

Prospects for the Chip-card Market in Canada

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A comprehensive analysis and forecast of the chip-card market in Canada, prepared by:

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EXECUTIVE SUMMARY

REPORT OVERVIEW

This report contains the findings of Technology Surveys International Inc.'s 1999 study into prospects for the chip-card market in Canada. The document provides strategic information regarding the market, including the following:

- An overview of the world chip-card market
- Technological trends and developments
- Prospects for chip-cards within major issuing sectors
- An assessment of the supply structure in Canada

THE WORLD CHIP-CARD MARKET

- The total number of plastic cards produced worldwide in 1998 was between 6.7 billion (ICMA estimates) and 7.7 billion (Nilson Report estimates) units. More than 160 companies were producing plastic cards throughout the world in that year.
- It is estimated that in 1999 some 1.8 billion chip-cards were produced worldwide. This represents a compound average annual growth rate (CAGR) of 32% per annum.
- The annual world production of chip-cards is expected to reach 6.1 billion units by 2005, representing a CAGR of 23% per annum.
- Financial applications of chip-cards are expected to be second only to GSM by 2005.
- Microprocessor cards are expected to account for 31% of all chip-cards produced throughout the world in 2005, with memory cards accounting for the remaining 69%.
- Canada's share of the world chip-card market is expected to grow from 0.26% in 1999 to 0.38% in 2004.

PROSPECTS FOR CHIP-CARDS IN THE MAIN CANADIAN MARKETS

- In 1999 there were some 5.1 million chip-cards in circulation in Canada. In that year approximately 4.6 million chip-cards were issued.
- Payphone cards accounted for more than three quarters of the chip-cards issued in 1999.

- The forecast number of chip-cards in circulation by 2004 is 35.0 million, with approximately 60% of those—some 21.1 million cards—being issued in that year.
- The forecast average annual growth in the number of chip-cards in circulation is expected to be almost 47% per annum over the period 1999 to 2004.
- The forecast annual average growth in number of chip-cards issued every year is expected to be 36% per annum over this period.
- The value of chip-cards issued every year is forecast to increase from \$9 million in 1999 to almost \$72 million, representing a compound average annual growth rate of more than 51% per annum.
- By 2004 the banking sector is expected to dominate the market, with 12.1 million payment chip-cards in circulation by then, representing 35% of the total base of cards in circulation. Approximately 40% of the total number of cards issued in Canada in 2004 will be issued by the banking sector.
- The telecommunications and broadcast sector is expected to account for about 31% of the cards issued in 2004, followed at some distance by cards issued by the retail sector (17%) and the provincial health sector (8%).
- More than 60% of the chip-cards issued in Canada in 2004 will be microprocessor cards, compared with 8% in 1999.
- The average prices of chip-cards issued in Canada is expected to increase over the forecast horizon, largely due to the shift to increasing usage of microprocessor cards.
- The total investment into chip-cards, terminals and services is expected to amount to some \$520 million over the period 1999 to 2004. More than two thirds of this investment is likely to be made in 2003 and 2004.

THE SUPPLY STRUCTURE

- Some 87% of the cards issued in Canada in 1999 were manufactured in Canada.
- Canadian companies are active in all tiers of the supply structure, but there is a relative dearth of systems integrators and professional services companies with experience in chip-card systems. This is largely due to the embryonic phase of market development.
- Awareness of chip-card suppliers is relatively low in all sectors but the banking sector.
- Canadian chip-card manufacturers are becoming more vertically integrated, offering more in the way of services to support chip-card application development.
- The global nature of the chip-card market is likely to result in intensified competition in the Canadian marketplace as the market starts to develop.

INTRODUCTION

BACKGROUND TO THE STUDY

Chip-cards have been around for many years, indeed for a few decades, but have failed to achieve a foothold in what was once thought to be the lucrative North American market. This is largely due to the fact that North America, and in particular Canada, has one of the most advanced telecommunications infrastructures in the world.

Opinions are divided as to the appropriateness of chip-card technology for the Canadian market, given the strong telecommunications network, and sophisticated payments systems. Some organizations believe that there is little by way of a business case to commend the smart card, and they assert that the smart card is a solution waiting for a problem. The lack of historical development of the Canadian market reinforces this view. Others believe—sometimes with passion—that all that is holding the chip-card market back is a lack of vision and creativity in the marketplace.

Suppliers of chip-card technology are also unsure of where the market is heading. Many of them have done a great deal of groundwork to lay the foundation for market development. Investments have been made, but the return on those investments has been ever elusive. And the risk of further involvement appears to be high.

The result has been that some organizations have embraced chip-card technology with open arms, whilst others have shunned it. Consequently, the market has developed haltingly, in fits and starts, moving from euphoria to despair within the space of a few years. But we are on the eve of some significant decisions in the Canadian chip-card market. The market appears to be entering a phase of unprecedented growth, born largely out of what seems to be a compelling need for the payments industry to migrate to chip. And there are a number of other pockets of growth developing.

The purpose of this study was to investigate prospects for chip-card based systems in Canada. Technology Surveys International Inc. (TSI) believes that this study will go a long way to assisting issuers, developers and end-users in their decision-making regarding chip-card market development and technology. It is expected that vendors, too, will benefit from this project, by revealing the opportunities that exist in the Canadian marketplace, and directing them away from those that are more apparent than real.

This document contains the findings of TSI's extensive syndicated research into prospects for the Canadian chip-card market. It represents the most complete and comprehensive study of this

market conducted in Canada to date.

TSI would like to place on record its appreciation for the valuable support received from all respondents to this study. Each respondent's contribution to this research, not to mention their patience and sacrifice of time, contributed in no small measure to this report. We are also grateful to respondents for the confidential information which they entrusted to us.

Our special thanks go to the subscribers to this study, who provided the financial backing to this project. TSI believes that the information contained in this report will enhance their competitive position in the chip-card marketplace, and that the value to them will far outweigh their investment.

OBJECTIVES OF THE STUDY

The main aim of this study was to provide current and potential suppliers, issuers and developers of chip-card systems with strategic information regarding prospects for the chip-card market in Canada. The main objectives of the study were therefore to:

- Evaluate the Canadian marketplace in the context of the world chip-card market
- Examine worldwide trends in technology
- Investigate the most promising application areas in a Canadian context
- Analyze market prospects in key segments
- Identify strategic issues in the industry
- Examine the supply structure in Canada

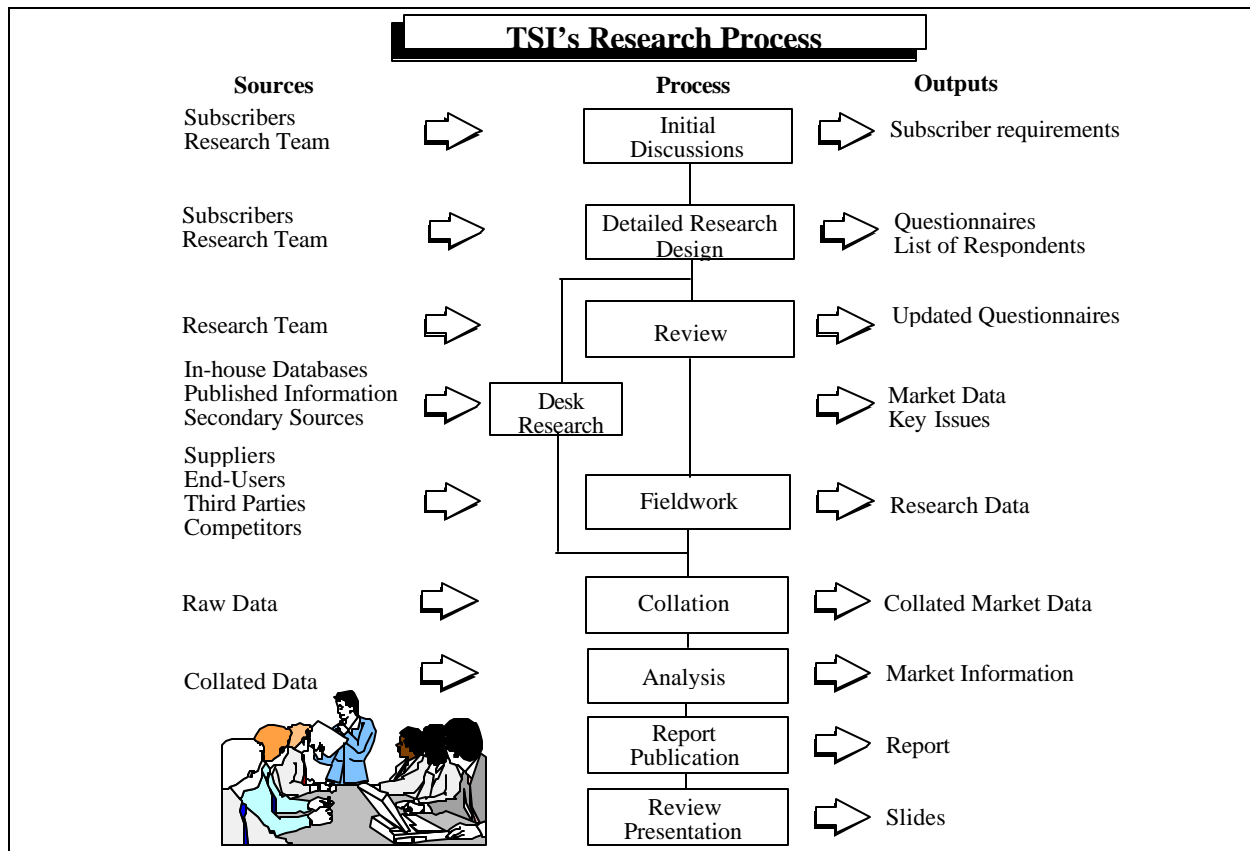
RESEARCH METHODOLOGY

The research process adopted during the execution of this study is shown in the figure below.

The following main activities were carried out.

- *Desk research:* TSI consultants carried out detailed desk research into the chip-card market, both at global and Canadian levels. This was done by reviewing the extensive database that TSI has built up over ten years as a result of the execution of other studies into chip-cards and payment systems over this period, as well as arising from the publication of Canadian Card News over the last five years. This database also includes information gathered from attendance at most of the major conferences and seminars relevant to the Canadian chip-card marketplace. In addition to these sources, a great deal of use was made of online sources for

information.



- Fieldwork:** Interviews were held with a wide range of respondents, and included end-users, issuers, local and foreign suppliers, consultants, developers, associations and systems integrators. In all cases, key decision-makers in respondent organizations were interviewed. In total some 176 interviews were conducted. Approximately 115 of these were highly structured interviews, using a standardized questionnaire in order to obtain comparative data for analysis. The remaining 61 were largely qualitative in nature. Twenty four of the interviews conducted were with suppliers of cards, systems or services.

The bulk of the interviews were conducted during the period August to November 1999. The table below shows the breakdown of interviews by sector.

Sector	Number of Interviews
<i>End-use Sectors</i>	<u>152</u>
Retail	28
Banking and Card Associations	22
Telecommunications, Cable and Satellite	14
Parking	11
Vending	10
Laundromats	10
Transit	10
Education	10
Corporate	10
Credit Unions	9
Provincial Government	8
Government	5
Insurance	5
<i>The Supply Structure</i>	<u>24</u>
Chip-card suppliers	5
Systems suppliers, developers and integrators	9
Terminal manufacturers	5
Other (associations, consultants, third parties)	5
Total	176

- *Analysis and Report Publication:* Data from interviews and the desk research process was then collated, analyzed and integrated into this comprehensive report on the Canadian chip-card market.
- *Presentation and Review:* Once subscribers have had time to study the report, they may, at their discretion, organize a review meeting with the research team.

CAVEATS

It should be noted that forecasting, by its very nature, cannot be an exact science. The forecasts presented in this document represent what we believe to be the best view of the Canadian chip-card market available to date. These forecasts have been prepared based on extensive interviews with key decision-makers in the marketplace, coupled with our own experience in analyzing technology markets.

It should, however, be noted that the chip-card market is highly dynamic. Furthermore, decisions can change overnight, and unpredictably so. While we believe that the information contained in this document to be as accurate as is possible for a survey of this nature, TSI accepts no liability for any errors, inaccuracies or omissions.

CURRENCY

It should be noted that all revenue and investment figures included in this report are presented in Canadian dollars (CDN). At the time of publication one Canadian dollar was worth 0.688 US dollars (USD).

STRUCTURE OF THE REPORT

This report is divided into the following main sections:

- Introduction
- World Chip-card Market Overview
- Technological Trends and Developments in the Chip-card Market
- Canadian Chip-card Market Summary
- Prospects for Chip-cards in the Banking Sector
- Prospects for Chip-cards in the Retail Sector
- Prospects for Chip-cards in Vending
- Prospects for Chip-cards in the Telecommunications and Broadcast Sector
- Prospects for Chip-cards in the Health Sector
- Prospects for Chip-cards in the Transit Sector
- Prospects for Chip-cards in the Education Sector

- Prospects for Chip-cards in Other Sectors and Applications
- The Supply Structure