ISDA: A Digital Future for Financial Markets

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The Derivatives Industry

- The derivatives industry has changed significantly over the past decade:
  - Global regulatory reform efforts enacted since 2009 have fundamentally changed the way in which the industry operates and how market participants interact with each other.
  - Despite a challenging financial and regulatory environment, a steady growth in products and trade volumes has seen the size of the market expand from an outstanding notional of $465 trillion combined across all assets classes as of year-end 2010 to an outstanding notional of $640 trillion by the end of June 2019.
  - Technology is placing an increasingly central role in the operation of financial markets systems and infrastructure.
- As the industry concludes implementation of global regulatory reforms, market evolution is accelerating as firms begin to focus on developing innovative new products and using intelligent, automated technology solutions to create a more efficient global financial system.

A Digital Future for Financial Markets

- In July 2020, ISDA and 7 other trade associations (ICMA, ISLA, AFMA, LBMA, UK Finance, Association of German Banks and International Islamic Finance) sent a letter to FSB, IOSCO and BIS to assert our joint commitment to a digital future for financial markets.

- The letter defines a series of principles and objectives across three core areas:

Standardization

1. Develop common, interoperable industry standard models for financial transactions and processes.
2. promote aligned and consistent data standards and regulation.
3. Standardize and simplify documentation.

Digitization

4. Publish documentation in digital formats.
5. Develop legal agreement data models to connect legal documentation, processes and data.
6. Greater legal and regulatory certainty on electronic signatures.

Distribution

7. Distribute new standards on industry-wide, commercially reasonable basis.
8. Establish robust and inclusive governance framework on standards.

Secretariat of the Financial Stability Board
Bank for International Settlements
Centralbahnplatz 2
CH-4002 Basel
Switzerland

Secretariat of the International Organization of Securities Commissions
Oquendo 12, 28006
Madrid, Spain

Secretariat of the Basel Committee on Banking Supervision
Bank for International Settlements
Centralbahnplatz 2
CH-4002 Basel
Switzerland

Re: Digital Future for Financial Markets

We are writing to assert our joint commitment to defining and promoting the development of a digital future for financial markets.

The rapid emergence of economic globalisation in the early '90s catalysed the development and adoption of the internet, revolutionising almost overnight the way that we interact and communicate with each other. A similar confluence between the development of innovative new technology (e.g. DLT and AI) and increasing consumer demand for more open and inclusive digital services suggests that we are on the cusp of a new paradigm shift. We must now begin to consider the future of financial markets.

The G20 financial regulatory reforms introduced in the wake of the financial crisis have fundamentally altered the traditional operating structure of bilateral financial markets. Firms have implemented these regulations and associated requirements on top of existing infrastructure, placing significant new demands upon it. These new regulatory requirements have also led to the creation of significant amounts of unstructured data and the proliferation of bespoke, paper-based contracts. Complex and inconsistent reporting requirements between and within asset classes have further complicated the situation. With the completion of these global regulatory reforms and the emergence of multilateral markets and operating infrastructures, market participants are now turning their attention to how they can use new technology solutions to optimize these systems, processes and data.

Now is the time to embrace a digital future for our members and our markets. The benefits of doing so are self-evident. The adoption of common data and process standards across the industry will allow for the consistent

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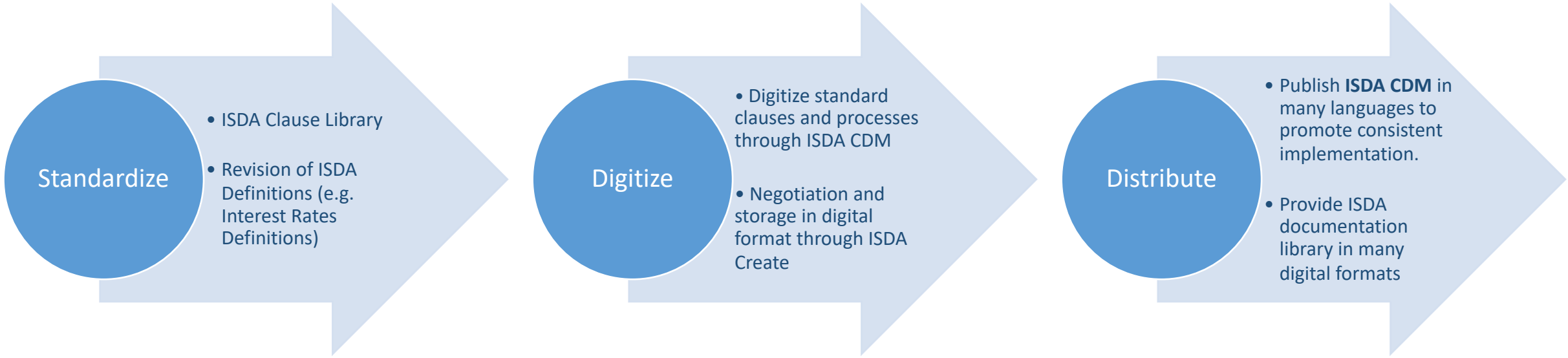
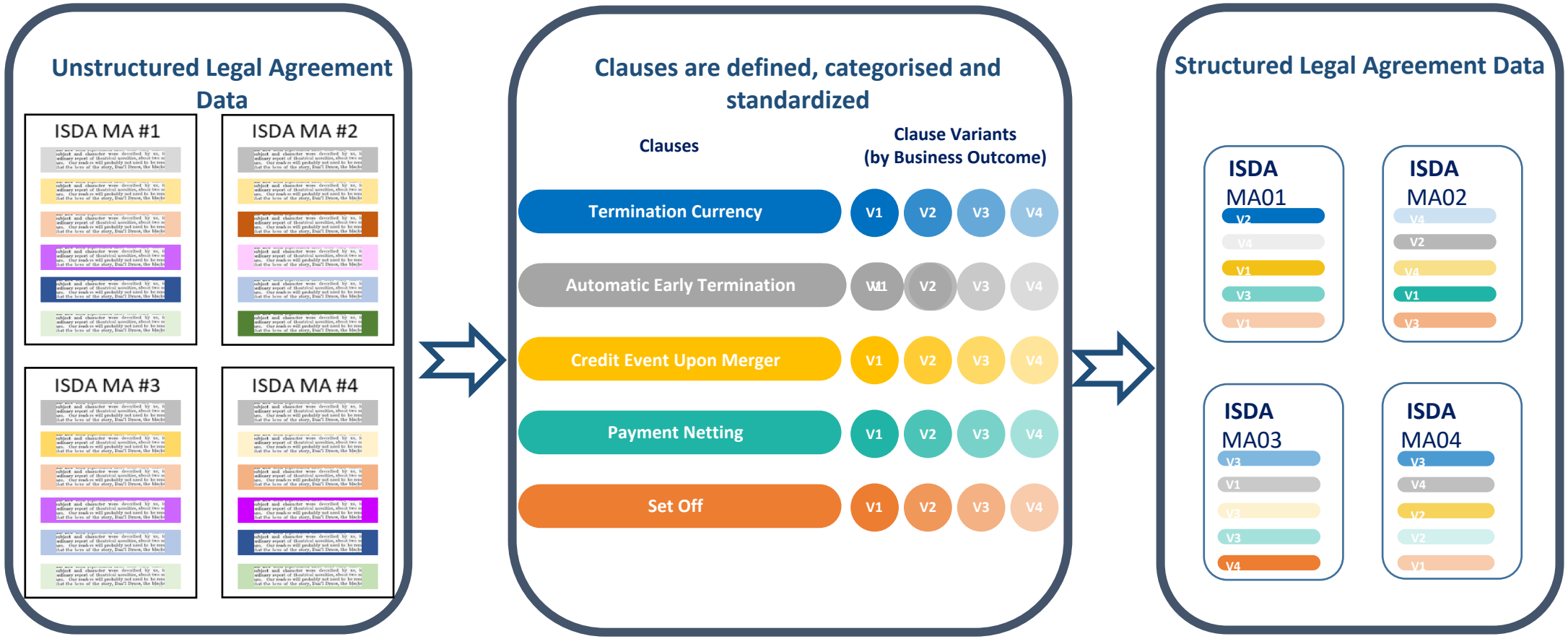
ISDA's Digital Strategy



ISDA Clause Library

- Increased standardization of documentation is a key component of ISDA's strategy for developing enhanced legal documentation standards, delivering digitized documentation through ISDA Create and facilitating further automation of derivatives products through the development of smart derivatives contracts.
- ISDA has launched the **ISDA Clause Library Project** to introduce greater standardization into the way in which firms negotiate and agree terms in their contracts and how they categorize and manage legal agreement data.
- Benefits of the ISDA Clause Library include:
    - Quicker and more efficient contract negotiation and client on-boarding;
    - More accurate and efficient regulatory and market-driven repapering exercises;
    - More consistent and accurate reporting of legal agreement date, for example under QFC recordkeeping requirements or as part of supervisory or prudential oversight rules;
    - Creation of an industry-standard framework for categorising and managing legal agreement data;
    - Greater alignment among systems and processes designed to monitor important business and operational functions deriving from legal contracts, including netting and collateral enforceability, liquidity and counterparty credit-risk;
    - Facilitates digitisation of legal documentation and the development and application of new technologies such as DLT, smart contracts and AI to derivatives documentation and products.

Structured data through Standardization



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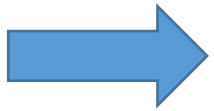
Digitization through the ISDA Common Domain Model

- The CDM provides a digital representation of the legal agreements that govern transactions, workflows and legal relationships.
- The CDM design principles promote composability and reusability of features, allowing common terms to be used within an extendable and hierarchal model to support many types of agreement and product.

ISDA Clause Library

The “Automatic Early Termination” provisions of Section 6(a)
will apply to Party A.
will apply to Party B.



ISDA CDM

```
"AutomaticEarly Termination":
     "fallbackAet": false
     "indemnity": false
     "partyElection":
          "party": PartyA,
          "isApplicable": true
      "partyElection":
           "party": PartyB,
           "isApplicable": true
```

Distribution of Standards to Facilitate Automation

- These enhanced standards will be made available on commercially reasonable basis across the market.
- This enable the development and implementation of exciting new automated and intelligent technology solutions.
- For example:
  - **DLT:** common, shared representations of data are required in order for distributed ledger technology to operate effectively.
  - **Smart Contracts**: It is upon these distributed platforms and data structures that executable and autonomous code within smart contracts can be developed and deployed effectively and efficiently across the financial markets.
  - **AI:** The aggregation of large, structured data sets will also accelerate the use of AI-based technology solutions, with potential applications across numerous business, risk management and regulatory compliance functions.

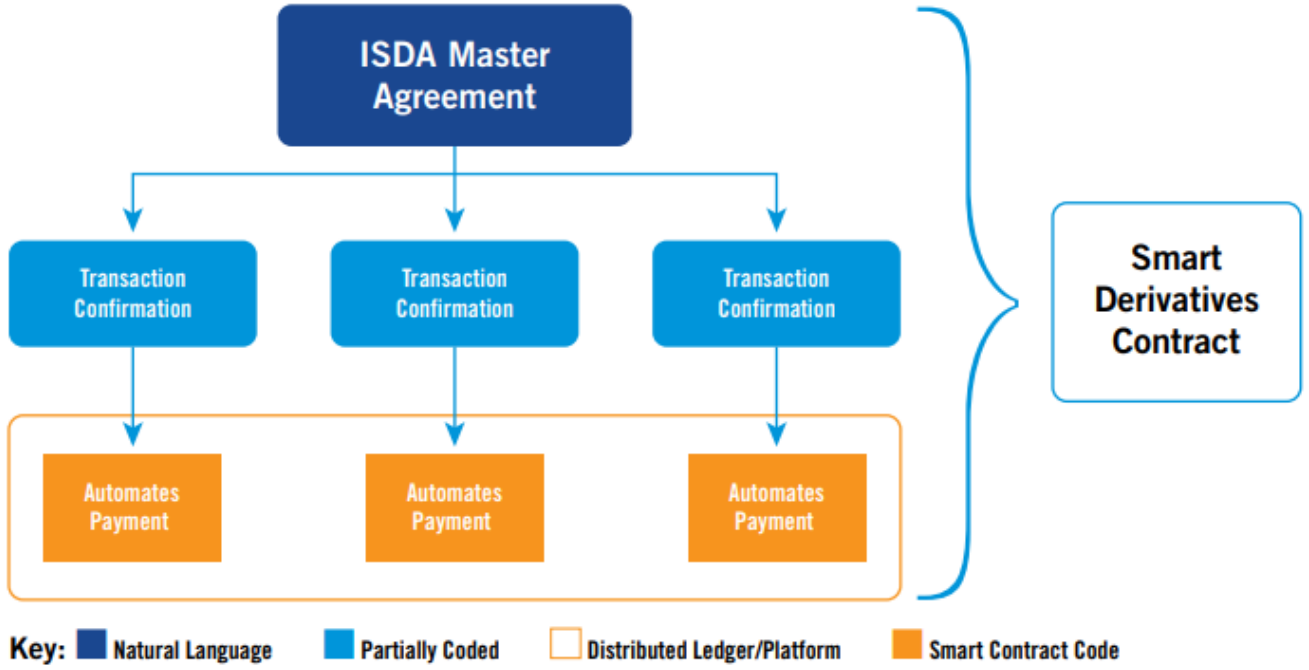
Automation through Smart Derivatives Contracts

- The application of smart contracts to the ISDA documentation framework may allow for the potential development of derivatives contracts where some terms are capable of being automatically performed, either:

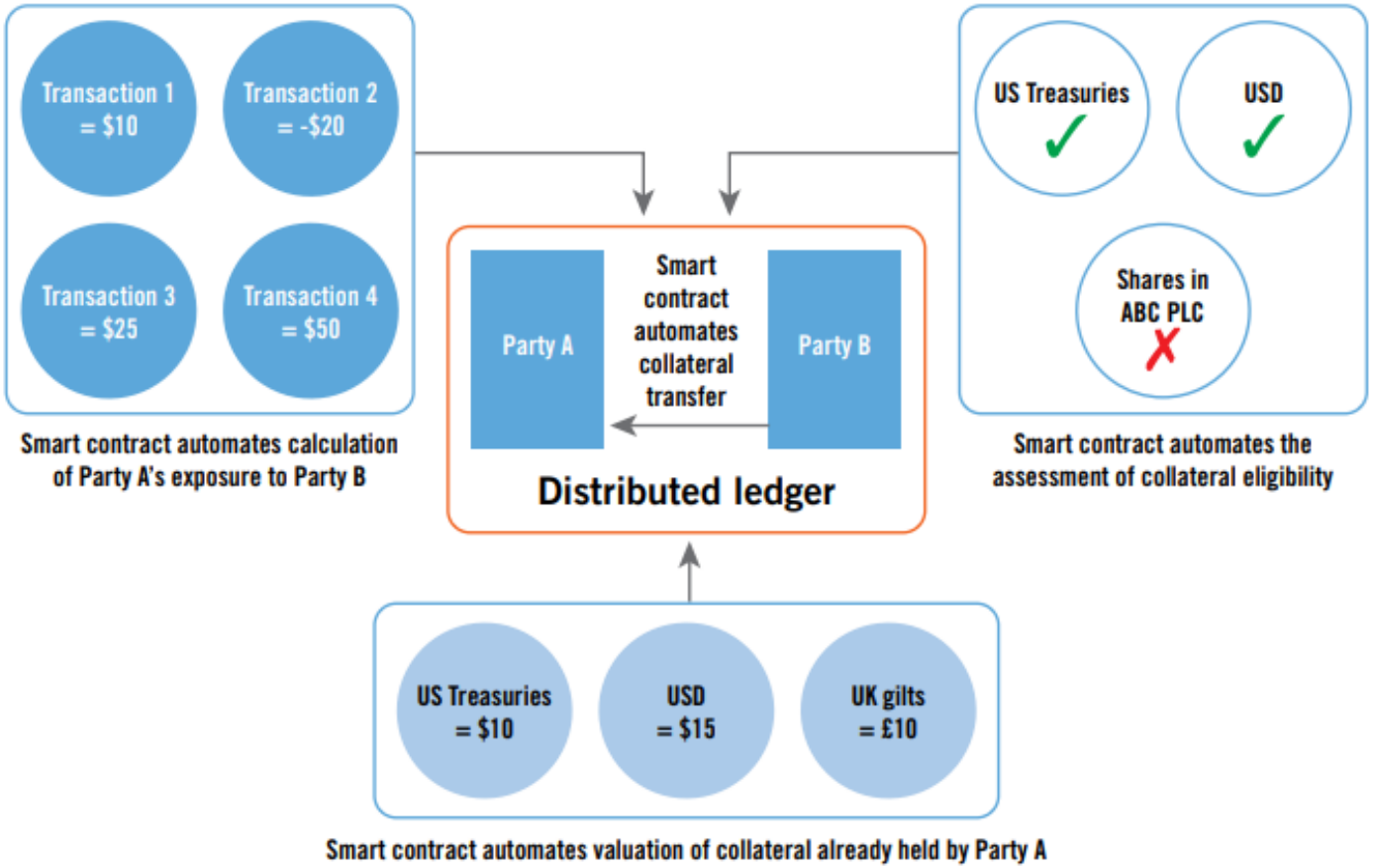
  (i) by expressing those provisions using some formal representation that enables their automation; or
  (ii) by referring to the operation of smart contract code which is external to the contract.

- Benefits of Smart Derivatives Contracts may include:

  - Increased accuracy and transparency of contractual terms
  - Efficiency in automating performance
  - Less scope for misinterpretation or competing interpretations



Smart Derivatives Contracts: Potential applications



- Many collateral processes such as:
  - The valuation of exposure and margin requirements;
  - Assessing collateral eligibility;
  - Exchange and return of collateral assets,

  use conditional logic and could benefit from increased automation.

- This example provides an illustration of a potential smart derivatives contract construct that is designed to automate certain aspects of the collateral management process.

Constructing Smart Derivatives Contracts

- These technologies are at a relatively early stage of development and there is still a lack of agreement on, for example, what a smart contract is, what role is can play in the derivatives market, and how it might interact with existing legal standards and documentation.

- Failure to develop common standards may lead to the development of piecemeal and bespoke technology solutions for each group of users that will likely perpetuate the existing fragmented and inefficient derivatives ecosystem.

- Development of smart contracts standards will require us to determine what parts of a contract are best suited for automation.

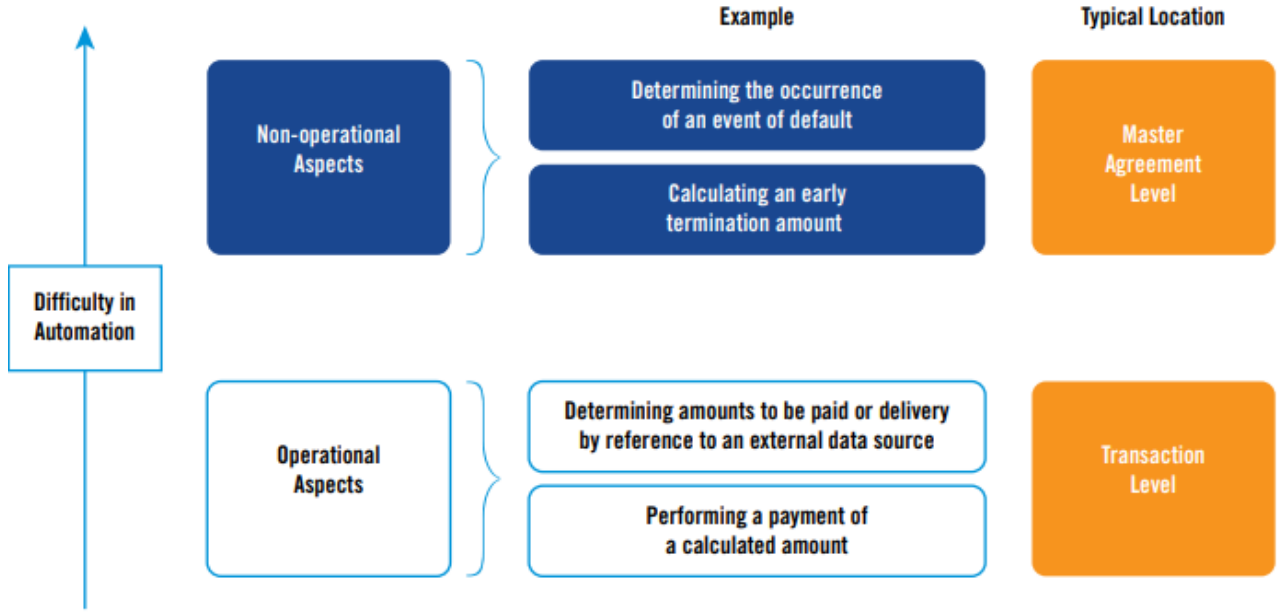
- Two questions:

    - Is automation **effective** i.e. can a contractual provisions be written in code or automated effectively; and

    - Is automation **efficient** i.e. does the benefit of automation outweigh the cost.

Effective Automation

- Contracts might be seen as an evidentiary tool that the parties look to in future in order to determine how some future dispute around performance might be resolved.
- Computer code is more definitive, precise and immediate.
- In determining which parts of a derivatives contract might be susceptible to automation, it is useful to distinguish between 'operational' and 'non-operational' aspects which exist within contractual clauses:
    - **Operational aspects:** those that involve an operation (e.g. a delivery or payment);
    - **Non-operational aspects:** typically include temporal aspects (relating to time) and deontic aspects (relating to rights and obligations).
- In the context of ISDA documentation, many of the non-operational aspects within the overall contract exist at the Master Agreement level.



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Efficient Automation

- Not all of the provisions of the ISDA documentation which can be effectively represented in automatable form *should* be automated.

- Consider a technology solution designed to monitor and determine when an Events of Default has occurred and to automate close-out:

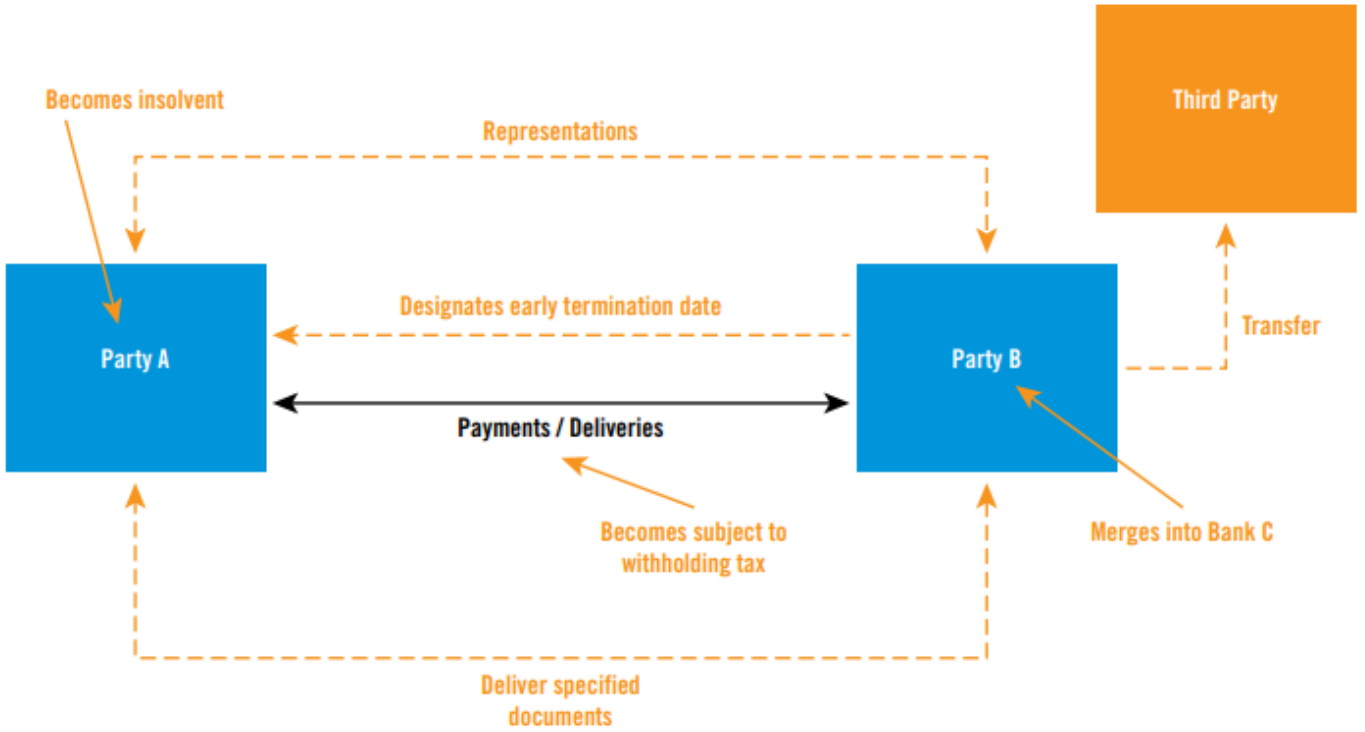
    - Monitoring certain types of external activity might be difficult or inefficient to assess solely through the use of external data sources.
    - The requirements that must be satisfied prior to the occurrence of an event and each of the various external factors that determine their precise parameters and scope will all have to be considered.
    - The occurrence of an Event of Default does not automatically mean that anything will happen.

- This complexity and potential need for human intervention may mean that it may never be efficient or desirable to automate this part of the contract, even if it were technically possible.

Complexity beyond the transaction must also be considered

- Automation should also take into account the overarching contractual terms that derive from the broader contractual relationship.

- For example:
  - The provision of representations;
  - The requirement to deliver certain documents to your counterparty;
  - A payment obligation becoming subject to a withholding tax;
  - The transfer of Transactions as a result of a merger with another entity;
  - The insolvency and consequent default of a party.



Complexity beyond the transaction

- There are also broader legal and regulatory questions to be considered:
    - Is a smart legal contract a binding legal contract?
    - Are electronic signatures enforceable?
    - How would a court apply existing principles of contractual interpretation to contracts written wholly or partially in code?
    - Where digital or dematerialized assets are transferred through a smart contract, are these assets "property?" Can security be granted over such assets? Where are the assets located?
- Many of these issues are not novel and have been addressed in the past, albeit in a different context
- Can these issues be addressed through existing legal framework?

Smart Derivatives Contracts – Further reading

- "*Smart Contracts and Distributed Ledger – a Legal Perspective"* provided an introduction to the topic, by describing what DLT and smart contracts are and the potential for their use within the derivatives documentation architecture – Published August 2017

- *"Smart Derivatives Contracts: From concept to construction"* explores issues relating to the legal validation of smart derivatives contracts and how an industry framework for determining which provisions could/should be automated might work – Published October 2018

- *"Private International Law Aspects of Smart Derivatives Contracts utilizing Distributed Ledger Technology*" considers the private international law aspects of contracts involving derivatives transactions in Singapore and England and Wales effected with the assistance of DLT – Published January 2020

- ISDA Legal Guidelines for Smart Derivatives Contracts:

    - Introduction – Published January 2019
    - ISDA Master Agreement – Published February 2019
    - Collateral – Published September 2019
    - Equity derivatives – Published February 2020
    - Interest rate derivative – Published February 2020
    - Credit Default Swaps – Published Q4 2020
    - FX – To be published Q4 2020

- **Website**: https://www.isda.org/2019/10/16/isda-smart-contracts/