

**Bank of Israel**

Accounting, Payments and Settlement Systems Department  
Payment and Settlement Systems Division  
Payment Systems Oversight Unit



# Principles and Complementary Steps in the Development and Use of a Protocol for Payment Card Transactions

July 2016



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### 1. Executive Summary

The interim report<sup>1</sup> published by the Bank of Israel in August 2015 on the “Payment Card Transaction Chain” (hereinafter, “the Report”) showed that all along the transaction chain there are barriers, which developed in the market for historical reasons, currently preventing the entrance of new players and the development of competition in the payment card market.

The report indicated that, among other things, the protocol<sup>2</sup> for terminals in Israel is defined, developed, distributed, and managed by Shva Ltd. (the Hebrew acronym for Automated Banking Services); that it provides exclusive and direct contact from the terminals to Shva, and that it is not accessible to entities that may compete with it or with the credit card companies.

The Report recommended a series of steps aimed at removing the existing barriers and opening the market to competition in various segments of the transaction execution chain, while avoiding the determination of a market structure and market design.

In accordance with the Report’s recommendations, a Payment Card Committee was established, whose goal is to discuss the professional and technological issues related to the manner of activity and the rules for executing transactions in the payment card network<sup>3</sup>. The Committee includes representatives of the various entities in the payment card market—such as Shva, the banks, distributors, manufacturers, acquirers and issuers.

The first goal assigned to the Committee was the definition of the principles and rules for developing and using the protocol (hereinafter, “the Protocol Principles”) in a manner that will reflect the interests of the players in the market, while balancing the business needs of the participants with systemic considerations and ensuring transparency and access of the protocol to all the relevant entities.

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<sup>1</sup> <http://www.boi.org.il/en/NewsAndPublications/PressReleases/Pages/03-08-2015-SwitchReport.aspx>

<sup>2</sup> The technological specification and message structure for the transfer of information about a payment card transaction between the factors in the payment card transaction execution chain.

<sup>3</sup> The Payment Card Committee began its work in December 2015.

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This document presents the Protocol Principles, which were formulated at the Bank of Israel in a joint effort with various entities in the payment card market. This is within the framework of the Payment Card Committee's discussions. These principles refer to various issues—including the protocol's base, development, usage rights, and the establishment of the policy regarding the issues to be included in the protocol.

This document also includes recommendations for complementary steps to implementation of the principles, whose goal is to ease the entrance of new players into the transaction execution chain, in view of the market structure and historical manner of payment card system activity.

The recommended Protocol Principles establish that it should be based on the EMV protocol currently implemented in the market, and its development, to the extent possible, should adopt or support international standards. With that, various decisions, including reference to policy that will be implemented in the protocol, the pricing model and the manner of the protocol's use will be established and overseen by the Bank of Israel within the framework of the Payment Card Committee.

The recommendations regarding the complementary steps to implementing the protocol are critical to leading the change in the market and include steps that will allow the entry of new players while maintaining, to the extent possible, the existing advantages. The complementary steps establish the role of Shva in providing support to new players, the commitment of all the players to allow merchants to switch between acquirers and the requirement that the infrastructure in businesses will support the addition of new players.

It should be emphasized that the goal of the protocol principles and the recommendations for complementary steps is to create conditions in the payment card market that will enable new players to enter all along the entire transaction execution chain, while avoiding intervention in the market structure. Nonetheless, if the desired changes have not developed after three years from the date of implementation of the principles, the need for taking active complementary steps to change the current structure will be considered<sup>4</sup>.

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<sup>4</sup>Legislative amendments and changes, the obligation to connect to all processors and switches, infant industry protection for new players, which includes limiting or prohibiting certain activities by Shva.

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## **2. The principles for development and use of the protocol**

**Clarification:** The reference to protocol in this document is to its specification—that is, its technical and business logic—and not to the Source Code of its implementation.

### **2.1. The base of the payment card protocol in the Israeli market (hereinafter, “the Protocol”)**

- 2.1.1. The Ashrait EMV protocol was written based on the Ashrait 96 protocol and serves the entire payment card market in Israel.
- 2.1.2. The Protocol Principles (listed in this document) will be implemented in the “Ashrait EMV” protocol, which will serve as a base for the manner of operating in the payment card market. A brand new protocol will not be written.

### **2.2. Operation of the Protocol**

- 2.2.1. Due to the expertise and knowledge at Shva regarding all aspects of operating the protocol, and in view of the many changes taking place in the payment card market, there is, at this stage, an advantage in continuing the protocol’s operation by Shva.
- 2.2.2. Shva will operate the protocol for three years from the date these principles are approved. At the end of that period the Bank of Israel, though the Payment Card Committee will examine which entity will operate it.
- 2.2.3. It should be emphasized that the operator of the protocol will not establish its policy, structure, and content. The specifications of the protocol will be set vis-à-vis its operator, while the Source Code can be developed by another entity that is not the operator.

### **2.3. Exposure to the protocol**

- 2.3.1. The information that is in the protocol is to be accessible to system users, authorities, and the general public; this is so that it can serve interested parties as a decision-making basis. However, access to the protocol will not be granted in full or automatically.

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- 2.3.2. The information in the protocol, which in the judgement of its operator and following a discussion in the Payment Card Committee, does not pose a risk to the payments system, will be accessible and available to the general public through the Internet.
- 2.3.3. All other information (hereinafter, "Sensitive Information"), such as that related to information security and to encryption, shall be accessible to interested parties—subject to signing a uniform confidentiality agreement, which will be presented to the Payment Card Committee and will be subject to the oversight of Payment Systems Oversight at the Bank of Israel.

### **2.4. Use of the protocol**

- 2.4.1. All stakeholders, private or public, will be permitted to use the protocol in accordance with their business and technological requirements (on condition that they are consistent with systemic considerations—business continuity, reducing risk of fraud, information security, etc.)—subject to signing the confidentiality agreement and participating in the costs of operating the protocol.
- 2.4.2. Use of the protocol will also be possible through routing alternatives that do not pass through Shva in every segment along the payment card transaction chain.
- 2.4.3. Parts of the protocol will be able to be used and implemented, even without Shva, at various stages along the chain, in accordance with the principles detailed in this document.

### **2.5. Costs**

#### **2.5.1. Costs of review, use, and support**

- 2.5.1.1. Reviewing the protocol will not incur a financial cost.
- 2.5.1.2. Protocol users will bear the cost of its use<sup>5</sup> in accordance with the economic/business model to be established by the operator. The model will be discussed in the Payment Card Committee and will be overseen by Payment Systems Oversight at the Bank of Israel. This is in order to verify fair and equitable pricing.

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<sup>5</sup> Operating and other costs.

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- 2.5.1.3. Support costs: The costs of support and explanations will be paid to the protocol's operator in accordance with the number of hours of support requested.
- 2.5.1.4. The provisions of this section do not restrict the authority of another supervisory entity regarding the supervision of the costs that will be set.

### **2.5.2. Timetables for implementation of changes in the protocol**

- 2.5.2.1. The specification and development of the protocol deriving from the requirement of a regulator in Israel, directives of an international authority, directives of the Payment Card Committee, legislation, or from an Israeli court ruling are to be carried out in accordance with organized timetables and work plans, and not later than the date to be set by such requirement.
- 2.5.2.2. The commitment of stakeholders to meet these requirements will be a condition for use of the protocol.

## **2.6. Protocol development policy**

### **2.6.1. International standards**

- 2.6.1.1. The complexity of the domestic protocol relative to international standards derives mainly from domestic flavors of the unique characteristics of the payment card market in Israel (such as the use of "installments") and due to risk management at the terminal. The scope of the domestic flavors is a function of the balance between support for domestic needs and excess differentiation, which is liable to negatively impact the efficiency of the payment card system and to increase barriers to entry into it.
- 2.6.1.2. Adopting accepted and widespread international standards in the various segments or support of them will help reduce the transaction costs and the development costs of the protocol. Therefore the development of the protocol will be based on such standards.
- 2.6.1.3. To the extent possible, international standards will be adopted or supported. This is while maintaining the ability for private labels to exist.
- 2.6.1.4. The protocol will be written in Hebrew and in English. Should there be a inconsistency between the Hebrew and English versions, the Hebrew version will prevail.

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### 2.6.2. Future changes

2.6.2.1. The protocol will be developed in a manner that will support the implementation of future changes in efficiency and effectiveness.

### 2.6.3. Modularity of the protocol, required and optional components

2.6.3.1. The protocol will be modular, to enable users to choose which services they want to provide—partial or complete implementation.

2.6.3.2. To enable partial implementation of the protocol, the following are needed:

2.6.3.2.1. Definition of the required components of the protocol

2.6.3.2.2. Specification of the partial implementation

2.6.3.3. Within the framework of the Payment Card Committee, the required components and the optional components that can be implemented in the protocol will be established, and the specifications for partial implementation will be delineated.

### 2.7. Implementation of the protocol at the terminal or remote server

2.7.1. The protocol will support its implementation via remote server.

2.7.2. The implementation via remote server will be carried out subject to the implementation of the required components that will have to be at the terminal itself. The components required to be implemented at the terminal will be specified within the framework of the Payment Card Committee.

### 2.8. Central specification of the protocol

2.8.1. Due to the desire to maintain a uniform protocol, which will allow easy interoperability, the protocol operator will draw up a central specification for each segment<sup>6</sup> along the payment card transaction chain.

2.8.2. **Business/commercial needs** that are a trade secret and are not relevant to the entire market shall be managed by the protocol operator within the Addendum<sup>7</sup> in a central manner and in such manner that the information in it will not be exposed to all players, but

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<sup>6</sup> Central specification for the transaction approval stage and the transaction execution stage. The specifications of the protocol in the various segments do not have to be identical.

<sup>7</sup> A message attached as an appendix to the Protocol.



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only to those to whom the field in the Addendum has been allocated. The implementation of the business/commercial needs will also require implementation in the segment of software designated to support of the content of the Addendum. The goal of this process is to avoid contradictions that are liable to be created when implementing unique elements in identical fields by various entities. The operator of the protocol will manage the distribution of fields in the Addendum, but not the information and activities related to it.

- 2.8.3. The protocol operator shall act in a transparent and fair manner, without discrimination or bias when responding to participants' needs. The protocol operator shall establish a procedure for the manner of dealing with requirements for specification in the protocol. The procedure will be presented in the Payment Card Committee and will be overseen by Payment Systems Oversight.

### 2.9. Making decisions—policy and development

- 2.9.1. There are two types of decisions related to the protocol: a **policy decision**—material decisions regarding the specifications that go into the protocol, which impact on the entire market; and **operational/technological decisions** regarding the development of the protocol—that is, the manner of implementing these specifications.
- 2.9.2. In the switch from the “Ashrait 96” protocol to the “Asharait EMV” protocol, a “Technology Committee” was established, with the authorization of the Director General of the Israel Antitrust Authority. The Committee’s function was to delineate the specifications of the protocol, from both a business perspective and an operational/technological perspective. Members of the Committee included acquirers, issuers, and candidates for receiving an acquirer’s license.

#### 2.9.3. Making policy decisions

- 2.9.3.1. Decisions regarding policy of development of the protocol, as they are relevant to the entire market, will be made within the framework of the Payment Card Committee, composed of representatives of various stakeholders in the market, in line with the mechanism set for it.

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2.9.3.2. The Committee's decisions will be reached while balancing the objectives of promoting the market (innovation, adjustments, accessibility) with considerations of stability and safety of the payments system.

### **2.9.4. Making operational/technological decisions**

2.9.4.1. A permanent committee will be set up, under the auspices of the Bank of Israel. The Committee—the Protocol Committee—will be a subcommittee of the Payment Card Committee, and will make the operational/technological decisions on issues deriving from the implementation of the policy decisions and from the timetables for implementing them.

2.9.4.2. The Committee will be made up of representatives of acquirers, issuers, processors, and switches operating in Israel throughout the transaction execution chain, that will be voting members, and of representatives of other stakeholders in the protocol (such as Payment Gateway service providers, manufacturers, distributors, international organizations) who will be nonvoting observers.<sup>8</sup>

2.9.4.3. The Bank of Israel will serve as an observer on the Protocol Committee, with a veto right on its decisions. The Committee's decisions will be reached by majority vote, and in a case of a tie vote regarding a particular decision, the determination will be made by the protocol operator, which will be present on a permanent basis at Committee meetings.

2.9.4.4. Implementation decisions of the Protocol Committee will be carried out in accordance with this Document of Principles and in accordance with the policy decisions that will be made in the Payment Card Committee. These implementation decisions will be presented on a regular basis in the Payment Card Committee before they are implemented.

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<sup>8</sup> Participation as an observer will be allowed by authorization of the Bank of Israel, and to the extent necessary a mechanism of representatives—who will change every two years—will also be put into place,

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### 3. Complementary steps

The implementation of the full range of the Protocol Principles is intended to remove, to the extent possible, the barriers that are identified in the market. However, for historical reasons related to the market structure and methods of operation, it appears that to facilitate the entry of new players into the transaction chain, complementary steps are needed, and these will be detailed below.

#### Recommendations for a series of steps that will accompany the implementation of the principles:

#### 3.1. Switching Acquirers

3.1.1 A central processor that manages acquirer transfers for all the terminals eases the entry of a new acquirer and of transfers between acquirers, but makes it more difficult for the entry of new players in specific segments, particularly in processing services for acquirers and the switch.

3.1.2 It is important to maintain the competition over switching acquirers at a merchant and the ease of switching, but it should be verified that these do not serve as a barrier to the entry of new players throughout the transaction execution chain.

3.1.3 Acquirers and processors (existing and new) are to act in a manner that will allow the merchant to switch acquirers in a reasonable and competitive manner.<sup>9</sup>

#### 3.2. Support (by Shva) of the entry of new players

3.2.1 In order to enable the development of the market in stages, the entry of new players (processor, switch)—who are interested in carrying out some of the functions listed in the protocol vis-à-vis one or more acquirers—should be eased.

3.2.2 It will be possible for new players to receive complementary services from Shva (see Appendix B) as well as from any other processor they choose to support the provision of such services.

3.2.3 The receipt, cost and timetable for development of those services are dependent on the specific needs of each player, and will be set on an individual basis vis-à-vis each processor-supporter.

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<sup>9</sup> For example: Terminals supporting remote software installation, switching acquirers, managed within the processor, converting the transmission and support for split dial.

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### **3.3. Merchant infrastructures**

To enable new players to enter the domestic market, the infrastructure (hardware and software) at the merchant must support the entry of new players. Therefore, the infrastructure at merchants must support multiple applications and EMV.

3.3.1 A terminal supporting multiple applications at the hardware level allows the entry of players and the addition of new paths for approving the transaction.

3.3.2 Currently, support for new acquirers and issuers is only possible on the basis of the Ashrait EMV system. Therefore, in order for a new acquirer to be able to provide acquiring services to a merchant, the terminal infrastructure at the merchant must support the execution of EMV transactions.

## **4. Implementation of the principles and complementary steps**

Due to the structure and complexity of the payment card market in Israel, the implementation of all the principles and complementary steps (hereinafter, "the Recommendations") is a long process, that will take place gradually. However, it is important to immediately begin the implementation of some of the Recommendations. The order of implementation of the Recommendations will be established by the Bank of Israel through consideration of the range of activities that the various players need to carry out, the various requirements of existing and new players, additional regulations and the operational capabilities of the various players.

The implementation of the Recommendations will be promoted within the framework of the Payment Card Committee. With that, it should be noted that a large part of the Recommendations will be implemented by Shva.

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### Appendix A: Definitions

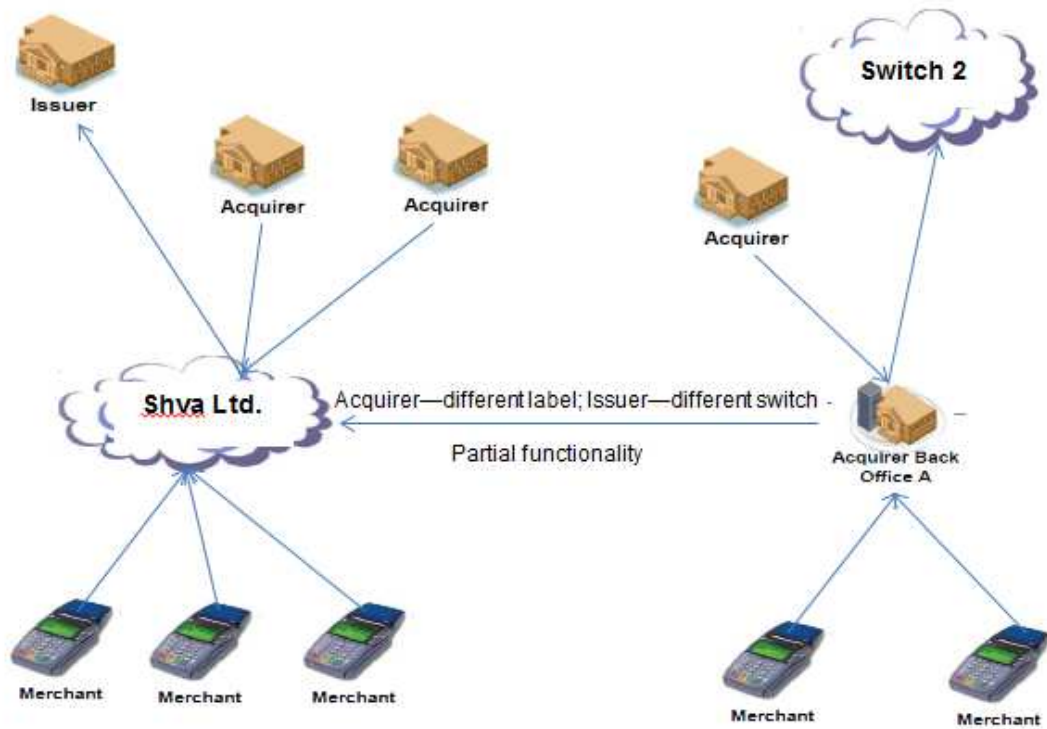
<b>Specification of the Protocol</b>	The definition of the business and technological logic according to which the protocol operates.
<b>Manufacturer</b>	A company that provides end equipment for acquiring transactions at the business, including hardware and software, in accordance with the specifications generally used in the market.
<b>Issuer</b>	A financial institution that provides payment cards to its customers, approves payment transactions or cash withdrawals, and guarantees payment to the acquirer for approved transactions.
<b>POS</b>	Point of Sale—a device located at the merchant, which allows the reading of payment card details and processing the request for executing a card transaction.
<b>Processor</b>	An entity that executes the technical operations required for dealing with a transaction on behalf of an acquirer and/or issuer.
<b>Distributors</b>	In Israel—companies that market the Ashrait PC software.
<b>Payment card switch</b>	The infrastructure linking issuers and acquirers for transaction approval and settlement.
<b>Protocol operator</b>	The entity responsible for implementing the specifications of the protocol in accordance with the decisions of the Protocol Committee.
<b>Acquirer</b>	The entity that links the merchant and the issuer, and enables the merchant to accept payments from card holders through the issuer. The acquirer is responsible for guaranteeing the payment and transferring it to the merchant.
<b>Development of the Protocol</b>	The activities and processes that promote, improve, and increase the sophistication of the specification of the Protocol.
<b>Protocol</b>	Technological specification and message structure for the transfer of a transaction between the factors in the payment card transaction execution chain.
<b>EMV</b>	Europay, MasterCard, Visa—A set of specifications developed by the EMVco consortium to provide a uniform and secured specification for an electronic payment transaction via payment cards where the card is presented at the merchant.

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## Appendix B: Support (by Shva) for the entrance of new players





**Appendix C: Example of market structure that can be formed after the implementation of the principles and complementary steps**

