NACHA ISO 20022 Strategy for the ACH Network

ISO 20022 Overview

What is ISO?

- The International Standards Organization
- The U.S. is a member and contributor through the Accredited Standards Committee (ASC) X9

What is ISO 20022?

- A harmonized set of messaging standards across major financial services domains – Payments, Securities, Trade, Card and FX
- Based on a shared data dictionary and business process model
- Freely available to all members of the financial services community
- Foundation of SWIFT's future standards development (SWIFT MX)

NACHA's ISO 20022 Strategy for the ACH Network – Definitions

- ISO 20022 ACH Integration
  - Industry tools and solutions that allow ACH users to <u>translate</u> and <u>integrate</u> the ISO 20022 Payment Message standard for both electronic payments <u>initiation</u> and payments <u>remittance</u> without making changes to the current ACH formats and with the support of the *NACHA Operating Rules*

- ISO 20022 ACH Conversion
  - The current ACH file formats are converted to ISO 20022 Payment Messages for all ACH payment types to all endpoints with the support of the *NACHA Operating Rules,* as revised to accommodate the different ISO formats or messages

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NACHA ISO 20022 ACH Integration Solutions

- **XML-ACH Remittance Opt-In Program**
  - Defines rules for the exchange of ISO 20022 formatted remittance messages (remt.00x) for B2B transactions in a standardized XML format
  - Expands ACH Remittance offerings from existing ability to support extensive remittance information to an option to support XML
- **ISO 20022 Mapping Guide & Tool**
  - Provides standardized guidance to facilitate translation of ISO 20022 pain.001 credit transfer payment messages into ACH transactions

NACHA participates in domestic and international forums to promote standardized ISO 20022 implementations for payments systems

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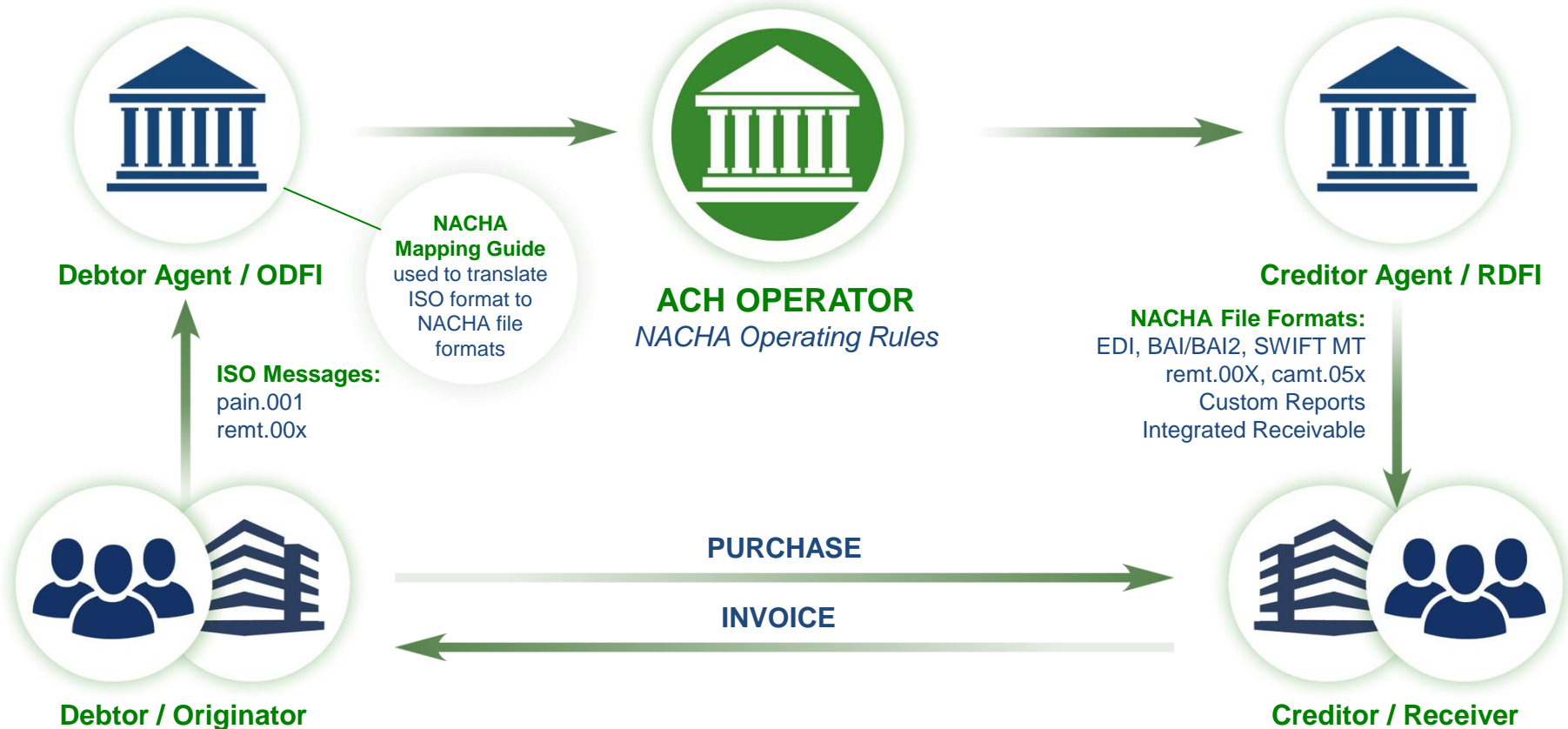The Electronic Payments Association®

NACHA ISO 20022 ACH Integration Solutions: What's Next?

- XML-ACH Remittance Rule
  - Initiate NACHA rulemaking process to transition XML-ACH Remittance Opt-In Program to requirement as part of *NACHA Operating Rules*
  - Continue outreach to the industry to gain feedback
- Enhance ISO 20022 Mapping Guide & Tool
  - Expand to support additional ISO messages and mapping to other ACH payments types
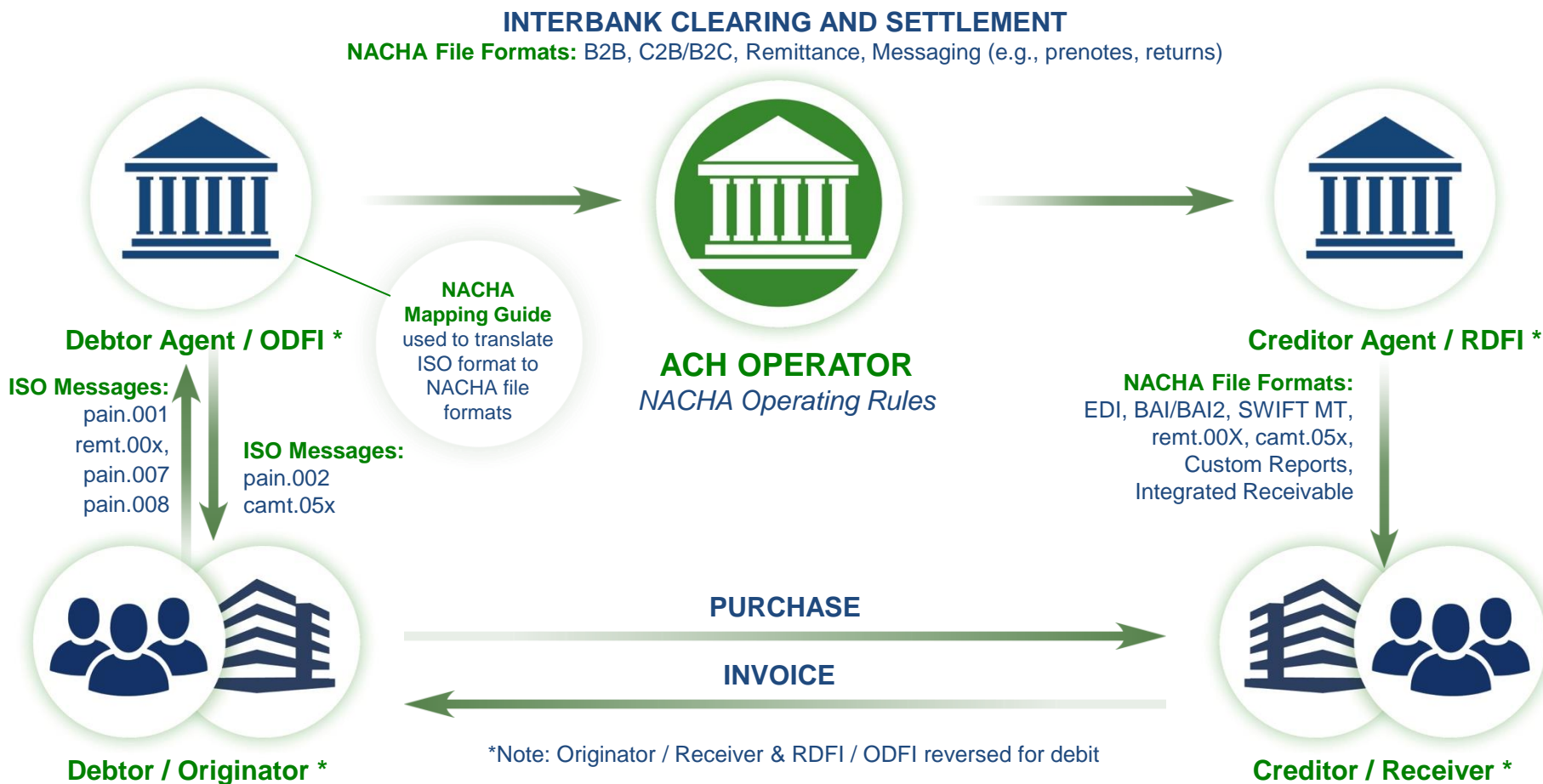
Available Now: ISO 20022 Integration with B2B Credit ACH Formats

INTERBANK CLEARING AND SETTLEMENT
NACHA File Formats: B2B Credit CCD, CTX, IAT and remittance

Debtor Agent / ODFI

NACHA Mapping Guide used to translate ISO format to NACHA file formats

ISO Messages:
pain.001
remt.00x

ACH OPERATOR
NACHA Operating Rules

Creditor Agent / RDFI

NACHA File Formats:
EDI, BAI/BAI2, SWIFT MT
remt.00X, camt.05x
Custom Reports
Integrated Receivable

PURCHASE

INVOICE

Debtor / Originator

Creditor / Receiver

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Next: Expand ISO 20022 Integration Mapping to All ACH B2B, C2B/B2C and Related Messaging SECs (Credit and Debit)

INTERBANK CLEARING AND SETTLEMENT
NACHA File Formats: B2B, C2B/B2C, Remittance, Messaging (e.g., prenotes, returns)

Debtor Agent / ODFI *

ACH OPERATOR
NACHA Operating Rules

Creditor Agent / RDFI *

NACHA Mapping Guide used to translate ISO format to NACHA file formats

ISO Messages:
pain.001
remt.00x,
pain.007
pain.008

ISO Messages:
pain.002
camt.05x

NACHA File Formats:
EDI, BAI/BAI2, SWIFT MT,
remt.00X, camt.05x,
Custom Reports,
Integrated Receivable

PURCHASE

INVOICE

Debtor / Originator *

*Note: Originator / Receiver & RDFI / ODFI reversed for debit

Creditor / Receiver *

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ISO 20022 ACH Conversion Exploration

- NACHA is a member of the ISO 20022 Stakeholder Group to better understand the specific U.S. needs for low and high value payment messaging and implications of replacing proprietary formats

- The Payments Innovation Alliance formed a ISO 20022 Task Force to identify potential use cases for converting the current ACH formats to ISO 20022 Payment Messages. They were asked:

  What could ACH Network users do better, faster or more efficiently

  with ISO 20022 vs. the current ACH formats?

  – Currently eight use cases have been identified

  – NACHA will continue to conduct industry outreach to obtain feedback on ISO 20022 ACH conversion use cases
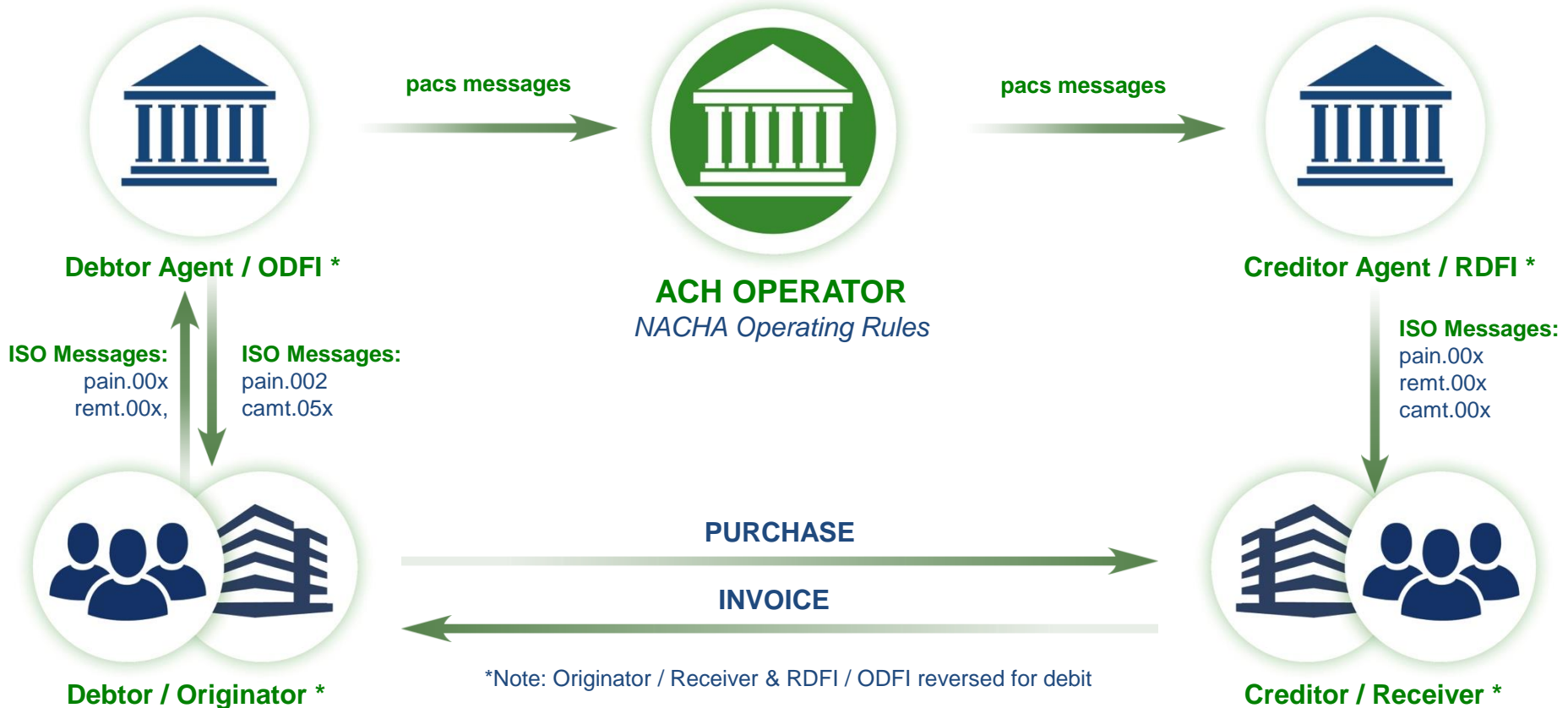
  NACHA participates in domestic and international forums to promote standardized ISO 20022 implementations for payments systems

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Will we convert the U.S. ACH to an ISO format?

- There are potential "triggers" or events that will influence decisions around when, if or how to convert the current ACH format to an ISO 20022 format
  - Significant gaps or opportunities are not met by ISO 20022 ACH Integration impacting users
  - The ACH operators complete significant system and operation modernization efforts that would create a catalyst for ACH format conversion
  - Adjacent systems that facilitate "STP" are updated to ease acceptance and utilization of ISO formats for all parties including accounting, banking and reporting systems for payments, and remittance included in the ACH flow
  - The benefits of ISO 20022 ACH format conversion justify the potential industry cost
  - Regulatory/mandatory requirements

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ISO 20022 ACH Format Conversion

INTERBANK CLEARING AND SETTLEMENT

Debtor Agent / ODFI *

pacs messages

ACH OPERATOR
NACHA Operating Rules

pacs messages

Creditor Agent / RDFI *

ISO Messages:
pain.00x
remt.00x,

ISO Messages:
pain.002
camt.05x

ISO Messages:
pain.00x
remt.00x
camt.00x

PURCHASE

INVOICE

Debtor / Originator *

*Note: Originator / Receiver & RDFI / ODFI reversed for debit

Creditor / Receiver *

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Integration and conversion activities may allow for investments over time

Integration

ODFI translates ISO 20022 (pain.remt) Payment Instructions to NACHA format using NACHA Mapping Tool and Guide

ODFI transmits NACHA formatted files to ACH Operators

Operators switch ACH formatted interbank messages example: CCD, CTX, IAT, etc.

Both

Originator sends ISO 20022 payment instructions (pain.remt.) to ODFI

ODFI receives ISO 20022 payments instructions for processing

RDFI delivers reporting to receivers in format options including EDI, BAI, SWIFT, ISO 20022

Payment receiver processes integrating reporting from RDFI

NACHA Operating Rules apply to financial institutions

Conversion

ODFI sends ISO 20022 (pacs) formatted to ACH Operator (switch)

Operators switch ISO 20022 (pacs) interbank payment messages

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ISO 20022 ACH Conversion Use Cases

- The Payments Innovation Alliance, representing participants of the U.S. ACH Network as well as electronic payment networks in other geographies, formed an ISO 20022 project team to assist NACHA in developing initial use cases for U.S. adoption of the ISO 20022 payments standard for ACH payments

- The project team identified existing and future pain points and opportunities in response to this:

  What could ACH Network users do better, faster or more efficiently with ISO 20022 vs. the current ACH formats?

Use Case 1: A Modern Programming Language

Issue with Current ACH Formats	Opportunity with ISO 20022 Payment Messages	Benefit for Using ISO 20022 for ACH Payments
The capabilities of modern systems are not designed to process fixed field formats without customization and knowledge of legacy processes, such as getting a flat file onto a Web page for customer approval online or to a beneficiary to reconcile invoice detail can be challenging.	XML is better suited to and makes the data more easily transportable with modern technologies. ISO 20022 XML is designed to support modern systems integration capabilities, resources and other software development languages or SDK's such as C#, Visual Basic.Net, Javascript, Ruby, etc.	• Improved integration with modern infrastructure and less need for customization • Better support for new payment software and innovation

Use Case 2: XML is more Human Readable

Issue with Current ACH Formats	Opportunity with ISO 20022 Payment Messages	Benefit for Using ISO 20022 for ACH Payments
Native ACH files do not carry data labels. In contrast, XML formats use descriptive tags that can make them easier to understand.	As newer generations enter the professional market, familiarity with native file formats such as NACHA or ANSI EDI will become less common, whereas XML will become broader in use.	XML can advance the learning curve as well as achieve synergies with other payment types migrating to this technology.

CCD Versus XML Example

Company / Batch Header Record "5"

	1	2	3	4	5	6	7	8	9
123456789012345678901234567890123456789012345678901234567890123456789012345678901234

Example Data

5200ABCD IMPORTS CR   1234567891CCD SUPPLIRPMT   15021 9000198765432 0000014

① ② ③

XML format with its descriptive tags is human readable and natively easier to understand and learn

CCD →

Company Entry Description →

Effective Entry Date

```
<PmtInf>
   <PmtTpInf>
     <LclInstrm>
       <Cd>CCD</Cd>          ①
     </LclInstrm>
     <CtgyPurp>
       <Prtry>SUPPLIRPMT</Prtry>    ②
     </CtgyPurp>
   </PmtTpInf>
   <ReqdExctnDt>2015-02-19</ReqdExctnDt>    ③
</PmtInf>
```

NOTE: This is only an extrapolation of part of a payment instruction

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Use Case 3: ISO 20022 Structured Data Facilitates Straight-Through Processing (STP)

Issue with Current ACH Formats	Opportunity with ISO 20022 Payment Messages	Benefit for Using ISO 20022 for ACH Payments
Today's legacy formats often require financial institutions to send the file for manual repair because the required information has been crammed into other fields than they were intended or populated the wrong fields.	With ISO 20022, each piece of data has a dedicated data element to facilitate scanning and processing.	The parsing of data fields provides a practical advantage particularly concerning enhanced risks and government compliance.

Dedicated ISO 20022 Fields Example

Discrete, consistent and user friendly fields facilitate parsing as well as investigation

NACHA File Format – IAT (715)

Field	Receiver Street Address
Field Inclusion Req.	M
Length	35
Contents	221b Baker Street

Receiver address is in separate addenda and/or combined fields

NACHA File Format – IAT (716)

Field	Receiver City & State / Province	Receiver Country & Postal Code
Field Inclusion Req.	M	M
Length	35	35
Contents	London	NW1 6XE * United Kingdom

```
<CdtTrfTxInf>
 <Cdtr>
    <Nm>Sherlock Holmes Company</Nm>
    <PstlAdr>
      <AdrTp>BIZZ</AdrTp>
      <StrtNm>Baker Street</StrtNm>
      <BldgNb>221b</BldgNb>
      <PstCd>NW1 6XE</PstCd>
      <TwnNm>London</TwnNm>
      <Ctry>United Kingdom</Ctry>
    </PstlAdr>
 </Cdtr>
</CdtTrfTxInf>
```

NOTE: There are additional data elements not shown above

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Use Case 4: Single Payment Instruction for All Payment Types

Issue with Current ACH Formats	Opportunity with ISO 20022 Payment Messages	Benefit for Using ISO 20022 for ACH Payments
Maintaining/creating unique payment instruction output to ODFI(s) for U.S. wire, ACH and card payment instructions for payments to U.S. trading partners via proprietary formats (as well as payments to be executed through other global systems) is costly and inefficient, and is currently limited to ANSI X12 format. Corporates wish to reduce cost and create efficiency by combining accounts payable functions for international and domestic ACH and wire transfer payments.	Corporates can send a single payment instruction to any financial institution for multiple payment types and eliminate the need to support proprietary formats for ACH and wire. The corporate payer can identify the payment type within the pain.001 payment instruction.	• Reduced corporate accounts payable staffing needs and increased efficiency by eliminating mapping requirement overhead • Increased flexibility for creating and maintaining banking relationships • Improved innovation opportunity

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Wire and ACH Payments Example

Use case: Originator needs to send separate files for ACH and wire payments today.

Amount ①

Account Number ③

Originator ⑤

Fedwire Message

```
{1510} 1000
{2000} $1,000,000                        ② Receiver ABA
{3400} 021030004*Gold Bank*CTR
{4200} 14170001*Austin Powers Inc.
{5000} Groovy Enterprises
{6000} PAYMENT*            ④ Receiver
```

NACHA File Format – CCD Record 5

Field	Company Name	Standard Entry Class Code	Effective Entry Date
Field Inclusion Req.	M	M	R
Length	16	3	R
Contents	⑤ Groovy Enterprises	CCD	July 4, 2015

NACHA File Format – CCD Record 6

Field	Receiving DFI ID	DFI Account Number	Amount	Receiving Company Name
Field Inclusion Req.	M	R	M	R
Length	8	17	10	22
Contents	② 021030004	③ 14170001	① $50,000	④ Austin Powers Inc.

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Wire and ACH Payments Example

```
<PmtInf>
  <PmtMtd>TRF</PmtMtd>          ← Credit Transfer →
  <PmtTpInf>
    <SvcLvl>
      <Cd>NURG</Cd>            ← Payment Type →
    </SvcLvl>
    <LclInstrm>
      <Cd>CCD</Cd>             ← Payment Type →
    </LclInstrm>
  </PmtTpInf>
  <ReqdExctnDt>2015-07-04</ReqdExctnDt>
  <CdtTrfTxInf>
    <Amt>
      <InstdAmt Ccy = "USD">1000000.00</InstdAmt>   ← Amount →
    <Amt>
    <CdtrAgt>
      <FinInstnId>
        <ClrSysMmbId>
          <ClrSysId>
            <Cd>USABA</Cd>
```

```
<PmtInf>
  <PmtMtd>TRF</PmtMtd>
  <PmtTpInf>
    <SvcLvl>
      <Cd>URGP</Cd>
    </SvcLvl>
    <LclInstrm>
      <Cd>CTR</Cd>
    </LclInstrm>
  </PmtInf>

  <Amt>
    <InstdAmt Ccy = "USD">50000.00</InstdAmt>
  <Amt>
</PmtTpInf>
```

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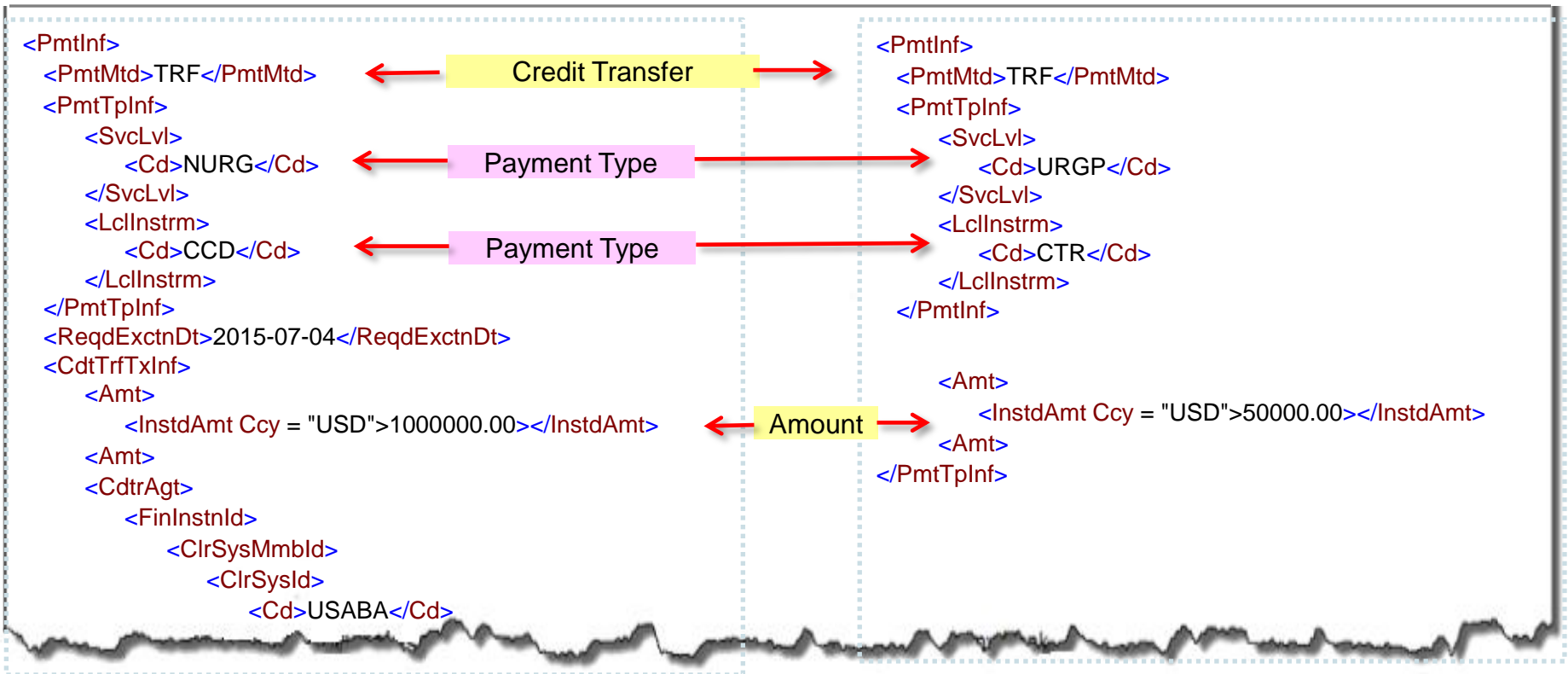
Wire and ACH Payments Example

```
            </ClrSysId>
            <MmbId>021030004</MmbId>
        </ClrSysMmbId>
    </FinInstnId>
</CdtrAgt>
<Cdtr>
    <Nm>Austin Powers Inc.</Nm>
</Cdtr>
<CdtrAcct>
    <Id>
        <OrgId>
            <Othr>
                <Id>14170001</Id>
            </Othr>
        </OrgId>
    </Id>
</CdtrAcct>
</CdtTrfTxInf>
</PmtInf>
```

Receiver's Bank Transit Routing Number (RDFI ID)

Repeat info for same supplier…

Payment instrument can be provided in the *Payment Information* block or in the *Credit Transfer Transaction Information* level of the pain.001 file. It is recommended that the information is populated in the Payment Information component.

Receiving Company Name

Receiver Bank Account Number

Use case: ***Originator can combine ACH and wire payment instructions in a single pain.001 file***

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Use Case 5: Flexibility in Data Formats and Field Definition

Issue with Current ACH Formats	Opportunity with ISO 20022 Payment Messages	Benefit for Using ISO 20022 for ACH Payments
The current fixed field ACH formats have limited flexibility in addressing evolving stakeholder data requirements. For example, insurers would like to include the National Provider Identifier (NPI) to ensure proper payment routing. Providers may potentially supply one or multiple NPI numbers, the latter of which cannot be accommodated easily in the NACHA file format. Today it can only be achieved through a bi-lateral agreement re-defining an existing field of the payment instruction.	ISO 20022 payments are not limited by fixed field formats, are able to carry more descriptive data, and depending on the field, may occur multiple times in contrast to ACH.	• Eliminates the need for special bilateral agreements on data field definitions and usage • Facilitates evolving needs of user communities to define data needs in a standardized process

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Example of Flexibility in Data Formats – Addressing Healthcare Industry Vertical (NPI) Need

The National Provider Identifier (NPI) is a unique number assigned to all health care providers. Health plans often need to provide NPI to help hospitals/practices identify physician recipient. Some provide NPI in the 6 record – Identification Number field, but this is an optional field with variable usage, and other industries use this field as well for other uses.

ISO 20022 can standardize the inclusion of NPI through the chain from the Originator to the Receiver, including <EndtoEndIdentifcation> in the Credit Transfer Transaction level and <CreditorReferenceInformation> in the Remittance component.

```
<CdtTrfTxInf>
  <PmtId>
      <EndToEndId>133557799</EndtoEndId>
  </PmtId>
....                    OR
  <RmtInf>
      <Strd>
         <CdtrRefInf>133557799</CdtrRefInf>
      </Strd>
  </RmtInf>
</CdtTrfTxInf>
```

May be used to provide multiple NPIs

NACHA File Format – CCD Record 6

Field	Receiving DFI ID	Check Digit	DFI Account Number	Amount	Identification Number	Receiving Company Name
Field Inclusion Req.	M	M	R	M	O	R
Length	8	1	17	10	15	22
Contents	021030004	9	14170001	$5,000	133557799	BlueCare

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Use Case 6: Field Length Restrictions and Data Truncation

Issue with Current ACH Formats	Opportunity with ISO 20022 Payment Messages	Benefit for Using ISO 20022 for ACH Payments
The fixed field length requirements of the existing ACH format can result in the truncation of data that could cause interruption of straight-through processing (and may further complicate processing based on having to develop unique truncation business procedures).	ISO 20022 data fields do not have length restrictions, so data will be received as sent, and will not be truncated in an arbitrary manner.	• Improved straight through processing by eliminating need to develop additional procedures related to data truncation e.g., more on-boarding work, manual investigation, emails sent to the beneficiary

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Truncation Example 1 - pain.001 to NACHA CCD

pain.001 – Proprietary Description of Category or Purpose of Instruction

```
<PmtInf>
   <CtgyPurp>
      <Prtry>HEALTH CARE CLAIM PAYMENT</Prtry>
   </CtgyPurp>
</PmtInf>
```

Max 35 text

Max 10 text

NACHA File Format – Record 5

Field	Record Type Code	Service Class Code	Company Entry Description
Field Inclusion Req.	M	M	M
Length	1	3	10
Contents	5	220	HCCLAIMPMT

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Truncation Example 2 - pain.001 to NACHA CCD

pain.001 – Debtor Name / Company Name / Originator

```
<PmtInf>
  <Dbtr>
    <Nm> American Family Life Assurance Company of Columbus</Nm>
  </Dbtr>
</PmtInf>
```

Max 140 text

NACHA File Format – Record 5

Max 16 text

Field	Record Type Code	Service Class Code	Company Name
Field Inclusion Req.	M	M	M
Length	1	3	16
Contents	5	220	AmericanFamilyLi

Use Case 7: Regulatory Compliance Improvement

Issue with Current ACH Formats	Opportunity with ISO 20022 Payment Messages	Benefit for Using ISO 20022 for ACH Payments
Banks – and corporates – have added costs because the monitoring and reporting is difficult by locating/reporting required information in disparate payment systems. Also, the ACH currently is not able to support some regulatory monitoring requirements, such as identification of ultimate creditor and ultimate debtor.	ISO 20022 messaging already includes additional identification data elements that cannot be carried in ACH transactions, and can standardize the identification of regulatory data fields across all payment types.	• Streamlined and enhanced regulatory reporting and requirement tracking

Detailed Party Information Examples

Subsidiary (party) information is not available in a NACHA file format

① →

Identifies **customer type,** i.e., an organization or a person; helpful to distinguish from false positives in sanctions screening

② →

NOTE: Ultimate Creditor would follow the same logic

```
<CdtTrfTxInf>
 <UltmtDbtr>
     <Nm>Bart Simpson Enterprises</Nm>
     <PstlAdr>
         <StrtNm>Evergreen Terrace</StrtNm>
         <BldgNb>742</BldgNb>
         <TwnNm>Springfield</TwnNm>
         <Ctry>USA</Ctry>
     </PstlAdr>
     <Id>
         <OrgId>
             <Othr>
                 <Id>231879432</Id>
             </Othr>
         </OrgId>
     </Id>
 </UltmtDbtr>
</CdtTrfTxInf>
```

Tax ID

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Use Case 8: International Cross Border Payments

Issue with Current ACH Formats	Opportunity with ISO 20022 Payment Messages	Benefit for Using ISO 20022 for ACH Payments
The International ACH transactions (IAT) support cross border payments and also is supported within the International Payments Framework Association mapping gateway, hosted by the Federal Reserve and NACHA's ISO 20022 Mapping Guide and Tool. However, mapping IAT and ISO 20022 does not allow business to transmit the structured remittance information due to size restriction and lack of worldwide use of ANSI X12 data segments that can be transmitted in IAT addenda records.	Conversion to ISO 20022 will eliminate the need for mapping and allow cross border B2B payments to carry additional remittance information as well as align with remittance data content and structure in use globally in contrast to NACHA's current requirement of ANSI ASC X12 formatted data segments.	• Corporates will be able to use the low cost and efficient ACH networks to process complex B2B payments • Financial Institutions can offer remittance services for cross border payments • Facilitate process automation

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International Cross Border Payments Example

Optional Addenda Record for Remittance Information (717)

```
           1                 2               3               4               5
6                    7                8                9
1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8
9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4
```

E x a m p l e   D a t a

In practice, today IAT payment related addenda is sent in an unstructured format (though NACHA requires ANSI X12 formatted data).

ISO 20022 offers structure, consistency and can facilitate automation of processes.

```xml
<CdtTrfTxInf>
  <RmtInf>
    <Strd>
      <RfrdDocInf>
        <Tp>
          <CdOrPrtry>
            <Cd>CINV</Cd>
          </CdOrPrtry>
        </Tp>
        <Nb>4562121</Nb>
        <RltdDt>2014-09-08</RltdDt>
      </RfrdDocInf>
      <RfrdDocAmt>
        <DuePyblAmt  Ccy="USD">10000.00</DuePyblAmt>
        <DscntApldAmt>
          <Amt Ccy="USD">500.00</Amt>
        </DscntApldAmt>
      </RfrdDocAmt>
    </Strd>
  </RmtInf>
</CdtTrfTxInf>
```

NOTE: There are additional data elements not illustrated here

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Providing Feedback

- Any comments or questions regarding ISO20022 and the ACH Network please contact
  - George Throckmorton gthrockmorton@nacha.org
  - Rob Unger runger@nacha.org