

NTT DATA

[Challenges for ISO20022 Structured Address] AI-Based Postal Address Structuring and Mizuho Bank's Strategic Approach for Customer Migration

NTT DATA Luweave Corporation (NDLC)

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Agenda

1. Challenges for ISO20022 structured postal address
2. NDLC Solution to ISO20022 structured postal address

01

Challenges for ISO20022 structured address



ISO20022 structured postal address

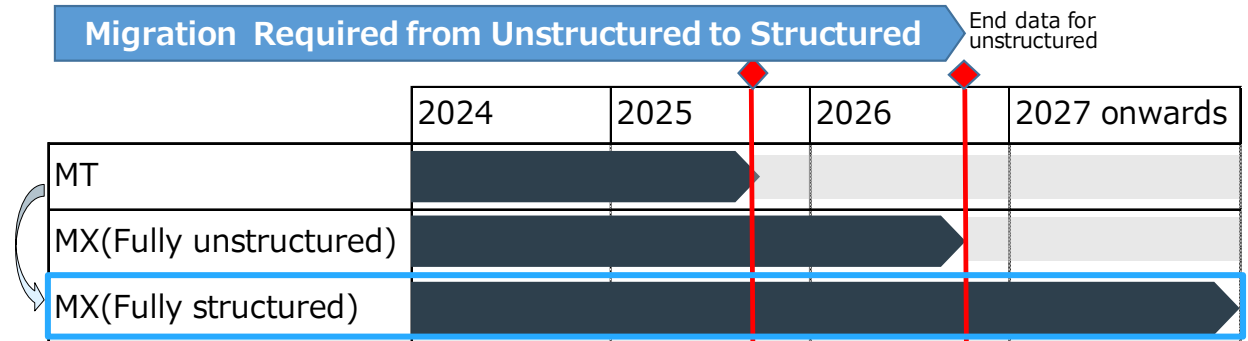
To comply with ISO20022 standards, postal addresses in payment messages must be structured.

MT messages will be discontinued in November 2025. Until then, postal addresses in MX messages must be either fully-structured or fully-unstructured as the hybrid option will become available at the same time.

<Migration to Fully-structured postal address>

Swift MT103

| | |
|----------------------|---|
| Beneficiary customer | :59:/00012345493 John Jones 1 Zhongxin 4th Road, Futian District, Shenzhen, Guangdong Province 518048, The People's Republic of China |
|----------------------|---|



ISO20022 Fully-structured postal address

| | | |
|---------------|----------------------|-------------------|
| <StrtNm> | Street Name | Zhongxin 4th Road |
| <BldgNb> | Building Number | 1 |
| <BldgNm> | Building Name | |
| <Flr> | Floor | |
| <PstBx> | Post Box | |
| <Room> | Room | |
| <PstCd> | Post Code | 518048 |
| <TwnNm> | Town Name | Shenzhen |
| <TwnLctnNm> | Town Location Name | Futian |
| <DstrctNm> | District Name | |
| <CtrySubDvsn> | Country Sub Division | Guangdong |
| <Ctry> | Country | CN |

ISO20022 structured postal address (Hybrid Option)

<Option to take Hybrid postal address>

Swift MT103

| | |
|----------------------|---|
| Beneficiary customer | :59:/00012345493 John Jones 1 Zhongxin 4th Road, Futian District, Shenzhen, Guangdong Province 518048, The People's Republic of China |
|----------------------|---|

ISO20022 Fully-unstructured postal address

| | | |
|---------------|----------------------|--|
| <StrtNm> | Street Name | |
| <BldgNb> | Building Number | |
| <BldgNm> | Building Name | |
| <Flr> | Floor | |
| <PstBx> | Post Box | |
| <Room> | Room | |
| <PstCd> | Post Code | |
| <TwnNm> | Town Name | |
| <TwnLctnNm> | Town Location Name | |
| <DstrctNm> | District Name | |
| <CtrySubDvsn> | Country Sub Division | |
| <Ctry> | Country | |
| <AdrLine> | Address Line | 1 Zhongxin 4th Road, Futian District, Shenzhen, Guangdong Province |
| <AdrLine> | Address Line | 518048, The People's Republic of China |

Migration Required from Unstructured to Structured

| | 2024 | 2025 | 2026 | 2027 onwards |
|------------------------|----------------|------|------|--------------|
| MT | [Timeline bar] | | | |
| MX(Fully unstructured) | [Timeline bar] | | | |
| MX(Hybrid) | [Timeline bar] | | | |
| MX(Fully structured) | [Timeline bar] | | | |

End data for unstructured

ISO20022 Hybrid(Semi-structured) postal address

| | | |
|---------------|----------------------|---|
| <StrtNm> | Street Name | |
| <BldgNb> | Building Number | |
| <BldgNm> | Building Name | |
| <Flr> | Floor | |
| <PstBx> | Post Box | |
| <Room> | Room | |
| <PstCd> | Post Code | |
| <TwnNm> | Town Name | Shenzhen |
| <TwnLctnNm> | Town Location Name | |
| <DstrctNm> | District Name | |
| <CtrySubDvsn> | Country Sub Division | |
| <Ctry> | Country | CN |
| <AdrLine> | Address Line | 1 Zhongxin 4th Road, Futian District, Guangdong Province 518048 |
| <AdrLine> | Address Line | |

Why Structured Postal Address?

“Structured payments in ISO 20022 messages offer several advantages in terms of providing more precise and more detailed information in payment transactions. However, due to the nuanced challenges inherent in cleansing address data within systems and databases, the proportion of structured customer data in payment messages is still at a relatively low level.”

“In the complex landscape of payments screening, inefficiencies act as silent barriers to financial integrity - addressing these challenges is paramount.”(PMPG, May 2024)

Regulatory Drivers



Revised recommendation 16
Planned publication date late 2024

Requirements for information on payment messages:

- should be structured where possible
- should enable identification with reasonable certainty of debtor and creditor



CPMI*: Harmonised ISO 20022 data requirements for enhancing cross border payments

The use of structured addresses will speed up overall processing:

- facilitate screening processes
- prevent the need for manual interventions
- reduce costs through enhanced STP



Updated Wolfsberg Payment Transparency Standards: Published in October 2023

- Address information should be sufficient to identify clearly the location for sanctions screening and AML/CTF
- Address should be fully structured, and at a minimum employ a hybrid structure

*Committee for Payments & Market Infrastructures

What are the challenges for Structured Postal Address?

Banks and corporates are facing challenges for migrating to fully-structured format due to:

- Challenge 1: Structured address format is common but required elements vary from country to country

| Level | ISO20022 tag | Element description | Community input | | | | | | | | | |
|-------|---------------|----------------------|---------------------------------|-----------------------------------|--------------------------------|-------------------------------|---------------------------------|--------------------------------|---------------------------------------|-------------------------------|-----------------------------------|---------------------------------------|
| | | | AT (Austria) | AU (Australia) | CA (Canada) | CN (China) | DE (Germany) | FR (France) | GB (Great Britain) | JP (Japan) | SG (Singapore) | US (United States) |
| 3 | <PstAdr> | Postal Address | | | | | | | | | | |
| 4 | <Dept> | Department | O | O | O | O | O | O | C | O | O | O |
| 4 | <SubDept> | Sub Department | O | O | O | O | O | O | C | N | O | O |
| 4 | <StrtNm> | Street Name | E | E | O | E | E | C | O | O | O | E |
| 4 | <BldgNb> | Building Number | E | E | O | E | O | C | O | N | O | O |
| 4 | <BldgNm> | Building Name | O | O | O | O | O | N | O | O | O | O |
| 4 | <Flr> | Floor | O | C | O | O | N | O | C | O | O | O |
| 4 | <PstBx> | Post Box | O | N | O | O | C | C | O | O | C | O |
| 4 | <Room> | Room | O | C | O | C | N | O | O | O | O | O |
| 4 | <PstCd> | Post Code | E | E | O | O | E | E | E | O | O | E |
| 4 | <TwnNm> | Town Name | M | M | M | M | M | M | M | M | M | M |
| 4 | <TwnLctnNm> | Town Location Name | O | N | N | O | O | C | O | N | N | O |
| 4 | <DstrctNm> | District Name | O | N | O | O | O | N | O | N | N | C |
| 4 | <CtrySubDvsn> | Country Sub Division | O | E | O | E | O | N | O | E | N | E |
| 4 | <Ctry> | Country | M | M | M | M | M | M | M | M | M | M |

Legend

| | |
|---|-------------|
| M | mandatory |
| E | expected |
| O | optional |
| C | conditional |
| N | N/A |

What are the challenges for Structured Postal Address?

- Challenge 2: Many variety of notation fluctuation but no effective dictionary for postal address

| Variation of Address Notation | Sample Cases |
|---|---|
| Notation custom may vary and many variations are widely accepted | <ul style="list-style-type: none">➤ Tokyo/Tokyo-to/Tokyo-city➤ New York/NY/NYC |
| Notation order may vary for town and street name and numbers | <ul style="list-style-type: none">➤ 123 Main Street/Main Street 123➤ 1-2-3, Atown/3, Atown, 1-2 |
| Official name may differ from popular name, nick name or old name | <ul style="list-style-type: none">➤ Bengaluru vs Bangalore➤ Praha vs Prague➤ Yangon vs Rangoon |
| Address elements may be omitted in many different levels and ways | <ul style="list-style-type: none">➤ <Jakarta Selatan>, Jakarta, Indonesia➤ Shenzhen,<Guangdong>,518048➤ Osaka, 542-00076,<Osaka-fu> Japan |
| Such as Special district, address element differs even within a country | <ul style="list-style-type: none">➤ Beijing/Shanghai/Tianjin/Chongqing➤ Washington D.C.➤ Tokyo vs Osaka/Kyoto/Nagoya etc. |

02

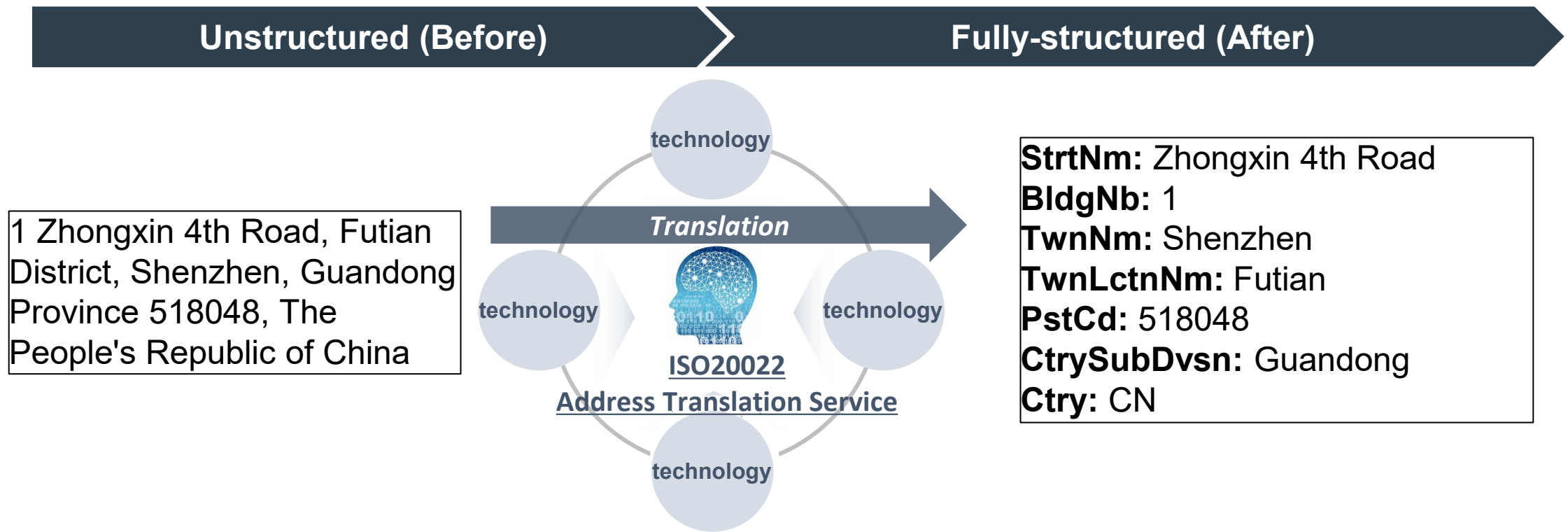
NDLC Solution to ISO20022 structured postal address



Concept of NDLC Solution

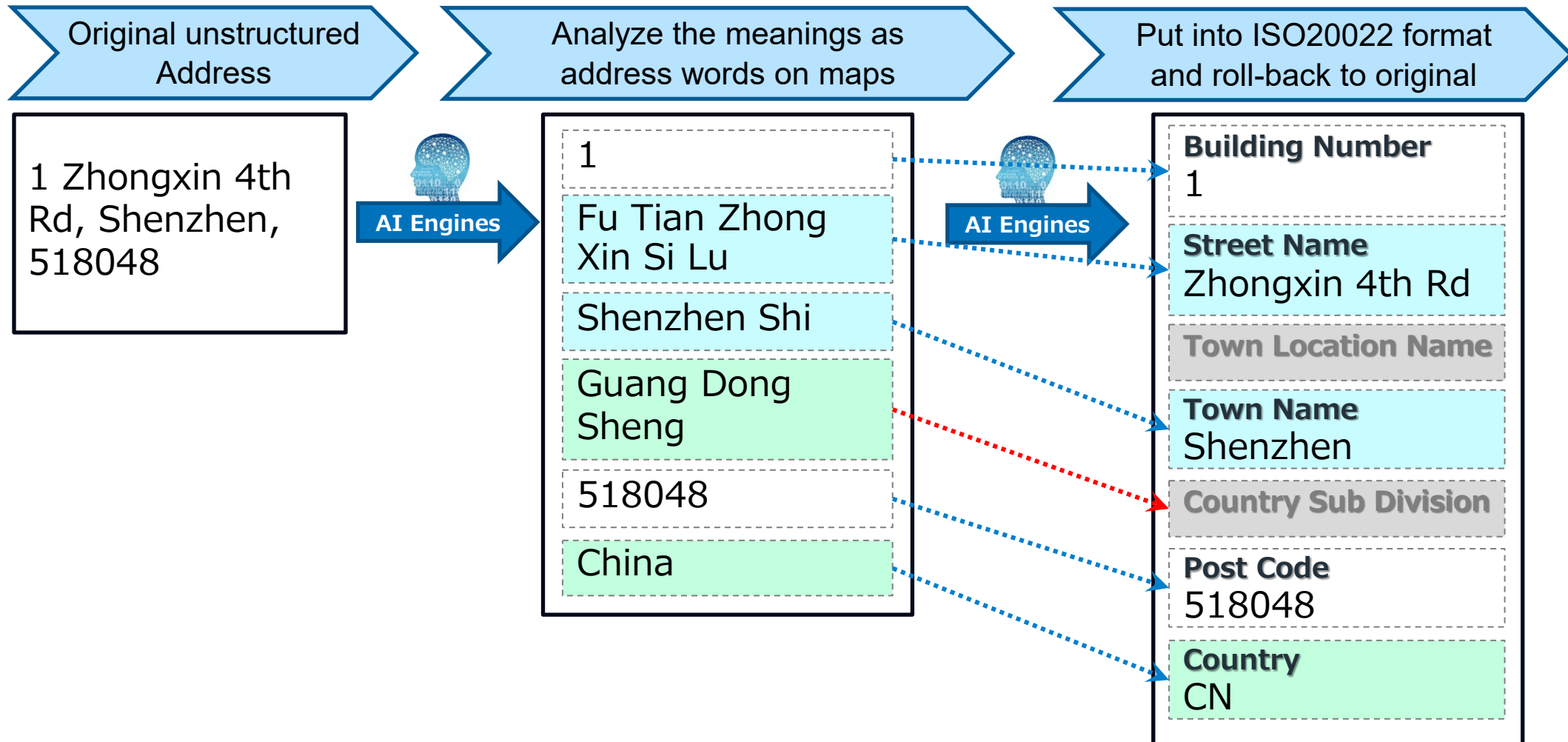
NDLC has developed a translation service to convert address from unstructured to fully-structured.

- (1) **Single step conversion** from unstructured to fully-structured eliminating the need to take hybrid route
- (2) Original logic and tunings based on data mining are tailored for **multiple AI engines**, enabling them to maximize translation quality and prevent hallucinations* *Misleading or incorrect information answered by AI
- (3) **No alteration** of the original wording even for typos, to ensure strict compliance
- (4) **Providing suggestions** when a mandatory field is missing for ISO20022 structured address



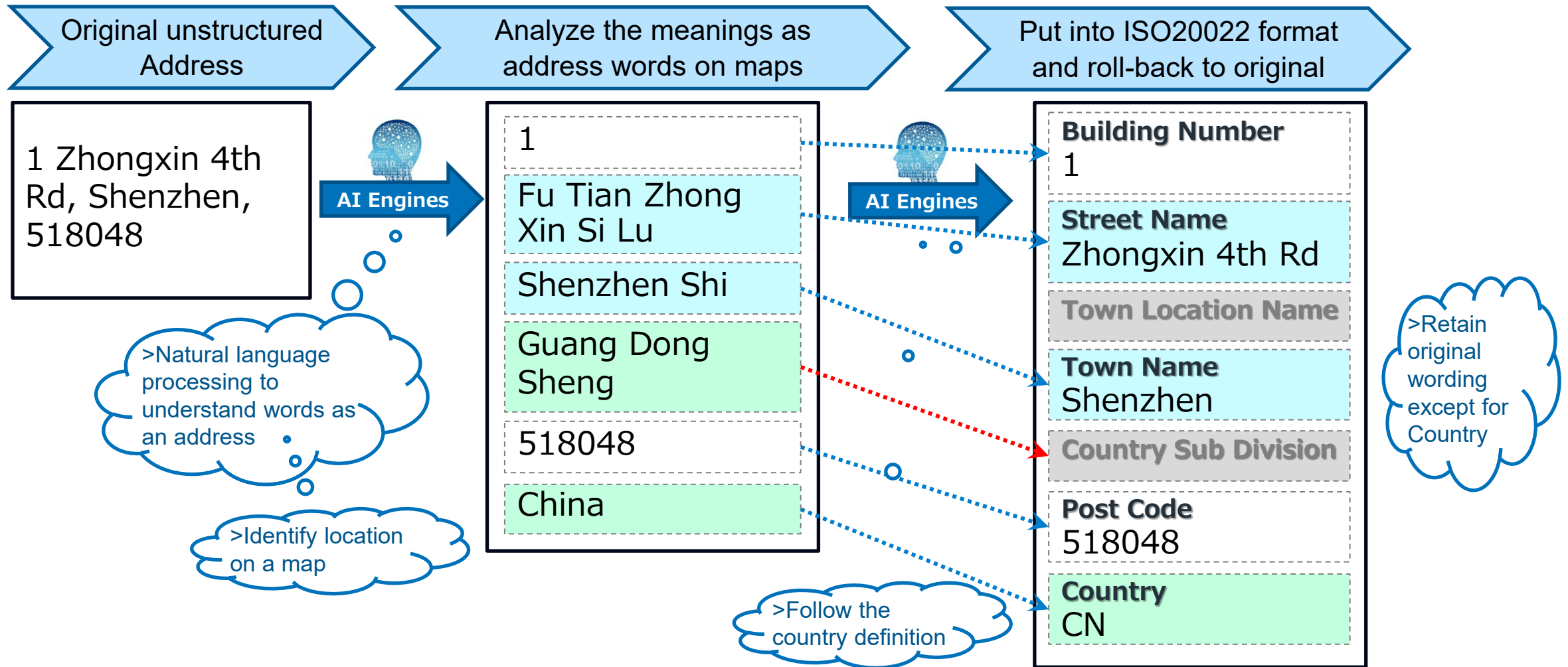
Process Outline of NDLC address translation service

- Below describes the process outline of our translation service for ISO20022 structured address.
- The process has been fine-tuned based on real payment data to achieve maximum efficiency.



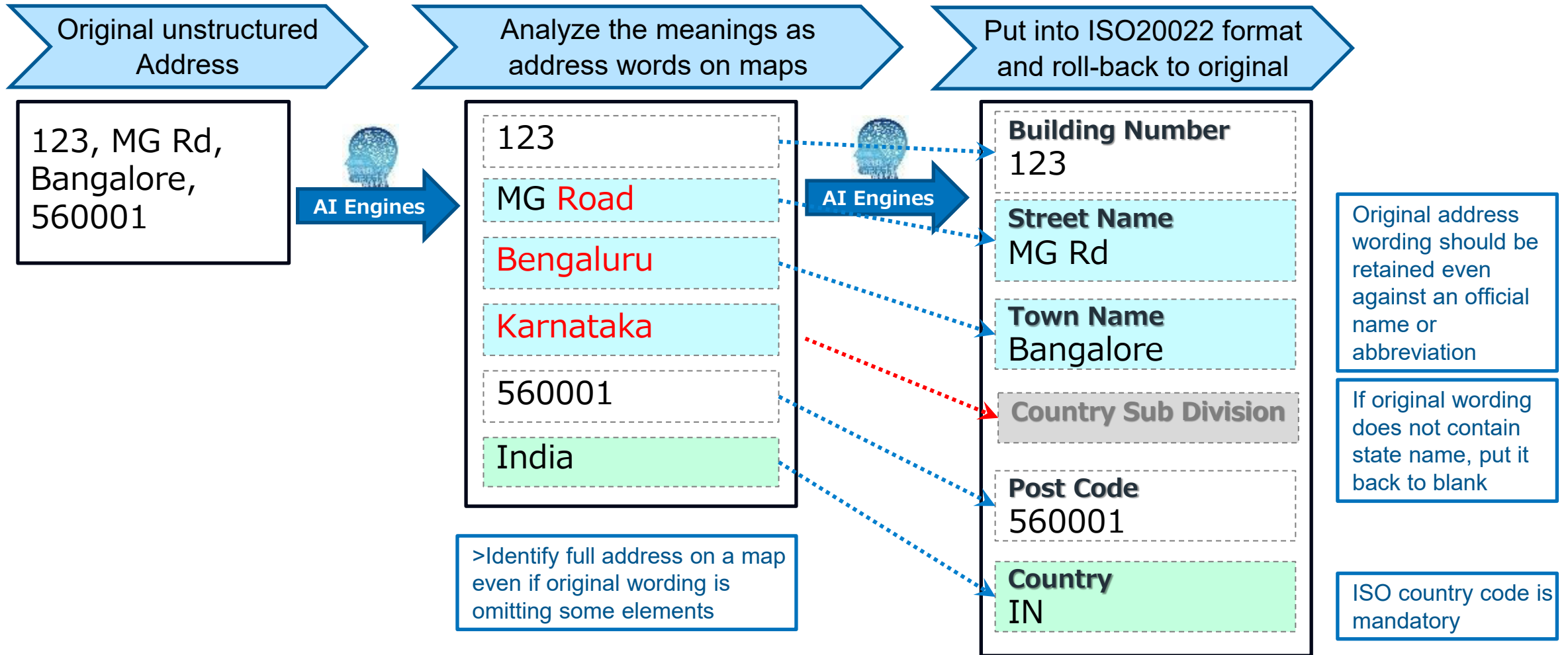
Process Outline of NDLC address translation service

- Below describes the process outline of our translation service for ISO20022 structured address.
- The process has been fine-tuned based on real payment data to achieve maximum efficiency.



Translation Sample

A translation sample is illustrated below from unstructured to structured with some tricks.



Accommodation Samples for Country Variation

- *The requirements of Structured Postal Address in ISO20022 differs by country and has been published for 33 countries so far.*
- *To migrate to a fully-structured postal address, these country-specific variations must be accommodated. Some samples are listed below.*

| Country Name | ISO Code | Adjustment points considered and factored | Accommodation samples |
|--------------------------|----------|--|---|
| Singapore | SG | <ul style="list-style-type: none"> ➤ Both Town and Country names are Singapore, but only one Singapore exists in address ➤ Postal codes are located after country name | <ul style="list-style-type: none"> ✓ Put "SG" as country code for Orchard Road, Singapore 238839 |
| Japan | JP | <ul style="list-style-type: none"> ➤ Address structure differs by prefecture ➤ Town Name may contain two address elements, "gun" and town | <ul style="list-style-type: none"> ✓ Judge Tokyo-to, Chiyoda-ku or Kyoto-fu, Kyoto-shi ✓ Put town name as Ono-gun, shirakawa-mura |
| China | CN | <ul style="list-style-type: none"> ➤ Some municipalities are structured differently ➤ Various address elements are omitted frequently such as province, city, district | <ul style="list-style-type: none"> ✓ Put Beijing as province/Town ✓ Identify correct location by supplemental tuning with AI |
| United States of America | US | <ul style="list-style-type: none"> ➤ Structured address notation is used across all states, but variety of fluctuation exists even for State/ZIP/Country | <ul style="list-style-type: none"> ✓ Correct State and ZIP for NY 10015 vs NY, 10015 vs New York 10015 |



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and the planet through our weaved wisdom and technologies.

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