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The impact of procurement card usage on cost reduction, management control, and the managerial audit function

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Abstract

Purpose – Provide a better understanding of the functionalities and benefits of the procurement card technology (P-Card), and examines the card's impact on management control and the audit function.

Design/methodology/approach – Describes the recent published works on P-Card's benefits in costs reduction and data integration with information systems, aiming to provide comprehensive research and practical advices.

Findings – Provides information about the impact of P-Card on business processes, along with opportunities to set managerial reports. The future of P-Card technology is elaborated in order to broadenening P-Card usage.

Research limitations/implications – To explain the determinants of and outcomes from the adoption and usage of P-Card, contingency variables such as size, business environment, and structure may be examined. Also, studies on P-Card have only used the survey method as the way to gather information, while interviews, observation, and system documentation examination should be performed to corroborate the survey results obtained. Intangible benefits such as improved decision-making, better management control, or improved job satisfaction should be considered to provide more robust assessment of P-Card usage and benefits.

Practical implications – A useful source of information to help management auditors to take proactive approaches to improve business efficiency, design effective control systems, and streamline accounting processes.

Originality/value – The paper describes ways to integrate P-Card data directly to computer-based accounting information systems via electronic posting to the ledger offered by software capabilities.

Keywords Auditing, Electronic data interchange, Control applications, Transaction costs

Paper type Literature review

1. Introduction

Managerial auditing is concerned with the economical and efficient use of a firm's resources. Management auditors are responsible for designing effective control systems, and for taking proactive approaches to make controls part of business processes (Pathak, 2004)[1]. Unlike external auditors, management auditors must place more emphasis on the firm's management controls and on improved business

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efficiency, while reviewing the reliability of information, protecting the firm's assets, and assessing internal control mechanisms. Management auditors have a certain "police role", but also act as management control consultants working with management to add value to business. Management anticipates that auditors will substantiate their opinions by providing recommendations on business operations (Romney and Steinbart, 2003, Chapter 7). In this context, it is expected that management auditors have a good understanding of the available information technology (IT) that may help to streamline accounting processes.

Over the years, technologies that can enhance business performance have emerged (Hitt and Brynjolfsson, 1996; Dehning and Richardson, 2002; Delone and McLean, 2003). Management auditors evaluate these ways of doing business with IT, and look for opportunities for implementation with a cost/benefit perspective in mind. Certain technologies enable organizations to reduce costs and perform activities more efficiently but their utilisation rates may remain low (Bergeron and Raymond, 1995); the P-Card is one such technology. It is an electronic transaction card issued at the firm level and intended for small value transaction, non-inventory/stock, non-capital purchases. The P-Card allows employees to obtain goods and services without going through the usual paper-trail authorization procedure. While P-Card usage is important with several 100 millions of dollars placed on it annually, and its rapid growing, some experts estimate that only 25 percent of its potential market has been reached in terms of transaction numbers (Avery, 2003; Fargo, 2001; Gamble, 2003).

Two main research questions drive the present paper:

RQ1. How can the P-Card be used to streamline the purchase cycle for the acquisition of supplies and services without removing important controls?

RQ2. How does linking the P-Card information with computer-based accounting information systems (AIS) provide better information for decision-making and management control?

The paper contributions are as follows. First, this paper describes the P-Card's positive impact on cost reduction and management control; this may help management auditors play an active role in becoming knowledgeable about this low-risk, low-cost technology for streamlining accounts payable processes. Second, the paper describes ways to integrate P-Card data directly to computer-based AIS, such as electronic posting to the ledger offered by software capabilities. Third, an interview with a manager of an accounts payable unit using P-Card technology provides a lively experience, with advice for the implementation step. Finally, by showing how the traditional payable process may be redesigned using IT, this article contributes to the future of auditing education, as this field "still needs a lot of education about what P-Cards can do and how they can save money" (Giesen, 2002, p. 42).

The paper is organized as follows. Section 2 provides a definition of the P-Card technology, Section 3 describes its benefits in cost reduction, and Section 4 discusses its impact on business processes and the managerial auditing function. Section 5 covers P-Card features in management control, while Section 6 describes opportunities for creating managerial reports. Section 7 discusses the future of the P-Card, while the last section provides a conclusion, with suggestions for future investigations.

2. The payable cycle and the P-Card process

Viewed broadly, the expenditure cycle is a recurring set of activities and related data processing operations associated with the acquisition of and payment for goods and services (Romney and Steinbart, 2003, p. 415). The primary exchange of information and transactions is with suppliers or vendors, where the focus is on frequent acquisition of supplies and services of small value transactions. As a reminder, a primary objective of management auditors is to minimize the cost of acquiring the supplies and various services that the firm needs while turning more revenue into profits. The P-Card may represent a valid business solution that can achieve significant enhancements in the accounts payable process (Martinson, 2002).

The P-Card, also called a purchasing card, is issued by banks with the Visa, MasterCard or American Express brand, and is typically used for small value transaction, non-inventory, non-capital items such as office supplies. Figure 1 shows the P-Card process.

A P-Card is issued to the cardholder, and the card numbering scheme is mapped to a general ledger account of the firm's AIS. The cardholder places an order to purchase goods/services, and the supplier obtains the bank's authorization; when authorized, the supplier provides goods/services, and receives payment from the bank. The cardholder receives a P-Card statement from the bank/card issuer, and reviews and approves the statement but does not submit payment. A single electronic statement, including the charges for all firm's P-Cards with pertinent data related to the transactions is sent from the bank to the firm, and processed for accounting entries. Lastly, the firm makes payment to the bank.

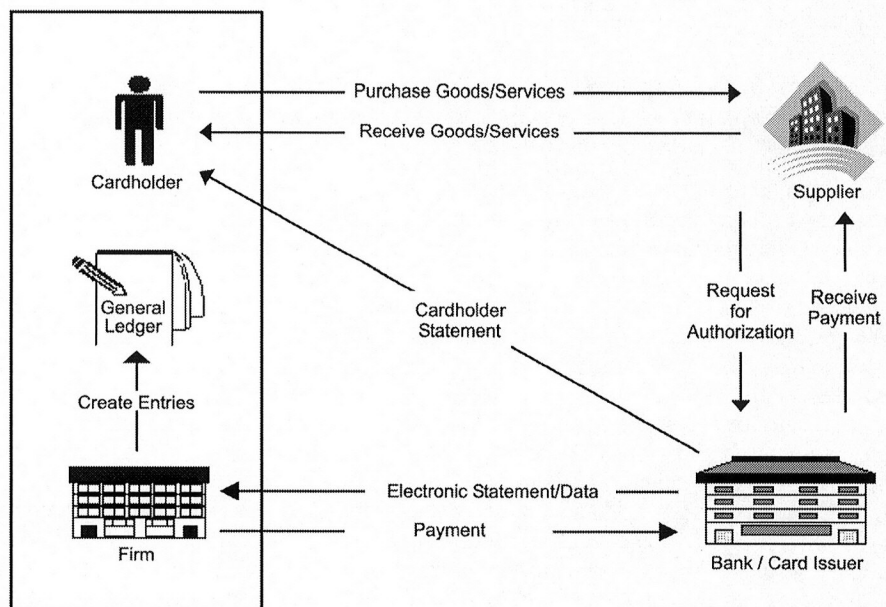


Figure 1.
The P-Card process

Source: Adapted from the National Association of Purchasing Card (2001)

In another version of the P-Card process, the cardholder receives his/her P-Card statement straight from the firm for review, and when the bank pays the supplier, it then debits the firm's account directly for payment. As the bank receives the payment automatically, this method allows the firm to obtain better conditions, such as lower fees, from the bank. For the above electronic transactions, data transmission and fund transfer controls must apply such as electronic identification of users and encryption to secure stored data and data transmitted. SysTrust principles for AIS reliability should be considered (system's availability, security, maintainability, and integrity; see McPhie (2000) for details).

3. A review of P-Card's cost reduction benefits

The P-Card is recognized as a key instrument for the reduction in quantity of small value invoices processed by the accounts payable departments in organizations. Issuing a purchase order, receiving, verifying and processing an invoice, writing a check and getting signatures is not an efficient process for dealing with small value purchases, such as stationary goods. In those firms in which a large part of the paperwork is for transactions below \$1,000, the P-Card represents a business solution. As a general rule, highly repetitive purchases may represent 80 percent of transaction volume, but just 20 percent of the purchases in monetary term (Yates, 1998). In other words, from a cost/benefit analysis perspective, the procedures and people involved to process a \$100,000 invoice should not be the same as for an invoice of \$500. Why utilize the same set of stringent controls on all purchases regardless of transaction size? Management control principles must apply where benefits of a control procedure must exceed its cost.

The P-Card helps reduce the number of documents needed to support payments to vendors. For example, with the traditional method, when a firm receives 100 invoices per month, where each is supported by a purchase order, a receiving report, and a packing slip, writing a cheque necessitates the support of 300 documents ($100 \times 3 = 300$). With the P-Card, when the monthly statement including transactions is verified by each cardholder, a payment is made via an electronic funds transfer, replacing the matching of hundreds of documents by the accounts payable unit, eliminating multiple approvals, reducing handling of materials by the receiving department, and the writing and postage of hundreds of monthly checks; the P-Card helps to eliminate non-value adding activities (Palmer *et al.*, 2002a).

It has been estimated that it may cost an average of \$90 to process and pay for a product/service with the traditional method, while the average cost per P-Card transaction is assessed at \$25, representing \$65 or 70 percent savings (Palmer, 2000; Crouch, 2003). In the US for 2002, 335 million P-Card transactions were made, which represent an estimated \$2.1 billion in savings ($\65×335 million) for P-Cards users (Gamble, 2003). The reduction in the documentation required is also estimated at three to five days time saved per month (Fargo, 2001; Machado, 2003).

A survey among 329 US firms by the American Institute of Certified Public Accountants (AICPA) on P-Card usage indicates that invoices that total under \$2,000 represent over 60 percent of all invoices processed by accounts payable but account for less than 20 percent of the monetary amount of purchases (AICPA, 2000). The survey also states that the P-Card is used more extensively when the card's benefits have been clearly demonstrated, leading top management to support P-Card evaluation, implementation, and utilization.

Two other studies on different sectors also show P-Card benefits. The first study, by Palmer *et al.* (2002a), investigated P-Card usage in 47 US universities. These institutions report that the average paperwork savings for each transaction is \$110. With 23,732 P-Card transactions reported in 2001, the use of P-Card generates around \$2.6 million in cost savings annually for these universities. This longitudinal study, comparing 1998 versus 2001, shows that the average monthly P-Card spending rose by 86 percent (from \$217,994 to \$405,420), average transactions per card per month went up by 24 percent (from 3.3 to 4.1 transactions), and the average percentage of university employees with a card increased from 7 to 11 percent. The universities' P-Card spending is mainly for maintenance, repair, operating goods, materials, computers, and office supplies. In a further analysis, Palmer *et al.* created two groups of universities: high-spending (over \$300,000 per month) versus low spending (below \$300,000 per month). Controlling for size and age of the P-Card program, two factors that may influence P-Card usage, the researchers found that high spenders obtain more benefits, such as reduction or redeployment on average of 5.1 full-time equivalent purchasing/payable employees, while low spenders cut back on average 0.6 full-time employees. The study also reports that high spending universities conduct more live training sessions for employees, and perform more P-Card data analysis to get other cost-savings such as negotiation of better prices with suppliers.

The second study, by Palmer *et al.* (2002b), investigated P-Card usage in 150 US state and local governments. These agencies report that the average administrative paperwork savings for each transaction is \$101, with an average decrease of seven days between an employee's requests to the delivery of goods. On average, state agency respondents utilize the P-Card 81,131 times per year, so with \$101 savings per transaction, P-Card usage generates around \$8.2 million in cost savings annually per state agency – savings that may be used for tax reduction or to provide other services to citizens. The study also reports that average state agency P-Card spending increased by 227 percent from 1998 to 2001, the most important increase of any groups surveyed.

4. Impact on business processes and the managerial auditing function

The P-Card may create a paradigm shift in re-evaluating the actual payment process along with the implementation of IT. In implementing and assessing a P-Card project in the organization, managers and management auditors must examine the re-engineering of the existing payables process, and evaluate opportunities to implement IT to support new processes. Computer-based information systems, such as ERP, and reliable data transmission networks enhance the ways in which the data can be collected, processed, stored, and disseminated (Gamble, 2003). For example, a firm may remit a payment for all P-Card transactions to the bank after posting the transactions to the ledger manually or, with more sophisticated computer-based AIS, posting to the ledger can be done electronically via electronic data interchange (EDI) or similar networks. Software capabilities developed by banks and card issuers now permit integration of all information related to each purchase directly to the accounting system. For example, MasterCard SmartLink software integrates P-Card information with ERP systems such as SAP/R3. The software allows merging of purchasing data with the general ledger system. This may help firms comply with new governance and management control standards as stated in the Sarbanes-Oxley Act (Gamble, 2003)[2].

Usage of P-Card technology reduces the number of documents and invoices, which has an impact on the accounting clerical workload of the accounts payable department. The P-Card frees employees from the tedium of re-keying invoice data, thus allowing firms to reallocate them to more productive and challenging activities. As they play more influential roles, management auditors may seize strategic opportunities to increase their value as advisors to management (Dittenhofer, 2001).

5. Preventive management control and employee empowerment

A specific characteristic of P-Card system remains in the control mechanisms that may be set-up for each card issued, and the level of information provided (Schaeffer, 2002). With the traditional credit card, the cardholder may buy any products/services, as far as purchases are within the credit limit, while the P-Card technology allows each card to be encoded with controls such as:

- monetary amount limit per transaction (for example to \$100);
- limit on the number of transaction per day and per month (for example, maximum three transactions per day, or 40 transaction per month);
- monetary amount limit for specific periods (for example \$100 per day, or \$1,000 per month); and
- limit on the use of the card to specific industrial code vendors (for example for travellers, the card may be accepted at restaurants, gas stations, and hotels, but blocks at jewellery business and other luxury products stores).

It is thereby possible to preset a spending profile for each P-Card issued. Transactions that do not meet the preset conditions are not authorized at the point of sale, and the attempts are reported to the management auditor. As transaction logs provide detailed records of transactions such as ID number, and the date and time of successful and non-successful attempts, on-line data entry control is, therefore, possible. The ability to preset spending profiles for each cardholder can be categorized as a preventive control since it allows firms to deter problems before they may arise, such as card misuse (Romney and Steinbart, 2003, Chapter 7). Preventive controls are more efficient than detective controls (discover problems as they occurs), and corrective controls (correct errors in modifying the system to eliminate problems in the future). As an additional security level, firms can require that the employee's ID number be provided before the purchase transaction is authorized.

P-Card usage considerably reduces the need for cash advances, and enables firms to control employee spending without requiring approval of each transaction. The use of P-Card systems allows computer-based AIS to perform internal control tasks, which may limit concealment of fraud.

The setting of a spending profile for each P-Card may represent a source of employee empowerment as well. Employees perform tasks and make decisions that have an effect on the firms' operations. As managers and management auditors lack the time and resources to monitor each activity and decision, they establish business policies and authorization levels to empower employees. Issuing the P-Card has the effect of giving more responsibility to the employee for purchasing decisions. Gamble reports the experience of an engineering firm that implemented a P-Card system to push purchase accountability to its employees "to let engineers go out and buy what they need quickly, without getting bogged down in paperwork" (Gamble, 2003, p. 40).

Usage of P-Card for acquisition of products and services may be especially efficient for projects with short deadlines.

The spending profile encoded in each P-Card will depend on the level of trust that management allocates to the employee. For instance, a non-restrictive spending profile sends a positive signal to the employee. Also, the cardholder review and approve the statement before the firm pays the bank, thus shifting the burden of reconciling invoices with supporting documents to those who have incurred the expenses, thereby putting more accountability on the purchaser. The P-Card also eliminates the need for accounts payable staff to enter expense data, which has the effect of reducing data entry errors, and reducing the time the employee may wait to be reimbursed. Finally, Web link communication software developed by banks/cards issuers can create managerial reports from P-Card transactions across the firm. Employees, as management auditors, can see their own spending, review it, and dispute any transactions if necessary (Giesen, 2002).

6. Opportunity to set managerial reports

Another benefit of the P-Card system lies in the enhancement of information available for decision-making. The level of information that the P-Card makes available can be categorized in three levels: Level 1 refers to the basic information we find on typical credit card statement (i.e. the date, the supplier, and the transaction amount). Level 2 includes Level 1 information, plus sales tax and transaction data field (usually 16 characters) providing pertinent information to the transaction such as an order number, an employee name, or project code. Finally, Level 3 includes Level 2 information, plus other useful information such as item product code, item description, quantity, price, and so on. Level 3 reporting provides as much, or more information usually found on a typical invoice, and may contain up to 99 lines of data (Giesen, 2002). A study conducted by American Express founded a positive association between P-Card usages, level of detailed information, and card user satisfaction (Avery, 2003).

Electronic statements provide all transaction data on purchases made with the P-Card from where accounting entries can be processed. The data can be used to design managerial reports that help management to understand and manage the organization's expenditure patterns. Data can be sorted by type of transaction, employee, department, supplier, or in any way managers want to view it. The firm may, therefore, easily find that X amount is purchased from supplier Y . Such data analysis allows negotiation of better prices and discounts and helps in devising a list of preferred suppliers (Gillett *et al.*, 1997; Avery, 2003).

But even if the banking system supports Level 2 and Level 3 information, some suppliers do not yet have the capability to input the required information because they are not willing to pay for the data-entry device, and take the time to input the transaction data. Around only one-third of P-Card purchases include Level 3 information (Giesen, 2002). Suppliers often are not aware that they may obtain better conditions from their banks by capturing Level 3 data (Giesen, 2002). This has the effect of reducing the P-Card informational benefit, as firms must wait until all their suppliers have upgraded their card-processing equipment. To obtain full benefits of P-Card information availability, firms should work with their preferred suppliers to upgrade their systems to get Level 3 information captured, reducing the necessity of

extra record keeping. For suppliers still not persuaded, some firms and banks are considering using techniques similar to EDI implementation in the early 90s by threatening to switch suppliers if they do not process Level 3 information.

In addition, some firms have concerns about the usefulness of Level 2 information, a stage of information between a typical credit card statement (Level 1) and an invoice (Level 3). For instance, in a sales tax audit, tax authorities require detailed information such as taxable and non-taxable items, or tax rate applied per item (different product/service taxed at different rates, different state tax rates, etc.), making the aggregated Level 2 tax information of little help.

In short, affordable technology exists to provide better quality of information for decision-making, but implementation issue remains. A solution resides in the education of suppliers in P-Card functionalities and benefits. The bankcards associations are in the best position to take the lead in this area.

7. The future of P-Card technology from a managerial auditing perspective

Some experts estimate that P-Cards have captured only 25 percent of their potential market in terms of transaction numbers (Avery, 2003; Fargo, 2001; Gamble, 2003), which raises the questions:

- (1) Why have all firms not yet adopted or implemented this low-risk, low-cost IT solution?
- (2) Why have firms having a P-Card program in place not directed all their low value transactions through the cards?

In regard to the adoption rate, firm size appears to be among the reasons (IOMA, 2003). The larger the firm, the greater is the impact of eliminating invoice processing. For example, Table I indicates that 20 percent of firms with 100-249 employees use P-Card, while 45 percent of firms with 1,000-4,999 employees use P-Card (Schaeffer, 2002).

Another reason to explain the P-Card adoption rate is the level of importance allocated by management to business solutions and reengineering projects. Evaluating existing ways and costs of doing business is challenging, and searching for ways to make improvements must be promoted within the firm. When these initiatives are absent, a proactive response may be to take the lead and demonstrate P-Card utilization benefits to management – the kind of move that we may expect from a vigilant management auditor. The AICPA (2000) study states that the P-Card is used more extensively when benefits have been clearly demonstrated, but a lot of work remains to be done in this area; in a recent survey by Visa (2004), it is reported that

Firm size: number of employees	Percentage of firms currently using P-Card	Percentage of firms planning to use P-Card
1-99	13	13
100-249	20	10
250-499	16	27
500-999	27	28
1,000-4,999	45	23
5,000 and over	62	17

Source: Schaeffer (2002, p. 191), IOMA survey

Table I.
Firm usage of P-Card



75 percent of firms have not estimated the cost of raising a purchase order, and 90 percent have not estimated the cost of processing a supplier's invoice, estimations if performed in-house could have revealed benefits to implement a P-Card program.

In regard to the utilization level, some firms put forward being reluctant to pay the interchange rate (around 3 percent) of a bankcard transaction paid by the supplier to the banking system. This rate explains why some vendors may refuse to accept a P-Card system. Fortunately, experts predict that majors, such as Visa and MasterCard, plan to offer lower interchange rates, or suggest a fee structure to stimulate growth in the acceptance and usage of P-Card (Giesen, 2002). Industry experts predict that if banks/card issuers do not lower interchange rates, another party may come around with a new electronic payment transfer system solution, forcing the majors to move to lower rates (Fargo, 2001; Lyons, 2002).

An important element to consider is that traditionally firms that pay their suppliers by check often do so with two to three months delay, which for suppliers increases risk, may create cash flow problems, and requires management of accounts receivable. In contrast, a payment by P-Card can be cleared up by way of the card network in two days, with significantly less paperwork. Buyers and suppliers should focus on the facilitation of purchase and settlement – the streamlining of the payable cycle. Liquidity has its price, so buyers and suppliers should perhaps rethink the way they do business with a win-win perspective in mind. For instance, when the economy is weaker, everyone wants rapid liquidity, making suppliers more receptive to being paid by P-Card (Gamble, 2003).

Despite the system's ability to encode each card with control features, some managers are still concerned with the misuse of cards by employees. But according to Gamble (2003), anecdotal stories of misuse are isolated and have been exaggerated; P-Card misuses are estimated at only \$270 for each \$1 million in purchases, and some firms label misuse as suitable acquisition but from non-preferred suppliers. While employee misuse is rare, firms can take insurance; for instance, Visa offers corporate liability protection up to \$50,000 per cardholder against unauthorized transactions. Based on previous experiences, a key element to avoid fraudulent, improper, and abusive or questionable P-Card purchases remains in the setting of a strong overall internal control environment where adherence to policies and procedures are enforced (GAO, 2002).

Among other barriers to P-Card usage are managers' concerns about keeping spending within budget and fear of employees paying too much for goods, making duplicate buys of goods, or buying goods from non-preferred suppliers (Palmer *et al.*, 2002a). Finally, managers satisfied with the traditional payment cycle will prefer to maintain the *status quo* (Schaeffer, 2002; Crouch, 2003).

7.1 Broadening P-Card usage

P-Card is originally designed for use with small value non-capital items purchases, although some firms do use it for capital items purchases, such as computer hardware and software (Avery, 2003). In these cases, cards may be issued for specific capital project items with a limit of up to \$10,000 per-transaction. The P-Card has also proven useful for the common individual purchases related to maintenance, repair, and operating supplies activities, such as lab equipment, electrical and plumbing supplies, uniforms, or safety supplies.

Major banks and credit card brands have examined the possibility of allowing users to make larger transactions, where limits may reach up to \$100,000 (Fargo, 2001; Lyons, 2002), and have looked into alternative fee structures to current actual interchange rates to attract manufacturing acquisitions (Giesen, 2002)[3]. In such cases, management auditors will want to have more controls, such as specific setting of card spending profiles, make sure proper discounts are granted by suppliers, and provision of detailed tax information.

With regard to payment method there is no doubt that the P-Card, coupled with the Internet, has a significant advantage over traditional payment methods. Presently, 90 percent of business-to-business payments are still processed with the costly check method. But as the credit card is a natural payment mechanism for business-to-consumer transactions, the P-Card has great potential as a payment method for business-to-business transactions (Giesen, 2002). For example, for a new internet company lacking a purchasing and billing system for issuing and accepting payments, the software capabilities developed by banks allows the integration of all P-Card information directly to the accounting system, representing an efficient business solution[4].

In addition, the major cards network offer protection and recourse to users in case errors or problems occur in a particular order (Fargo, 2001). With the traditional payment method, when a check is drawn from a checking account the money is gone, increasing difficulties negotiating with the other party if errors or problems take place.

7.2 Validation and practical experience from the field

To obtain inputs from a practical experience, an interview with a manager of an accounts payable unit of a large Canadian university that implemented a P-Card system has been conducted. The interviewee, who has more than 15 years of experience in the domain of accounts payable, answered a list of open-ended questions on cost reduction, information availability and controls, and P-Card usage. The outcome is reported below.

In regard to cost reduction, the interviewee does agree with the estimates in savings per transaction, but does not agree with the estimates of savings in staff. Other activities have to be performed by the payable unit to support the P-Card transactions, so employees have been reallocated to other functions. The job design of some employees changed to perform more productive tasks such as data analysis to examine spending patterns, making their work more interesting. There is no intention in the unit to lay-off employees but rather to direct their attention to more motivating tasks such as identify preferred suppliers to then negotiated discounts and save money. Overall, traditional boring payable activities previously performed have been changed to more challenging and creative functions, which improve employees' morale and permit to utilize more employees' ability.

To reduce costs, the interviewee suggests two advices. First, make a careful analysis of business solutions offered by banks/cards issuers, as these players may propose options that are not always in the best interests of the firm. They have the resources to package business solutions that fit the firm's needs. Managers from the accounts payable unit must, therefore, be aware of all possible electronic business options to negotiate the best conditions. Second, stay away from writing checks, the

most costly step in the payable process with estimates of around \$40; the use of electronic payment is key to obtaining savings.

For the information provided, the interviewee reported that 80 percent of its suppliers do not support Level 3, which has an impact on the degree of P-Card usage, and do not see how in a near future this percentage could significantly drop (this higher percentage applies to the interviewee's specific business context). On a more positive note, in a demonstration of its P-Card system the interviewee showed how the information is provided on-line and in real-time for analysis. The interviewee demonstrated how making changes in spending profiles for each card is easy – limit amounts per transaction, to specific code vendors, etc. – and put into effect rapidly. Integration of data transactions with the AIS has been successful for the unit, but with some minor modifications.

As a new element, the interviewee stresses the importance of the control environment and business policies – specifically, the organizational structure that defines the lines of authority and responsibility – and its impact on the level of P-Card implementation and utilization. In a decentralized structure, where team members are empowered to make purchase decisions without going through multiple levels of authorization, we should observe higher P-Card usage level and more open spending profile. The interviewee believes that the P-Card is more suitable for the corporate world where we find flat organizational structures. On the other hand, a centralized structure fits a lower level of implementation and usage. The interviewee believes that within a bureaucratic environment, issuance of P-Card is more limited to certain users. The view related here is that organizational structure drives P-Card implementation, a perspective requiring further investigations with a contingency framework.

8. Conclusion and suggestions for future investigations

This paper aimed to introduce the procurement card along with its functionalities, benefits, and applications. The use of P-Card allows employees to purchase needed goods/services without going through the regular authorization procedure. The P-Card is a low-risk, low-cost instrument that streamlines the purchasing process by reducing costs and freeing management auditors to perform more productive activities, along with allowing management control mechanisms to be set through specific user spending profiles.

P-Card technology certainly has potential and further investigations are required for a better evaluation of its tangible and intangible benefits, and for the implementation steps. First, only a few research projects have examined P-Card benefits and usage. Theoretical frameworks could be useful to explain the determinants of and outcomes from the adoption and usage of P-Card. Theory of innovation (Rogers, 1995) and contingency theory (Chenhall, 2003) could be pertinent. For instance, contingency variables such as size, business environment (dynamic versus stable), and organizational structure may have influence on P-Card utilization levels (Schaeffer, 2002; Davila *et al.*, 2003).

Second, studies on the P-Card system have used the survey method as the way to gather information, while interviews, observation, and system documentation examination should be performed to corroborate the survey results obtained. Longitudinal studies may also help to examine the evolution of P-Card technology, and its utilization in firms.

Third, P-Card experiences are mainly reported from the US, whereas the P-Card has not been initiated everywhere at the same time, so there are differences in P-Card implementation and utilization; for instance, the P-Card was introduced in Canada three years after its appearance in the US (Hintz, 1998).

Fourth, all benefits and costs of the P-Card are difficult to precisely quantify, and will, therefore, include estimates. Intangible benefits such as improved decision-making, better management control, or improved job satisfaction should be considered to provide more robust assessment of P-Card usage in cost reduction and other organizational benefits.

Finally, since careful planning is required for successful implementation, system analysis steps, such as an analysis of existing processes, must be followed. Moreover, the key players involved (management, suppliers, banks, users, and auditors) must actively participate in the P-Card project. From the existing literature, there is no evidence that attention has been paid to these implementation aspects, which may explain the level of utilization.

Notes

1. In the present paper, we use the term management auditors instead of internal auditors to emphasize the management control and decision-making roles they play.
2. Sarbanes-Oxley Act section 404 deals with the management audit function. Section 404 requires that a firm's annual filing must contain a management internal control report, including a statement of management's responsibility for establishing and maintaining adequate management control.
3. Lower interchange rates for larger transactions are reported to be an effective incentive for using the P-Card to buy manufacturing equipment with prices in four to five digits. For instance, Visa's actual interchange rate is 0.95 percent plus \$35 for transactions over \$5,000.
4. For instance, MasterCard Smart Data Online software allows firms to integrate P-Card transactions directly into the AIS, then to organize and analyze data via the Internet, and generate appropriate managerial reports.

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