# Message Formats for the Interoperability Standard

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# Presentation Outline

- Status Quo
- What is ISO 8583?
- Features supported by Interoperability Standard Document
- ISO 8583 Format
- Sample Message Format

# Status Quo

- Payments happen across multiple systems and networks
- Banks in India follow SFMS and ISO 8583
- SFMS (Structured Financial Messaging Solution )
  - follows SWIFT and ISO 7775
  - **ISO8583:2003** is the latest messaging standard

# What is ISO 8583?

- ISO 8583 is a standard for systems that exchange electronic transactions made by cardholders using payment cards

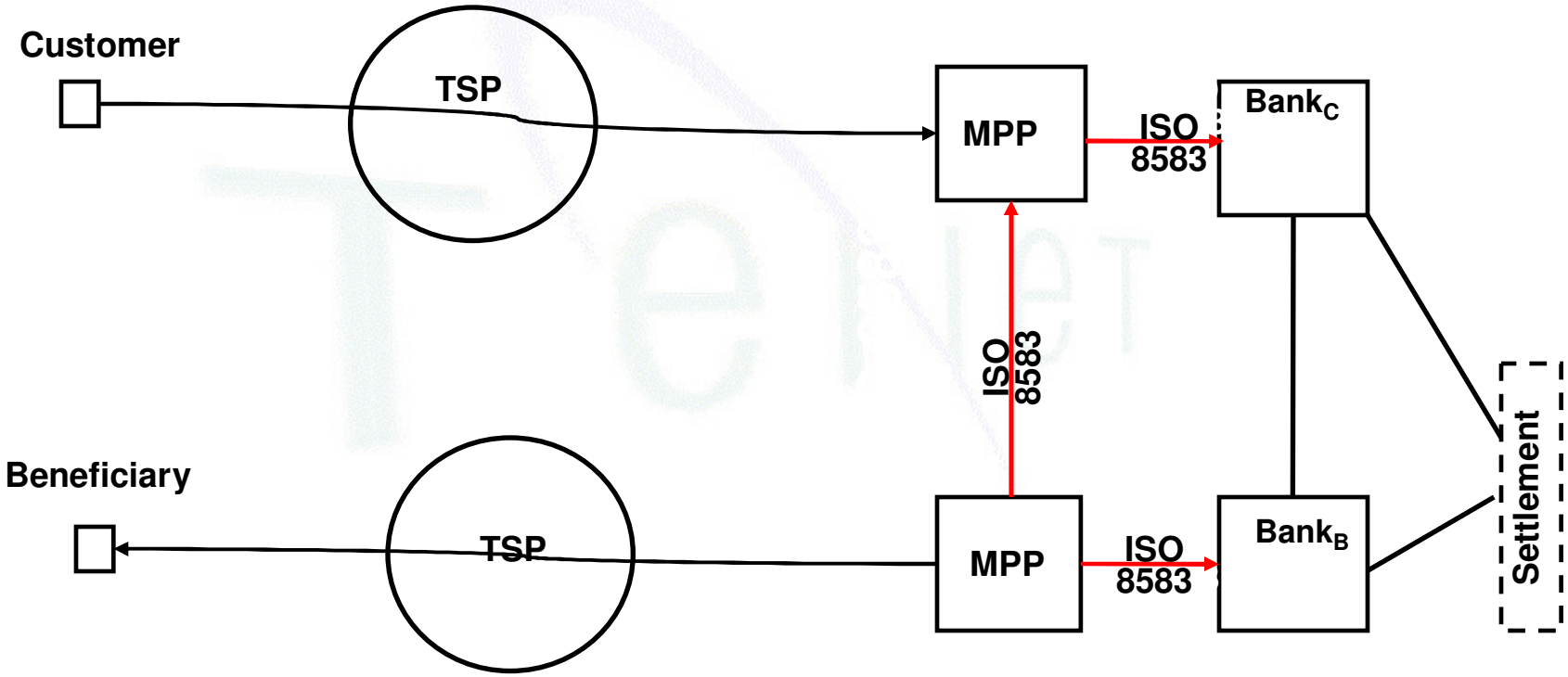
- ISO 8583 messages
  - Can be used for both financial and non-financial messages
  - Allows variations by different groups of users

- Versions of the ISO 8583
  - **ISO8583:1987**
  - **ISO8583:1993**
  - **ISO8583:2003**

# Features in Interoperability Standards

- The interoperability standards document supports version ISO 8583-1:2003
- Message formats standardised between
  - MPP to MPP
  - MPP to Bank

# Message Flow

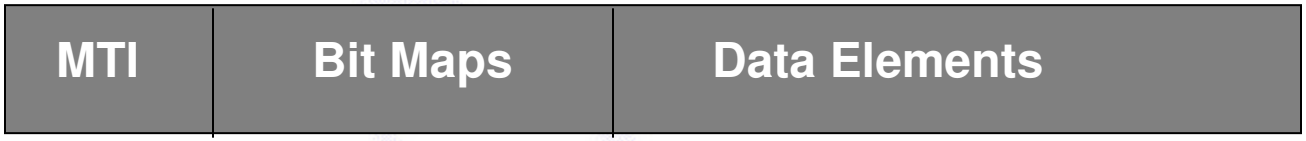


# Message Format support

- Payment Types
  - Bank Accounts
  - Prepaid cards
- Transaction Types
  - Merchant payments (sales)
  - People to People  money transfers
  - Balance enquiries

# Structure of an ISO 8583 message

## ISO messages have three parts




- Message Type Indicator (MTI)
  - 4 digit code
- BitMaps
  - Indicates which data elements are present
- Data Elements
  - the fields of the message

# Message Type Indicator

- MTI is represented by “ABCD”
  - A-Version Number
    Example: 0- 1987 Version, 2-2003 Version
  - B-Message Class
    Example: 2-Financial presentment, 4-Reversal
  - C-Message Function
    Example: 1-Request Response, 0-Request
  - D-Transaction Originator
    Example: 0-Acquirer
- For example in the standard we use MTI 2200 as transfer Request

# Data elements

- These fields carry the transaction information
- Each message class has a defined set of data elements
- Data elements in a message class can be
  - Mandatory/ Optional/ Conditional
- A message may / may not have all data elements of its Message Class

# Data Fields

- Data Fields
  - Fixed Length
    - Numeric, Alpha Numeric and binary
  - Variable Length
    - Max Length 99- Numeric, Alpha Numeric and binary
    - Max Length 999- Numeric, Alpha Numeric and binary

ISO 8583 is not specific about how a given field is represented. Numeric field can be represented as ASCII ,EBCDIC,BCD …

# The Bit Map

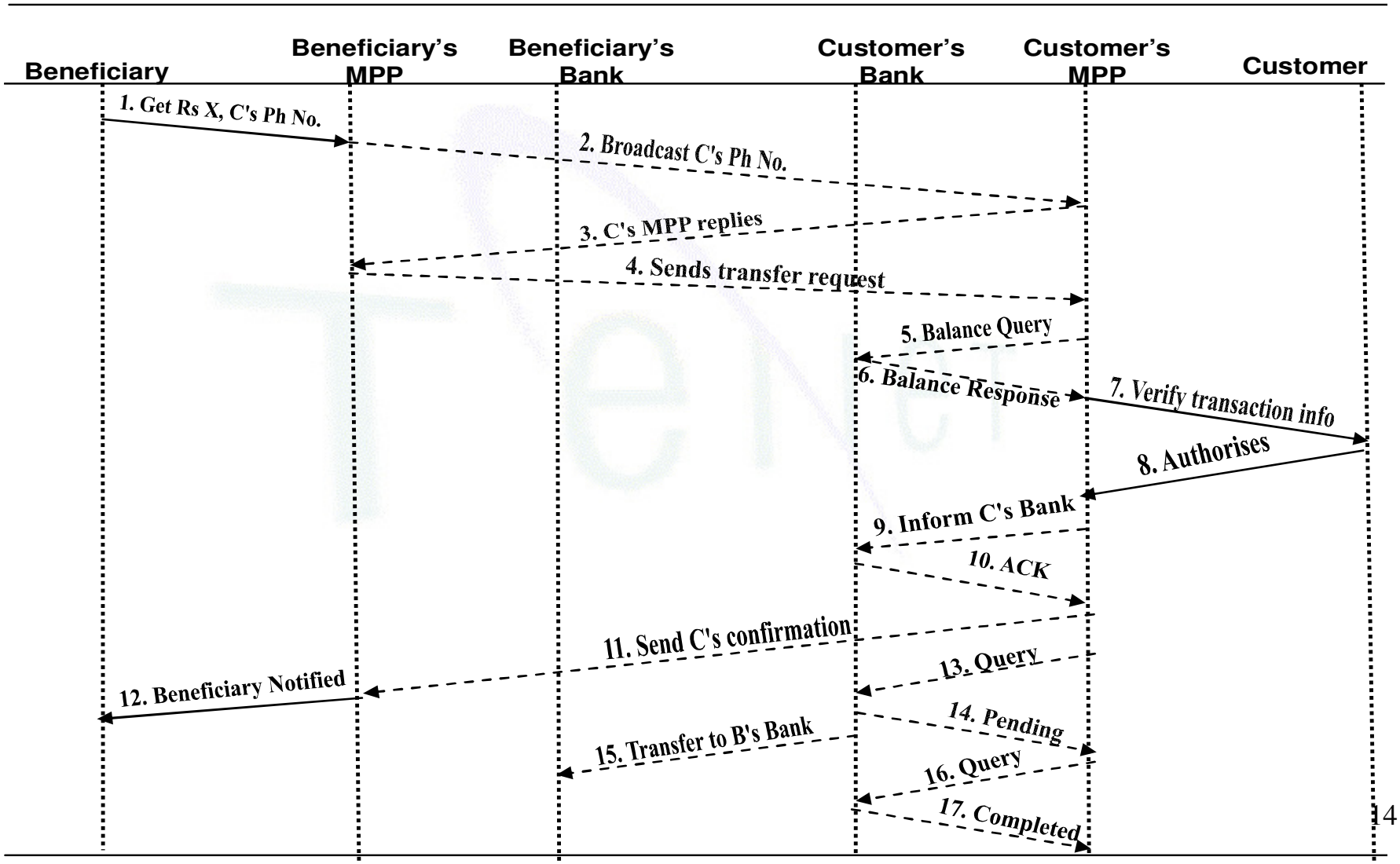
- An ISO message has a Primary Bit Map
- It may have a Secondary Bit Map
- The bitmap may be transmitted as 8 bytes of binary data, or as 16 hexadecimal characters in the ASCII or EBCDIC character sets

# Primary Bit Map

| byte | hex value | bit value | field # |
|---|---|---|---|
| 0 | 20 | 0010 0000 | 3 |
| 1 | 20 | 0010 0000 | 11 |
| 2 | 00 | 0000 0000 | |

| byte | hex value | bit value | field # |
|---|---|---|---|
| 0 | A0 | 1010 0000 | secondary bitmap present plus #3 |
| 1 | 20 | 0010 0000 | 11 |
| 2 | 00 | 0000 0000 | |

# Pull Method


Beneficiary
Beneficiary's MPP
Beneficiary's Bank
Customer's Bank
Customer's MPP
Customer
1. Get Rs X, C's Ph No.
2. Broadcast C's Ph No.
3. C's MPP replies
4. Sends transfer request
5. Balance Query
6. Balance Response
7. Verify transaction info
8. Authorises
9. Inform C's Bank
10. ACK
11. Send C's confirmation
12. Beneficiary Notified
13. Query
14. Pending
15. Transfer to B's Bank
16. Query
17. Completed

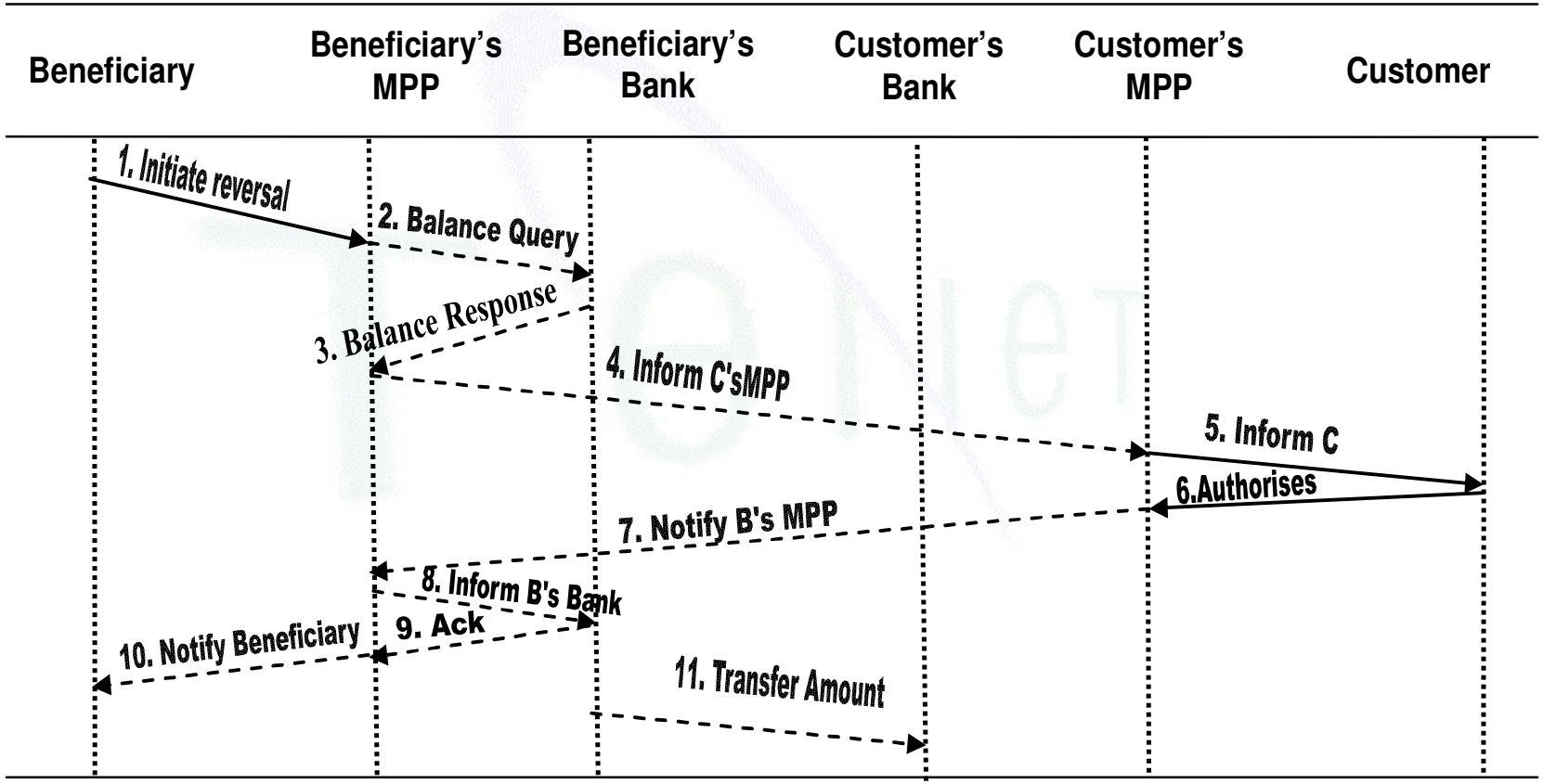
# MPP-MPP

| MPFI Field | ISO 8583 Field | Bit # | M/O | Msg 2 | Msg 4 |
|---|---|---|---|---|---|
| B's MPP Id | Acquiring institution identification code | 32 | M | Y | Y |
| C's MPP Id | PAN | 2 | | Y | Y |
| Amount | Amount Transaction | 4 | M | | Y |
| B's Name | Card acceptor name/location | 43 | M | | Y |
| C's Number | Target Number | 123 | | Y | Y |
| B's Number | Card acceptor name/location | 43 | M | Y | Y |
| C's a/c Number | Account identification 1 | 102 | | | Y |
| B's a/c Number | Account identification 2 | 103 | | | Y |
| C's Bank Id | Receiving institution identification code | 100 | | | Y |
| B's Bank Id | Forwarding institution identification code | 33 | | | Y |
| C's Name | Customer's name | 124 | | | |
| Transaction Id | Systems Trace Audit Number | 11 | M | Y | Y |
| Tx Date & Tx Time | Date and time local transaction | 12 | M | Y | Y |
| Control Field | Bit Map | 1 | | Y | Y |
| | | | | | |
| A series of codes intended to identify how a transaction completed at the POS. | Point of service data code | 22 | M | R | R |
| Code indicating the specific purpose of the message within its message class. | Function code | 24 | M | R | R |
| Code classifying the type of business being done by the card acceptor for this transaction (in accordance with ISO 18245). | Merchant category code | 26 | M | R | R |
| Code used to describe the effect of a transaction on the Customer account and the accounts affected. | Processing Code | 3 | M | R | R |

# MPP- Bank

| MPFI Field | ISO 8583 Field | Bit # | M/O | Msg 6(pull)/ 3(push) | Msg 10(pull)/ 13(push) | Msg 14,17(pull)/ 15,18(push) |
|---|---|---|---|---|---|---|
| B's MPP Id<br>C's MPP Id | Acquiring institution identification code<br>PAN | 32<br>2 | | Y | Y | Y |
| Amount | Amount Transaction | 4 | M | Y | R | R |
| B's Name | Card acceptor name/location | 43 | | | | |
| C's Mobile Number | Target Mobile Number | 123 | | | | |
| B's Mobile Number | Card acceptor name/location | 43 | | | | |
| C's a/c Number<br>B's a/c Number | Account identification 1<br>Account identification 2 | 102<br>103 | | Y | | Y |
| C's Bank Id | Receiving institution identification code | 100 | | Y | Y | Y |
| B's Bank Id | Forwarding institution identification code | 33 | | | | |
| C's Name | Customer's name | 124 | | | | |
| Transaction Id | Systems Trace Audit Number | 11 | | Y | Y | Y |
| Tx Date & Tx Time | Date and time local transaction | 12 | M | Y | Y | Y |
| | Bit Map | 1 | | Y | Y | Y |
| Response Code | Action code | 39 | M | Y | Y | Y |

# Beneficiary Initiated Reversal



# MPP-MPP

| MPFI Field | ISO 8583 Field | Bit # | M/O | Msg 7 |
|---|---|---|---|---|
| B's MPP Id | Acquiring institution identification code | 32 | | Y |
| C's MPP Id | PAN | 2 | | Y |
| Amount | Amount Transaction | 4 | M | R |
| B's Name | Card acceptor name/location | 43 | | |
| C's Number | Target Number | 123 | | |
| B's Number | Card acceptor name/location | 43 | | |
| C's a/c Number | Account identification 1 | 102 | | |
| B's a/c Number | Account identification 2 | 103 | | |
| C's Bank Id | Receiving institution identification code | 100 | | |
| B's Bank Id | Forwarding institution identification code | 33 | | |
| C's Name | Customer's name | 124 | | |
| Transaction Id | Systems Trace Audit Number | 11 | | Y |
| Tx Date &<br>Tx Time | Date and time local transaction | 12 | M | Y |
| | Bit Map | 1 | | Y |
| Response Code | Action code | 39 | M | Y |

# Thank You