009) and $99.22 (August 2009.) These variations are independent of usage but determined by the variety of different base and feature plans for DCDs and when the plan was activated. The level of data included in the base plan for Blackberry devices has been increased in the most recent contract with Bell from 4Mb per device per month to 500 Mb per device per month which should level predictability for PDA costs.

Figure 4.1.3: Average Monthly Unit Cost per Category (All HRM)
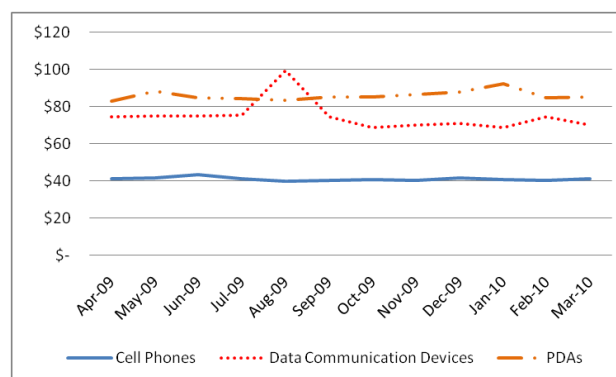
4.2 Total Cost Variances across Business Units

Usage patterns vary considerably across business units. To evaluate the impact of each business unit on the overall corporate costs, we considered the number of devices, the cost per device, the number of devices per FTE, and the PDA Ratio.

In terms of total numbers, Regional Police (491 devices), TPW (392), Fire & Emergency (229), and CD (214) show the highest units in operation of wireless communication. However, when relating the total number of wireless devices to the number of FTEs, i.e. percentage of employees who have been issued a wireless device, the following business units show the highest overall rates: CAO (90%), CD (88%), HR (72%), Regional Police (66%), and IAMS (65%). Finance (17%) and Library (19%) show the lowest device-per-employee ratio. Across all HRM, approximately 50% of employees have been issued a wireless communication device (see Figure 4.2.2, following).

Figure 4.2.1: Number of Devices per Business Unit (Average monthly number of devices – fiscal 2009/10)
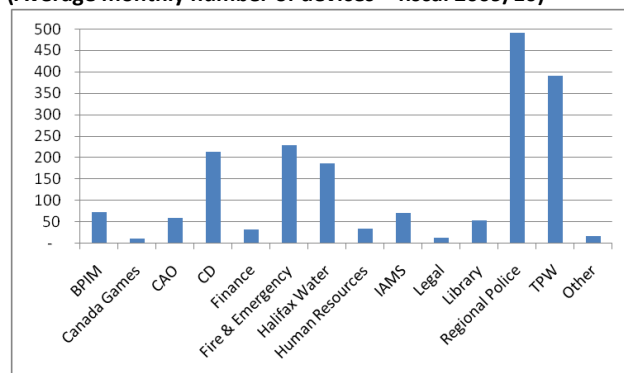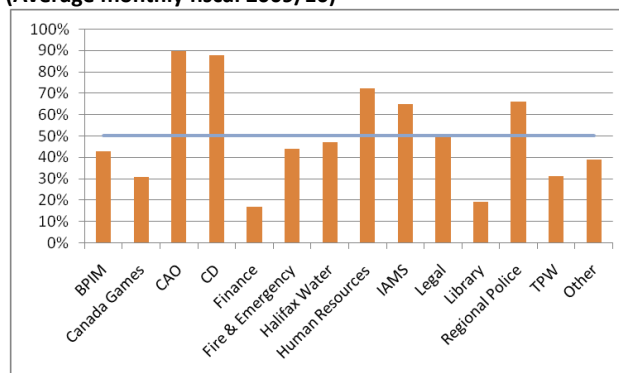
Figure 4.2.2: Ratio of Wireless Devices per FTE per Business Unit (Average monthly fiscal 2009/10)[10]

The average cost per month for all business units is $7,828.   Not surprising, business units with costs higher than the monthly average are also those with the highest number of total devices: Regional Police ($26,540), TPW ($22,087), Fire & Emergency ($13,276), and CD ($11,193.) See Figure 4.2.3 below.

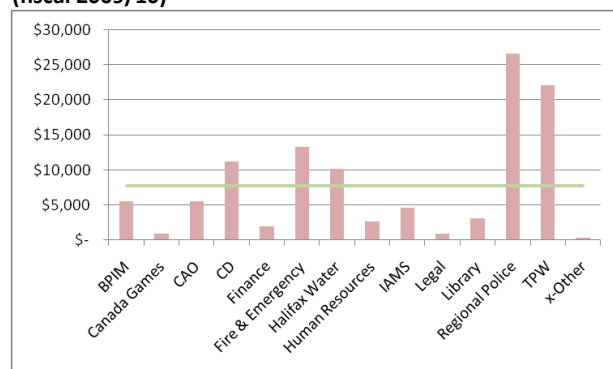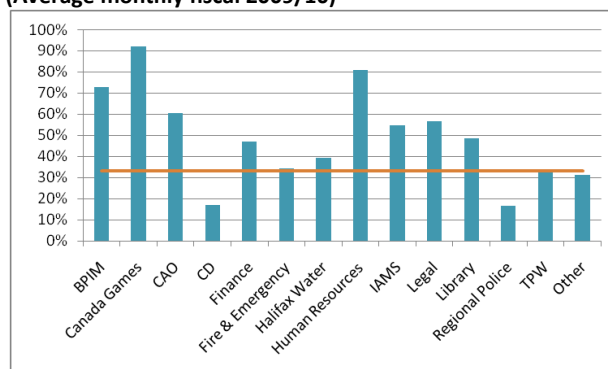**Figure 4.2.3: Overall Average Monthly Bill per Business Unit (fiscal 2009/10)[10]**

**Figure 4.2.4: PDA Ratio per Business Unit FTE (Average monthly fiscal 2009/10)[10]**

Business units show varying patterns of usage relative to the different device categories. Regional Police for instance, use the highest number of data communication devices (DCDs). These are for laptops installed in Police vehicles. As PDAs contribute disproportionally to the total cost of wireless communications, we consider the PDA Ratio (% of Blackberrys of total wireless units per business unit) as a comparative measure. Business units show considerable deviations from the organizational average of 33%. High percentages were observed in HR (81%), BPIM (73%), and CAO (60%). Regional Police (17%), CD (17%) as well as TPW and Fire & Emergency (both 34%) show the lowest rates (see Figure 4.2.4).

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[10] Horizontal bar on chart indicates average.

4.3   Cell Phone Costs across Business Units

The average cost per cell phone is fairly homogeneous across the organization. The organizational average bill of $40.97 per month is exceeded by CAO ($48.48), HR ($44.57) and other ($43.07) business units. For the CAO and HR the elevated monthly costs for the most part, relate to higher than average roaming charges.

Figure 4.3.1: Monthly Average Costs per Cell Phone (fiscal 2009/10)[10]
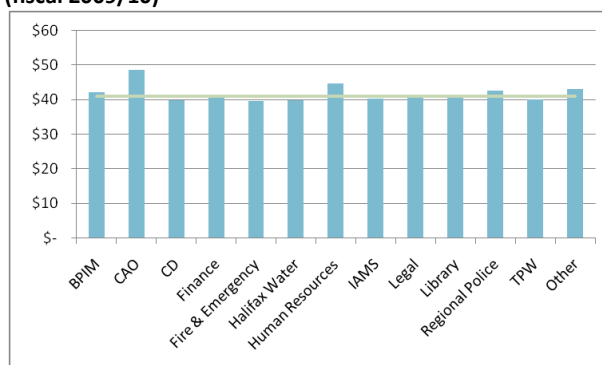
4.4   Cost for Data-only Devices (DCDs) across Business Units

The average cost for data-only devices shows a greater range of variance. Out of 10 business units employing this technology, 7 exceed the organizational average of $90.29 per month bill. The highest average bill was observed in the CAO ($98.69), Library ($98.46), and CD ($98.37) business units. The lowest average cost per data communication device was observed in Regional Police ($62.35).

Figure 4.4.1: Monthly Average Costs per DCD (fiscal 2009/10)[10]
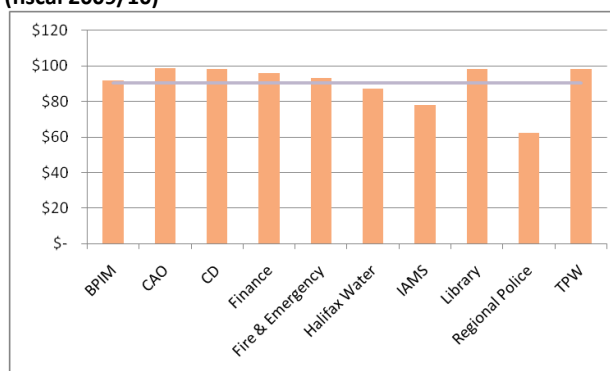
4.5 **Cost for PDAs across Business Units**

The average monthly bill for PDAs amounted to $85.87. The highest bills occurred in the "other" (business unit) category ($126.85), followed by CAO ($120.35) and Legal ($102.54) business units. The higher than average bills in the CAO business unit can be attributed to several data packages above the standard offering of 4 Mb/month in place at the time. In Legal, one individual used a PDA contracted to Rogers rather than to the HRM corporate contract with Bell.

Figure 4.5.1: Monthly Average Costs per PDA (fiscal 2009/10)[10]
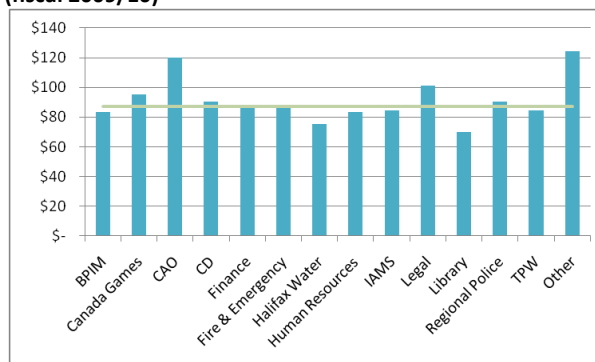
Recommendations:

4.5.1   HRM should undertake a review and develop a policy around the number of device choices. This policy should include methodology to track and enforce standards. From both a cost and support point of view, limiting the choice of devices through price agreements will help to ensure HRM receives best value.

4.5.2   HRM should encourage the use of cell phones instead of PDAs wherever possible. PDAs contributed disproportionately to the cost of wireless communication both in terms of billed and unbilled (minutes) usage. By reviewing newly established eligibility criteria, as set out in HRM Mobility Policy (January 2011), users' devices may be reallocated and cost savings likely gained.

4.5.3   HRM should consider negotiating a standard rate for DCDs. The original plan as well as the contract extension, does not provide a corporate rate for DCDs. We have found a variance in costs, not only in terms of fixed costs but also in regard to flexible costs for additional data. Very competitive plan pricing has been achieved for Police laptops and should be leveraged to the entire organization.

Management Response:

4.5.1   *Disagree. Existing processes and controls are considered adequate to prevent needless proliferation of device models. Selection is currently limited to those devices listed under contract, and changes to device availability are approved by BPIM management. The ICT Asset Management group has responsibility for evaluating new mobile devices, recommending their inclusion in HRM's contract, and providing advice to end users on the most appropriate device.*

Note: The Office of the Auditor General had observed over the course of the review a total of 592 wireless handsets were purchased through SAP. Within these 592 devices there were fourteen unique device models identifiable (10 cellular devices and 4 PDA devices). The highest count of a unique model was 171, with the lowest unique model being a single unit.

4.5.2   *Agree. Administration will encourage business units to convert PDAs to cellular phones through improved reporting and greater awareness of cost implications.*

4.5.3   *Agree. BPIM will be initiating procurement for all wireless services including DCDs under a single contract.*

4.6   Variable Cost Categories

Of the total charges occurring in 2009/10, $1,137,337 (87%) were fixed costs (as defined for this report) and $177,727 (13%) were variable costs (as defined for this report). Variable costs are usage related charges influenced to some extent by, for example, additional data transferred above the amount contemplated in the plan, long distance calls, or texting. Our review determined usage patterns were reasonable with a few exceptions. This factor suggests the savings potential from managing variable cost is limited.

Table 4.6.1: Annual Total in Variable Costs per Category

Categories	Total $	% of Total
Packet Data	$78,678	44
Other Charges	30,388	17
Text Messages	24,029	14
Long Distance Voice	14,763	8
Airtime Charges	11,391	6
Roaming Voice	9,023	5
Roaming Data	5,010	3
Roaming Long Distance	3,587	2
Other	858	1
Total	**$177,727**	**100%**

4.7   Other Usage Related Charges

Excluding packet data charges (extra data consumed above that allowed by the plan), the remaining variable charges detailed in Table 4.6.1, represent 56% of all variable costs. Included in this category are "Other Charges" ($30,388 or 17%) which consolidate a range of expenses such as license fees and prorated monthly and features charges, which are actually linked to fixed costs.

Text messaging, discouraged throughout the organization during the review period, generated $24,029 (14%) in additional variable charges. Some of these costs might have been avoided, if users who use texting regularly had been equipped with an unlimited texting package at a rate of $10.34 per month.

Long-distance charges are moderate at $14,763 (8%).

Under the Corporate Plan in place for the review period, roaming charges accrue only when the device is used outside of Canada. Instances of roaming related charges ($17,620 or 10%) are subject to PIIDPA legislation. Some of these charges might have been saved if a temporary roaming/long-distance plan had been added to the subscriptions in question.

4.8   Hardware Cost

The HRM Corporate Plan in place during the review period had as one of its aims, reduced hardware costs by ensuring discounted hardware was available. Ultimately, the cost for devices was embedded in the monthly recurring (fixed) charges. We estimate $0.02 cents per airtime minute covered the spending for wireless communication devices and peripherals, i.e. $100,000 per annum at the present level of 5,000,000 airtime minutes.

An additional amount of $97,551 was recorded against the wireless hardware price agreement with named vendors by business units.[11, 12]   These expenditures are charged against business unit cost centres, not against the central wireless communication services account but are a cost to the wireless communications device program.

As with service charges, PDAs contribute disproportionally to this cost category. While PDAs, according to the contract were available from $103.42 up, the average PDA cost was $188.10 per unit. Cell phones were purchased for $64.93 on average while 0-Dollar cell phones were available at all times.

Discounted devices were available either with the activation of a new mobile number (start-up) or every 18 months, to provide current technology to existing users (upgrade.) If the device was damaged after the warranty period (12 months) had expired or if a device was lost, a new device would have to be purchased at full price (replacement.)

Our review noted twelve (12) incidents of PDA replacement with a total value of $7,808 and for which the average order value was $650.69. This price seems reasonable based on published replacement costs supplied by Bell. These incidents occurred in Regional Police (3 incidents, $1,965 total value), TPW (2 incidents, $1,448), CAO (2 incidents, $1,344), CD (2 incidents, $1,293), BPIM (2 incidents, $1,189), and HR (1 incident, $569.)

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[11]   We also found expenses via purchasing cards against general ledger (GL) account 6201 (Telephone); however, the amounts that could be identified as relating to wireless hardware were immaterial.

[12]   The amount of $97,551 is based on SAP transaction ZMMRELEASE for contract 209000516, the $-values in this discussion are based on ZMALL transaction. Based on item information, a total of $97,755 related to wireless communication hardware.

Table 4.8.1: Hardware Costs by Item Categories (fiscal 2009/10)

Item Category	# of Orders	$ Value of Orders	% of Total	Average $ per order
Blackberry	277	52,104	53	188.10
Cell Phone	238	15,263	16	64.13
Charger	276	15,170	16	54.96
Case	147	7,818	8	53.18
Car Kit	20	3,340	3	167.00
Headset	38	3,012	3	79.27
Car Cell Phone	2	579	1	289.55
Other (Mics)	3	468	0	156.07
DCD	15	0	0	0.00
Total	1,016	$97,755	100%	96.22

Undiscounted Hardware

Hardware costs have traditionally been subsidized by the monthly contract prices, i.e. the cost of the hardware is paid for over the duration of the contract. Under the contract extension recently negotiated, HRM has separated the hardware component from the usage charges. This change will require HRM to purchase undiscounted hardware; however, the monthly usage charges will be less, as a hardware subsidy charge will no longer be built in.

4.9   Variations from Standard Plan

Although HRM's Corporate Contract stipulated a standard package, we observed a considerable number of variations. These variations pertain to both pricing and service features and could only be detected if plan and charge information are compared. However, this combined information is only available at the subscriber level bills, which were not being distributed or analyzed during the period under review. With the introduction of the 2007 Bell contract, a consolidation of previous plans into a single base plan with 4 feature plans was anticipated. A review of data indicates HRM had subscribed to a total of 18 plan codes and 23 features plans (data only). These numbers do not include additional features such as unlimited texting. While an analysis of the billing data demonstrated 16% (on average) of all devices were not billed in accordance with the standard plans, spot tests revealed this analysis was insufficient to detect all variations, therefore we believe the variation rate is likely higher.

The following situations were offered as explanations for plan variances from the original contract:

- **Low-use devices**
  The Telecommunications Billing Analyst negotiated suspension periods and/or reduced fees for low-use cell phones (emergency phones, seasonal phones, etc.)

- **Grandfathered devices**

  Prior to entering into the Corporate Contract with Bell, HRM users had the option to subscribe to wireless communication services with Aliant under the corporate program for the Province of Nova Scotia. A number of individual users were still assigned to this plan. This resulted in users paying for Internet browsing in addition to their Blackberry data package, as non-RIM packet data is not included in the provincial plan.

- **DCDs**

  The data contract in place during the period under review did not stipulate a standard package for data-only devices, and as a result monthly charges showed 7 possible permutations (average % of occurrences in brackets): $0 (14%), $31.03 (51%), $36.22 (0%), $63.34 (7%), $62.06 (0%), $77.57 (28%), $87.91 (0%). Further examination identified inconsistencies in the application of charges for identical data devices. Laptops in Police vehicles (86 devices on average) were billed at either $31.03 or $62.06 per month even though it appears identical units were being used. This particular inconsistency has since been corrected; however, not all overpaid amounts could be recovered.

Recommendation:

4.9.1   HRM Administration should consolidate existing plans into a limited number of standardized plans with the new contract extension. From both a cost and support point of view, limiting plans will minimize the need for support and ensure HRM receives best value. For example, HRM Administration could standardize discounted subscriptions into one plan.

Management Response:

4.9.1   *Agree. The wireless contract establishes a standard plan which supports the majority of HRM user needs, and allows lower volume consumers to offset those with higher volumes.*

4.10   Management of Airtime Minutes Pool

HRM's usage thresholds can be derived from the Corporate Contract which followed Bell's proposal. Based on the 2006 per unit average airtime consumption (292 minutes), total number of units (1,350), and the growth rates observed, Bell estimated 300 airtime minutes per month for voice-capable devices would appear to be appropriate and a pool of 5,000,000 minutes per year would be sufficient to meet HRM needs.

HRM has consistently exceeded the contracted 5,000,000 airtime minutes by roughly 1,500,000 minutes in each of 2008/09 and 2009/10. This is due to the growth of wireless communication usage both in terms of number of devices (348) and minutes consumed per device (+31 additional minutes monthly).   The organization not only incurred increased actual over planned expenditures, but also potential additional costs of up to $318,023 for using airtime in excess of the contracted amount of minutes.

Table 4.10.1: Numbers of Avg. Monthly Units (Voice) and Avg. Monthly Airtime Minutes Usage (Comparison 2006 & 2009/10)[13]

Device Category	2006		2009/10		Growth %	
	#Units	Average Min.	Average # Units	Average Min.	Units (%)	Minutes (%)
Cell	990	292	1,084	300	10	3
PDAs	360	292	614	363	70	24
Total	1,350	292	1,698	323	26	11

The organization was initially budgeted to have used 416,667 minutes/month; however, from March 2008 forward, actual usage fluctuated around an average of 549,570 minutes per month. Five million minutes would have either provided 1,350 phones with 308 airtime minutes per month or would have allowed for 1,427 phones with 292 minutes of monthly airtime.

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[13] Source For 2006 Numbers: Aliant Cost Proposal, Response to RFP#07-047, dated April 12, 2007

Figure 4.10.1: Total Consumption of Minutes for Certain Months 2008-10[10]
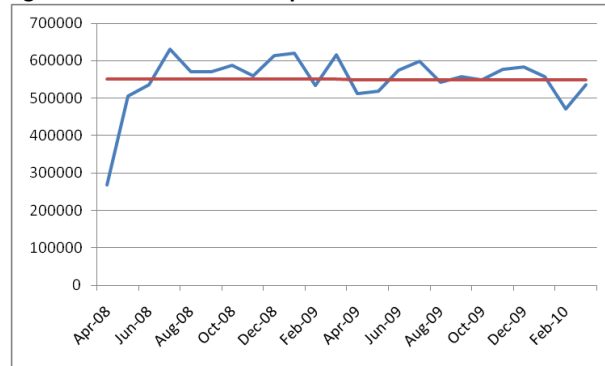
Total usage decreased slightly from 2008/09 to 2009/10 (6,610,960 to 6,569,273 minutes, or 0.63%), but the 5,000,000 minute threshold was again exceeded. In fact, the average cell phone user consumed 300 minutes and PDAs exceeded the 2006 threshold of 292 minutes by 24% (71 minutes). During the period under review, the actual usage was 6,569,273 minutes which represents an over- usage of 31%. Figure 4.10.1 shows the minutes of air time on a month by month basis, the red line is an average of minutes used.

In interviews with BPIM, IT management stated the number of devices per business unit had not been expected to increase significantly, which is why no measures were taken to seek an increase in budget allocation from the business units when new devices were brought on. Survey results from business units indicated they were not aware of potential limits for the consumption of airtime minutes. As a result, neither the number of units nor the pool of airtime minutes was managed effectively.

Costs per Minute

According to Bell's proposal, which was in effect over the period of this review, HRM would pay for its pool of 5,000,000 minutes at an annual total of $619,812 (1,350 units at a monthly flat rate of $38.26). Based on these assumptions, we calculated a rate of $0.12 per minute for each minute within the corporate airtime pool. As mentioned earlier, we believe airtime volume above and beyond the threshold of 5,000,000 would be calculated (billed) at a rate of $0.10. As the flat rate covered part of the hardware cost, this calculation suggests that airtime usage subsidized hardware cost at around $100,000 over the course of a contract year. Actual hardware cost would therefore had to have been estimated at $197,551 ($100,000 subsidized hardware plus actual costs $97,755 (table 4.8.1)).

Usage Patterns across Business Units

At the onset of HRM's contract with Bell, an average of 300 minutes of airtime was estimated per voice unit (cell phones and PDAs). Organizationally, 34% of all bills show more than 300 airtime minutes used. This indicates the estimated allowance was not sufficient to satisfy user requirements.

Of the total number of 6,569,273 minutes consumed under the contract, 77% (5,020,362 minutes) were used during the day, 20% (1,345,559) on weekends, and 3% (203,352) at night. Fifty-nine percent (59%) or 3,900,817 minutes can be attributed to cell phone usage and 41% (2,668,456) to PDAs.

Given HRM provides 24/7 operations in a number of business units, weekends and evenings minutes are relative when compared to minutes occurring during the day, Monday to Friday.

Regional Police consumed the greatest number of minutes (2,376,621 total or 36% of all minutes used), followed by TPW (1,344,699 or 20%) and by Fire and Emergency (679,719 or 10%). On a per device average yearly basis, Regional Police (6,035 minutes), CAO (5,480), and Canada Games (3,767) show the highest consumption rates. The organizational average per device is 3,870 minutes per year.

Figure 4.10.2: Average Annual Airtime per Device[10]
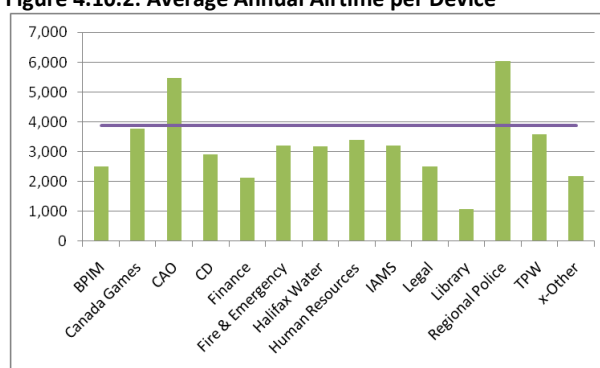
After discussions with Regional Police held during the review, we are pleased to note Regional Police have taken steps to better manage the ongoing use of minutes and to provide greater organizational awareness of the limits on the pooled minutes to their staff.

The organizational average for PDAs amounted to 363 airtime minutes per month. Above average usage was observed in CAO (605 minutes), Regional Police (438), TPW (433), and IAMS (422) business units. Business units above the average cellular usage (300 minutes) were Human Resources (332) and Regional Police (520).

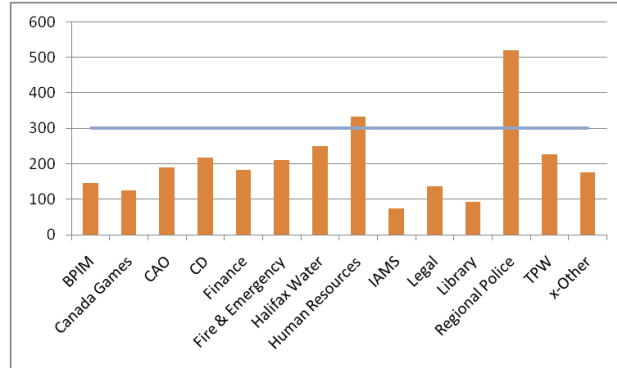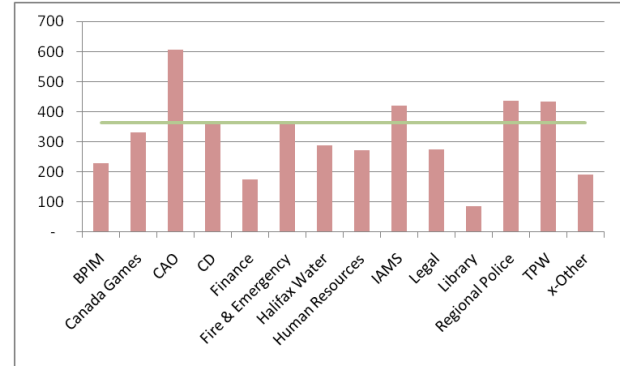**Figure 4.10.3: Average Monthly Airtime Minutes per Cell Phone[10]**

Figure 4.10.4: Average Monthly Airtime Minutes per PDA[10]

In survey responses, several business units stated that accessibility to staff during weekends supported increased service. Other business units operate routinely on evenings and weekends as required under their business models. The organizational average of weekend minutes per month is observed to be 70 minutes per cell phone and 59 per PDA. Above average usage is observed with Regional Police, a 24/7 operation, (154 cell phone minutes and 85 PDA minutes), HR (104 cell phone), CAO (105 PDA), CD (67 PDA), and TPW (64 PDA) business units.

Figure 4.10.5: Average Monthly Weekend Airtime Minutes per Cell Phone[10]
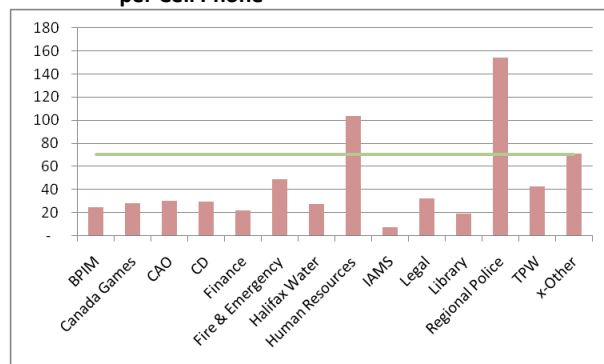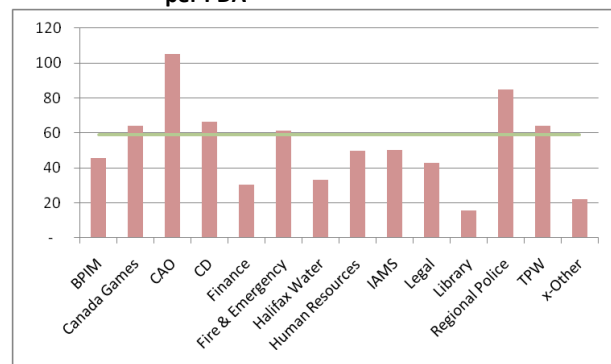

Figure 4.10.6: Average Monthly Weekend Airtime Minutes per PDA[10]

As with weekends, night operations occur regularly in a number of business units such as Regional Police, Fire and Emergency, and TPW.

While it is difficult to determine the appropriate levels of airtime consumption for individuals, monthly bills with more than 2,000 minutes (33.33 hours) clearly seem excessive. In 2009/10, a total of 147 bills fell into this category. These incidents occurred in Regional Police (86 incidents,) CD (21 incidents,) CAO (19 incidents,) TPW and Fire and Emergency each with 7 incidents, HR and IAMS each with 3 incidents and Halifax Water with one.

The top 15 bills examined during the review period had usage totalling 59,725 minutes, the equivalent of the minutes used by 200 average users on a monthly basis.

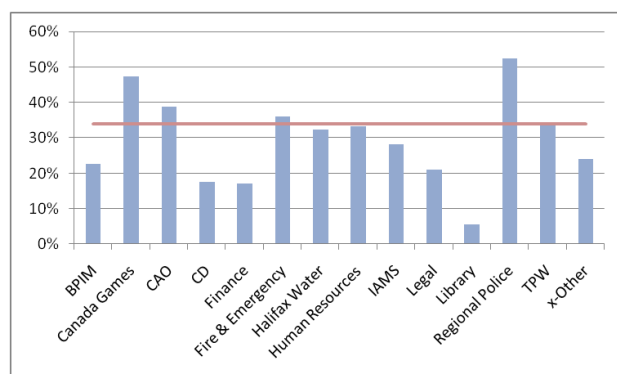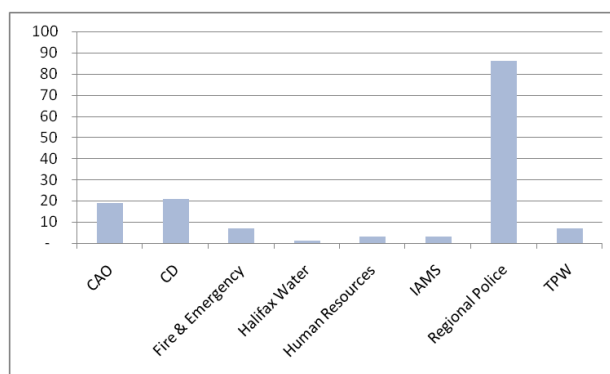**Figure 4.10.7: Percentage of Bills with over 300 Airtime Minutes[10]**

Figure 4.10.8: Number of Bills with more than 2,000 Airtime Minutes

Recommendations:

4.10.1   HRM Administration should develop and implement a reporting mechanism to ensure Management is aware of consumption levels throughout the year.

4.10.2   HRM Administration should apply and communicate appropriate airtime thresholds to business units for monitoring wireless usage. Business unit reviews should include airtime consumption as a criterion. Usage in excess of thresholds should be reported, investigated and addressed.

Management Response:

4.10.1   *Agree. Revised monthly reports to business units will address this recommendation.*

4.10.2   *Agree. New reporting will change from a cost based report to a consumption-based report for pooled usage. This will allow business units to identify wireless users whose usage requires more detailed examination.*

4.11   Low-Usage Cell Phones

While the organization as a whole consumes more minutes than estimated, the review noted numerous wireless communication devices used just slightly. The Telecommunication Billing Analyst successfully negotiated periods of suspension and discounted base plan rates for a group of known low-usage cell phones, such as emergency and pool/shared phones; however, our analysis suggests that a savings potential still exists.[14]

We stratified - for the review period - the cell phone bills with less than 300 minutes airtime consumption into 6 sub-categories of actual airtime usage: 0, < 60, <90, <120, <150, and less than 300. For purposes of this report, we defined the threshold for low-usage phones as 120 minutes. This category comprised 443 cell phones (monthly average), which represent expenditures of $216,282 or 16% of the total spending for wireless communication services of $1,315,064.

Table 4.11.1: Categories of Airtime Usage (Cost and Percentage) – Non-discounted Phones

Usage Categories	Average Minutes per Day	Average # of Units per Month	Total Annual Cost	% of Total
Cell Phones with 0 minutes	0	125	$58,552	4%
Cell Phones with less than 60 minutes	2.8	316	154,283	12%
Cell Phones with less than 90 minutes	4.2	385	188,001	14%
Cell Phones with less than 120 minutes	5.7	443	216,282	16%
Cell Phones with less than 150 minutes	7.1	493	241,200	18%
Cell Phones with less than 300 minutes	14.2	657	322,830	25%

Of the annual total of $216,282 of charges for cell phones with less than 120 minutes in airtime usage, 25% occurred within TPW ($53,937), 19% in Regional Police ($40,535), and 15% in CD ($31,630) see Figure 4.11.1.

Figure 4.11.1: Annual Cost for Low Usage Cell Phones

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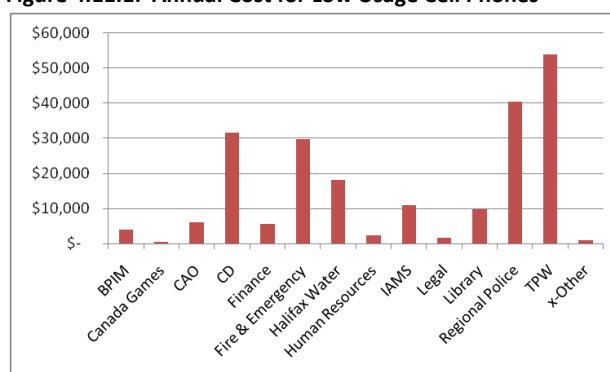
[14]   As only an insignificant number of PDAs used neither airtime nor data, we have excluded PDAs from this analysis. Also excluded are 77 reduced or suspended bills per month, for which the TBA already achieved an average base rate of $16.14.

Figure 4.11.2: Count of Monthly Bills (within review period) with usage less than 1,200 minutes.

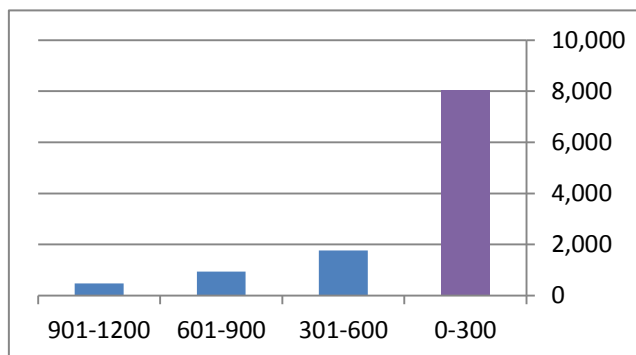**Figure 4.11.3: Count of Monthly Bills (within review period) with usage less than 300 minutes.**
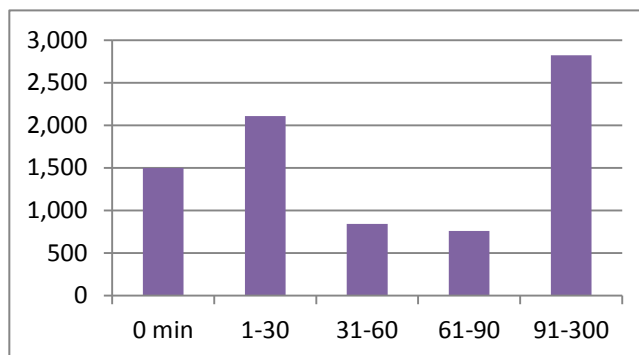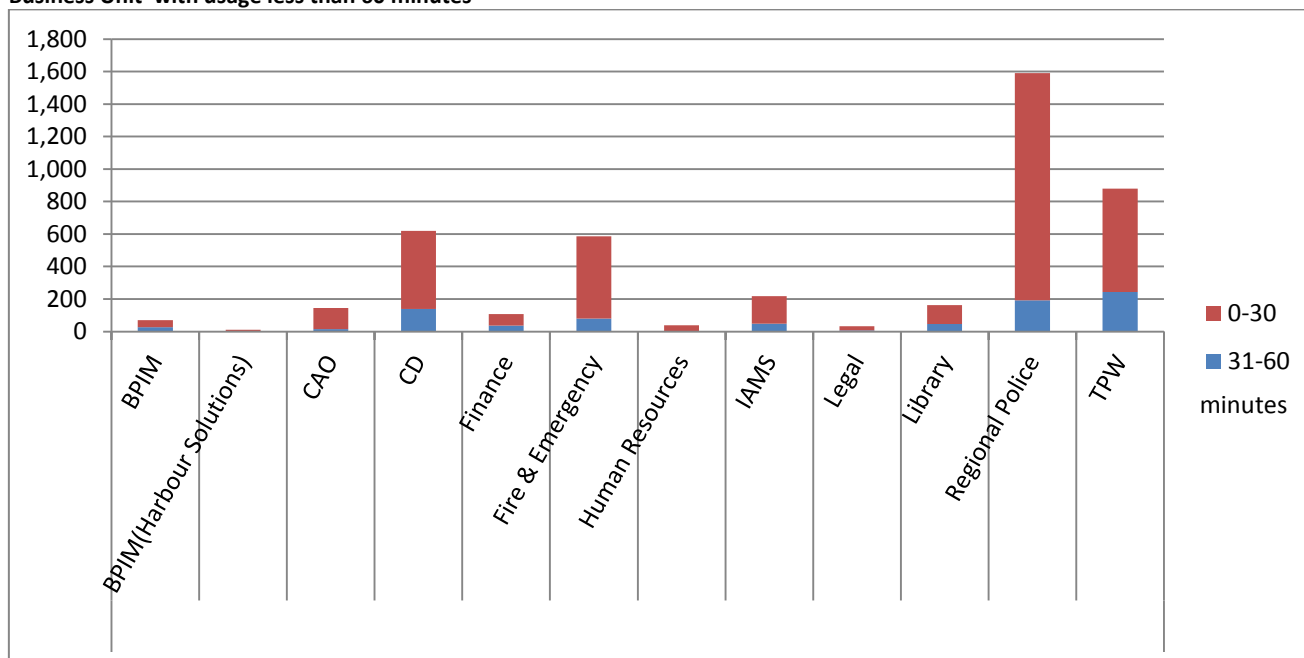
Figure 4.11.4: Count of Monthly Bills(within review period), by Business Unit with usage less than 60 minutes

The chart above (4.11.4) shows that Regional Police, TPW, CD and Fire and Emergency Services accounted for 3,676 monthly bills (306 voice devices) with 60 minutes or less of airtime.

The business units which benefited the most from the efforts of the Telecommunications Billing Analyst to reduce the cost for low-usage phones were CD which accounted for 41% (32 units) of the 77 reduced or suspended units.   Average monthly costs were reduced considerably for the group of suspended and reduced cell phones. Based on the organizational average of $40.97 per month, an estimated savings of 52% ($29,696) was achieved.

Figure 4.11.6: Distribution of Reduced and Suspended Cell Phone Bills
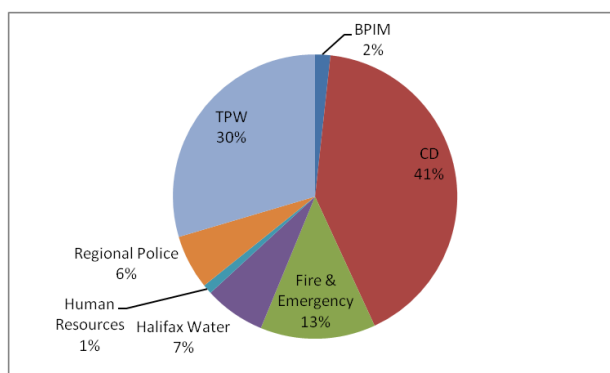
For the summer/beach season of 2010, 125 prepaid phone packages were purchased at a monthly rate of $51.70; the package included a cell phone at $36.19 and $15.51 in airtime minutes at a rate of $0.31 (50 minutes.) In comparison, the average order value for a cell phone is $64.13 and the monthly fixed cost $38.26 (accounts for $459.12 per annum). For the first year, HRM would spend approximately $523.25, independent of actual usage. This amount would suffice to purchase a prepaid phone and provide it with 1,571 minutes (131 per month over a 12 months period).

Recommendations:

4.11.1   HRM Administration should develop, document, and implement a process to monitor low-usage cell phones for efficiency; determine criteria for effectiveness to support continued use of low-usage cell phones and continuously monitor device pool for efficiency.

4.11.2   HRM Administration should consider enhancing the use of alternative processes and/or technology such as pool/shared devices, prepaid phones, pagers, etc. for areas where low- usage wireless is required.

Management Response:

4.11.1   *Agree. BPIM will review low and no-usage devices on a monthly basis as a component of monthly usage reporting.*

4.11.2   *Agree. Some of the alternatives are in place. These approaches will be considered where they do not impact levels of administration required or negate accountability for the usage of the devices.*

5.0   Performance and Value for Money Measures – Advantages/Disadvantages of the Centralized Approach to Delivery of Wireless Services

It is our conclusion there is no reason not to continue with the centralized approach. As suggested by BPIM and the ICT Committee there are clear efficiencies which can be realized. Our concerns essentially centre on the aspect of a centralized billing pool with business unit access to the pool at the discretion of the business units. We certainly came to the conclusion through our initial discussions; there was a clear lack of performance framework in place up until the February/March 2011 rollout of enhanced policies. As we completed our project, we were pleased with Management's response to the work and our findings, and we were actively engaged as the new policies were drafted.

Prior to the development of the February/March 2011 enhanced policies, we had used the following leading indicators as the performance framework for our report:

- o   Do strategic communications take place?
- o   Does strategic reporting take place?
- o   What interdependencies were identified and how often where they to be measured?
- o   How is return on investment identified and how often is it measured?
- o   What is the level of transparency around the policies governing service delivery?
- o   What is the level of alignment/support of the delivery strategy to overall business unit strategies?
- o   Was a governance model for service delivery developed?

The rollout of the latest policies has greatly enhanced the strategic communications as this was clearly absent in the past.

We understood from a number of business unit directors and users, they truly did not understand the cost aspect of the minutes pool, and that each time the phone was used, there was a time/real cost to HRM. The sense we often got was HRM has a large pool of available minutes and they were essentially "free" to the business units. The thinking tended to be around the size of the pool as being large, not can the size of the pool be reduced.

Recommendations:

5.0.1   The basis of the 5,000,000 minutes pool should be reviewed in light of information contained in this report with a view to reduction. Given the high percentage of users within the HRM "family" of employees, we would recommend the use of "pooled" phones within business units be considered. Given the high number of users who use airtime for less than 300 minutes per month (see Chart 4.11.3), it is not difficult to question whether HRM is receiving the most effective value for the money being spent.

While we acknowledge HRM has made progress in better managing wireless costs in its recent rollout of new policies, we still feel additional work needs to be done around various interdependencies, for example, whether it is appropriate for a low minute user of cellular service to be provided a Blackberry for receipt of emails. In other words, is the business unit and hence the organization satisfied the costs to receive email on a mobile device by an individual are consistent with defined criteria which might include time expected to be away from office, number of expected emails, et cetera?

5.0.2   With the large number of mobile communications devices in use at HRM along with the large number of available landlines and desktop computers equipped with email access, we recommend Management undertake a review of all existing mobile devices with a view to further understanding: for each mobile device which has been issued, is there a need based upon defined and approved criteria or could it be concluded the device is more of a convenience. Criteria to be used might include:

o   Overall need for accessibility
o   Expected and required response times
o   Percentage of time away from office
o   Some indication of any unique features to the person's function within a given service delivery model
o   Availability of landline.

5.0.3   Develop and regularly provide performance and compliance reports to SMT and ICT Committee and update user community regularly on current thresholds. With the information currently available, the managers, directors and users lack the information they need to make fiscally responsible decisions. Develop, on an organizational wide basis, a strategic reporting framework which will provide Management with pre-established leading indicator information. Information around the following might be considered:

o   Growth of overall costs
o   Costs on a monthly and yearly basis by business unit
o   Report to ensure all costs are fully understood going forward and are being actively enforced. For example, in the past, HRM had a no-texting policy (this has been modified in the newly developed policy). It is interesting to note that despite the no-texting policy in effect at the time, some 581,109 text messages were sent or received in 2009/10, which resulted in

additional charges for a total of $24,029, i.e. charges were generated by users who were not subscribers to an unlimited texting package. Texting policies should be clearly defined and monitored. Qualifications for exemptions should be established. Where appropriate and cost-effective, unlimited texting packages should be subscribed. A list of all exemptions should be set up and maintained.

o   Reports designed to assist in reducing airtime consumption to contracted level. It is essential to decrease airtime consumption in order to conform to contract stipulations. It is BPIM's (IT) responsibility to establish, communicate and monitor usage thresholds. Thresholds should be set for personal use, weekend, and evening usage.

o   Reports designed to assist in applying appropriate airtime consumption filters to the review of invoices. Business unit review should include airtime consumption as a criterion. Based on the number of devices currently activated for HRM, the maximum for each device is 245 minutes. Usage in excess of thresholds should be reported, investigated and addressed.

Management Response:

5.0.1   *Agree. BPIM will encourage business units to use "pooled" or shared phones where appropriate (see response to Recommendation 4.11.2). Monthly reviews of cumulative airtime have been initiated. In March 2011, the effect of the new contract was a 25% reduction in minutes deducted from the pool and HRM is tracking very close to 5,000,000 minutes.*

5.0.2   *Agree.*

5.0.3   *Partially agree. Enhanced reporting on usage is in progress, and business units will be required to authorize services, and confirm annually. Business unit management is responsible and willing to monitor usage and identify anomalies within their employee groups. BPIM does not support the addition of text messaging packages, as consumption tracking at 16% of total monthly allocation (text messages are pooled and not all devices have been activated for this service). There is no organizational threshold which can be set to cover all employee groups, and HRM has allowed for personal use "provided it does not interfere with HRM business or incur additional costs to HRM". Placing a personal usage threshold on a service which generates no additional cost to HRM would negate the positive benefits derived from the Mobility Policy. In the context of the pooled approach, the focus will be on maintaining usage at or below an average of 250 minutes per device.*

Additional Recommendations around Performance Measures:

5.0.4   Establish performance indicators (PIs) for the effectiveness of wireless communication. On the business unit's side, PIs such as critical issue resolution, response time, and customer satisfaction ratings and other appropriate measures should be monitored and related to the cost of wireless communication devices including airtime consumption.

5.0.5   Develop, document and monitor invoice verification and invoice dispute process. Currently, the criteria and thresholds for the invoice verification are not documented and occurrences of billing errors and remedial actions are not tracked. To ensure billing errors are detected, addressed and resolved, an end-to-end process should be established.

5.0.6   Establish and maintain a list of base and feature plans per user. Currently, the organization operates on the assumption that all users are subscribed to HRM's Corporate Plan, which is not always correct. Also, no record is kept of the additional features for which individual users have chosen such as data plans, text messaging, et cetera. In order to ensure a single standard of program implementation and efficient controls, this information has to be established and distributed for appropriate usage (e.g. invoice verification, performance reporting, etc.).

Management Response:

5.0.4   Agree.

5.0.5   Agree.

5.0.6   Agree.

6.0   Contract Extension Highlights

The contract extension negotiated with Bell in the fall of 2010 moved HRM towards making monthly wireless costs more predictable by expanding features and reducing previous variable costs now included in the monthly fee.

The previous contract had allowed for five million wireless minutes annually, regardless of the number of wireless devices; the new contract allows for each device to contribute 250 monthly minutes to the pool. As new devices come on board, the pool size increases.   Other plan improvements include a limited number of text messages allowed per device per month. Evening and weekend minutes do not deduct from pooled minutes and calls between HRM wireless subscribers do not deduct from pooled minutes. The base rate for cellular phones dropped from $36.99 per month to $23.00.

The base rate for the Blackberry data package increased $11.00 per month (to $36.00), however the 4Mb limit has increased to 500Mb per device.

The CAO report dated October 25, 2010, estimated the net savings under the new contract at $649,333. However, this figure includes the avoidance of additional charges under the old contract of $260,715 which reduces the net savings of the new contract to $388,618.

Overall the new contract negotiated and entered into by HRM addresses all cost overages due to usage above the original estimate. One area of concern still remaining is the internal process of not requiring additional budget transfers from business units to the BPIM central account when new devices are acquired.

Summary:

As a result of the review recently completed by the Office of the Auditor General and our various discussions with management and the Telecom Billing Analyst we have concluded, while we did find some instances of high use which we questioned, the costs with respect to wireless services incurred by HRM are, for the most part not through the excessive use of the devices on the system. In our view, the rising costs are clearly driven by the very large number of devices currently activated by HRM.

With this in mind and while many of our other recommendations deal with costs of use, we recommend management at this point concentrate its cost reduction efforts through programs designed to reduce the number of units activated through eligibility criteria and regular evaluation of device pools as suggested in other recommendations.

Glossary

DCD	Data Communication Device	Data only wireless communication device, often installed in vehicles or notebooks (modems, air cards, turbo sticks, etc.)
PDA	Personal Digital Assistant	Mobile information management and communication device, such as Blackberry or Palm
FTE	Full-Time Equivalent	Measures the number of work hours in terms of full-time positions
BPIM	Business Planning and Information Management	HRM business unit
CAO	Chief Administrative Office or Officer	HRM business unit or executive position
Other	Other Business Unit grouping	For the convenience of the reader of this report, Centennial Arena, Halifax Forum, Harbour Solutions, and Pension Plan are grouped as Other.

Summary of Recommendations:

2.4.1   Establish and implement appropriate performance goals and measures for the wireless communication program at the business unit level and have these approved by Executive Management Committee.

2.4.2   Once the wireless performance measures have been developed and agreed upon, a defined process of strategic communications of these measures be provided to business unit management.

2.4.3   Strategic reporting of wireless performance measures be provided to senior management on a regular and defined basis to ensure monitoring of actual performance against defined and pre-established performance.

2.4.4   Adopt a full costing approach to calculate the costs to deliver the wireless program. Total expenditures and funding sources need to be transparent to ensure full accountability for the responsibilities shared between business units and BPIM (IT), but also to allow for a complete assessment of the program, both in terms of operational effectiveness and strategic value.

2.4.5   Break down of high-level goals into operational activities and thresholds, which allow for greater and more efficient controls.

3.1.1   HRM should review individual business unit operational policies to determine the level of compliance with the HRM Mobility Policy, and amend or modify operational policies to comply with the minimum corporate standards. Where operational policies exceed the minimum standards, we would recommend the higher standard be retained.

3.2.1   A formal training program should be established and offered by BPIM (IT) to business unit staff responsible for compliance monitoring. The program should provide the necessary tools and knowledge to identify potential wireless issues. Business unit staff are not equally and often not sufficiently aware of appropriate review criteria and thresholds. Thresholds and the appropriate response in cases of non-compliance should be standardized across business units.

3.3.1   HRM Administration should establish and communicate usage thresholds to business units and provide regular performance and compliance reports on these thresholds to SMT, the ICT Committee and the HRM user community.

3.3.2   HRM Administration should develop appropriate "new user" documentation and policy awareness sessions for newly activated wireless services. With the January 2011 HRM Mobility Policy, corporate training is being rolled out to all wireless users; this recommendation looks beyond the initial rollout to new wireless users.

3.3.3   HRM Administration should develop, document, and monitor invoice verification and invoice dispute processes to ensure billing errors are detected, addressed, and resolved.

3.3.4   HRM Administration should ensure timely access to billing information is provided to the business units so usage monitoring and employee usage are appropriately addressed. For business units with large, established user communities, access to Bell's e-bill would be beneficial.

3.5.1   HRM Administration should develop and implement a process to occasionally, but regularly, test compliance to the requirement to have cell phones be password protected.

4.5.1   HRM should undertake a review and develop a policy around the number of device choices. This policy should include methodology to track and enforce standards. From both a cost and support point of view, limiting the choice of devices through price agreements will help to ensure HRM receives best value.

4.5.2   HRM should encourage the use of cell phones instead of PDAs wherever possible. PDAs contributed disproportionately to the cost of wireless communication both in terms of billed and unbilled (minutes) usage. By reviewing newly established eligibility criteria, as set out in HRM Mobility Policy (January 2011), users' devices may be reallocated and cost savings likely realigned.

4.5.3   HRM should consider negotiating a standard rate for DCDs. The original plan as well as the contract extension, does not provide a corporate rate for DCDs. We have found a variance in costs, not only in terms of fixed costs but also in regard to flexible costs for additional data. Very competitive plan pricing has been achieved for Police laptops and should be leveraged to the entire organization.

4.9.1   HRM Administration should consolidate existing plans into a limited number of standardized plans with the new contract extension. From both a cost and support point of view, limiting plans will minimize the need for support and ensure HRM receives best value. For example, HRM Administration could standardize discounted subscriptions into one plan.

4.10.1 HRM Administration should develop and implement a reporting mechanism to ensure Management is aware of consumption levels throughout the year.

4.10.2 HRM Administration should apply and communicate appropriate airtime thresholds to business units for monitoring wireless usage. Business unit review should include airtime consumption as a criterion. Usage in excess of thresholds should be reported, investigated and addressed.

4.11.1 HRM Administration should develop, document, and implement a process to monitor low-usage cell phones for efficiency; determine criteria for effectiveness to support continued use of low-usage cell phones and continuously monitor device pool for efficiency.

4.11.2 HRM Administration should consider enhancing the use of alternative processes and/or technology such as pool/shared devices, prepaid phones, pagers, etc. for areas where low-usage wireless is required.

5.0.1 The basis of the 5,000,000 minutes pool should be reviewed in light of information contained in this report with a view to reduction. Given the high percentage of users within the HRM "family" of employees, we would recommend the use of "pooled" phones within business units be considered. Given the high number of users who use airtime for less than 300 minutes per month (see Chart 4.11.3), it is not difficult to question whether HRM is receiving the most effective value for the money being spent.
While we acknowledge HRM has made progress in better managing wireless costs in its recent rollout of new policies, we still feel additional work needs to be done around various interdependencies, for example, whether it is appropriate for a low minute user of cellular service to be provided a Blackberry for receipt of emails. In other words, is the business unit and hence the organization satisfied the costs to receive email on a mobile device by an individual are consistent with defined criteria which might include time expected to be away from office, number of expected emails, et cetera?

5.0.2 With the large number of mobile communications devices in use at HRM along with the large number of available landlines and desktop computers equipped with email access, we recommend Management undertake a review of all existing mobile devices with a view to further understanding: for each mobile device which has been issued, is there a need based upon defined and approved criteria or could it be concluded the device is more of a convenience. Criteria to be used might include:
  o Overall need for accessibility
  o Expected and required response times
  o Percentage of time away from office
  o Some indication of any unique features to the person's function within a given service delivery model
  o Availability of landline.

5.0.3 Develop and regularly provide performance and compliance reports to SMT and ICT Committee and update user community regularly on current thresholds. With the information currently available, the managers, directors and users lack the information they need to make fiscally responsible decisions. Develop, on an organizational wide basis, a strategic reporting framework which will provide Management with pre-established leading indicator information. Information around the following might be considered:
  o Growth of overall costs
  o Costs on a monthly and yearly basis by business unit
  o Report to ensure all costs are fully understood going forward and are being actively enforced. For example, in the past, HRM had a no-texting policy (this has been modified in the newly developed policy). It is interesting to note that despite the no-texting policy in effect at the

time, some 581,109 text messages were sent or received in 2009/10, which resulted in additional charges for a total of $24,029, i.e. charges were generated by users who were not subscribers to an unlimited texting package. Texting policies should be clearly defined and monitored. Qualifications for exemptions should be established. Where appropriate and cost-effective, unlimited texting packages should be subscribed. A list of all exemptions should be set up and maintained.

- o Reports designed to assist in reducing airtime consumption to contracted level. It is essential to decrease airtime consumption in order to conform to contract stipulations. It is BPIM's (IT) responsibility to establish, communicate and monitor usage thresholds. Thresholds should be set for personal use, weekend, and evening usage.

- o Reports designed to assist in applying appropriate airtime consumption filters to the review of invoices. Business unit review should include airtime consumption as a criterion. Based on the number of devices currently activated for HRM, the maximum for each device is 245 minutes. Usage in excess of thresholds should be reported, investigated and addressed.

5.0.4   Establish performance indicators (PIs) for the effectiveness of wireless communication. On business unit's side, PIs such as critical issue resolution, response time, and customer satisfaction ratings and other appropriate measures should be monitored and related to the cost of wireless communication devices including airtime consumption.

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5.0.6   Establish and maintain a list of base and feature plans per user. Currently, the organization operates on the assumption that all users are subscribed to HRM's Corporate Plan, which is not always correct. Also, no record is kept of the additional features for which individual users have chosen such as data plans, text messaging, et cetera. In order to ensure a single standard of program implementation and efficient controls, this information has to be established and distributed for appropriate usage (e.g. invoice verification, performance reporting, etc.).