

The background of the slide is a blurred photograph of a person's hands using a payment terminal. A semi-transparent logo is overlaid on the image. The logo consists of two overlapping rounded shapes, one yellow and one green, with a white outline. Inside the white outline, the text "payments strategy forum" is written in a white, sans-serif font.

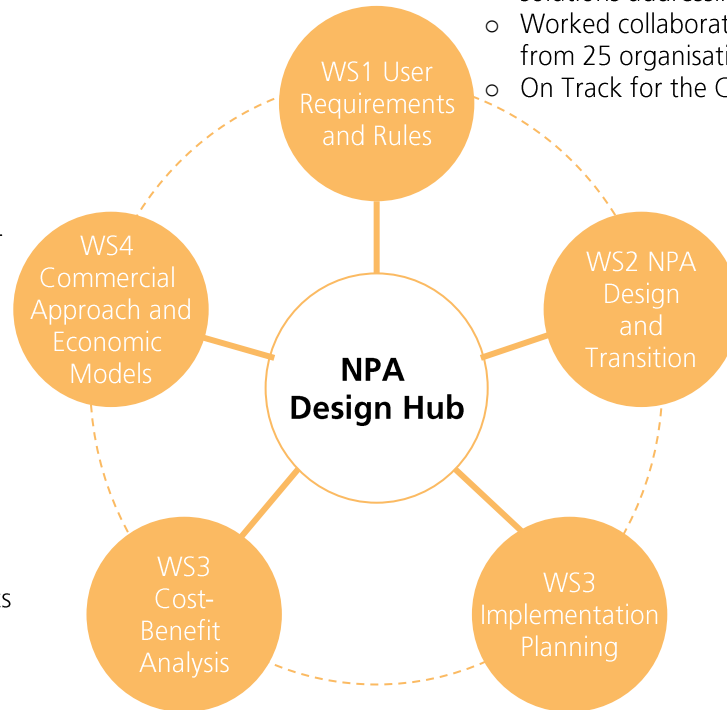
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Payments Strategy Forum
Supporting Content
New Payments Architecture (NPA)
6th June 2017

Summary

- This presentation provides a view of the latest content in development from each of the NPA workstreams
- This view is being provided to the Forum as a response to an action following the 26th April Forum session
- An earlier iteration of this content was recently presented to the Vendor Advisory Group on the 19th May
- The content is providing the basis for Consultation document development
- Each workstream has proposed draft questions for Consultation which we would appreciate your feedback on
- More detailed content can be found in the supporting pack, if required

NPA Workstreams Status Overview



- Designed and presented core proposition for the 3 End User Needs solutions addressing the detriments identified in the Strategy.
- Worked collaboratively with input from a wide range of stakeholders from 25 organisations to design and validate the 3 EUN solutions.
- On Track for the Consultation dates.

- High Level Architecture Outlined.
- Preferred centralised option for Settlement and Clearing agreed at Design Hub.
- A Settlement and Clearing Option analysis is included in the Supporting Doc pack.
- Working on Transition States with Implementation Planning workstream.
- Actions in place to bring on track for Consultation dates.

- Developed a Payments Industry implementation Landscape shared with the Forum.
- Risk assessment of Implementation Landscape undertaken
- Key planning principles and assumptions agreed and in this pack.
- Developing an Implementation Plan and we ask for your feedback on the draft version included in this pack.
- On Track for the Consultation dates; dependent on WS2 for finalisation of transition states.

- Developed a commercial categorisation for the elements of the NPA.
- Clarified the role of competition in the architectures.
- Draft funding and economic models being discussed and finalised.
- On Track for the Consultation dates.

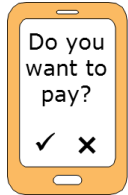
- Interviewed a wide sample of the payments community.
- Built a CBA model in line with the agreed Inception Report.
- Finalising the first draft report within the Workstream team.
- Included Key Assumptions and emerging cost benefit model in this pack.



WS1 – User requirements and rules

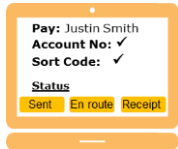
WS1 is defining Rules and Requirements for the 3 EUN solutions proposed in the PSF strategy

1. Request to Pay



For a majority of end users, current push pull payments work well. However, for an increasing share of the market they are **not flexible enough to meet their needs** especially driven by changing labour arrangements where more and more people/businesses are on increasingly variable income and trading receipt patterns.

2. Assurance Data



At present **end users making a payment are subject to uncertainty at various points in the payment journey**. They are not able to determine for certain the identity of the recipient and thereafter the subsequent status of the payment-Receipt as well as any events mid flight.

A recent “Which? Super complaint” to the PSR on safeguards related to push payments highlights some of these vulnerabilities

3. Enhanced Data

Traditionally a payment carries a limited set of data (Amount, Date, Identity of Origin). This is supplemented by a companion document sent via alternative means usually paper based.

Receipts, invoices, tax certificates etc. **This inability to add data creates problems with providing sufficient data for reconciliation, adding additional data required for other solutions such as Request to Pay and Assurance Data etc.**

We are utilising a User-Centric Requirements Approach

The Requirements approach:

- places the end user at its heart
- encourages a collaborative approach to requirements definition from the various stakeholders



1 PSF Solutions

- Request to pay
- Assurance data
- Enhanced data

2 Identify use cases

- Identify actors and relations
- Identify various tasks between the various actors
- Case Prioritisation

3 Elaborate User stories

- Define user stories
- Define acceptance criteria
- Define high level e2e journeys
- Carry out prioritization

4 Detail and refine

- Detailed user stories
- Detailed acceptance criteria
- Detailed non Functional requirements

Enablers



Workshops



Stakeholders Consultation



Prioritisation Framework



Review and Sign off

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Request to Pay

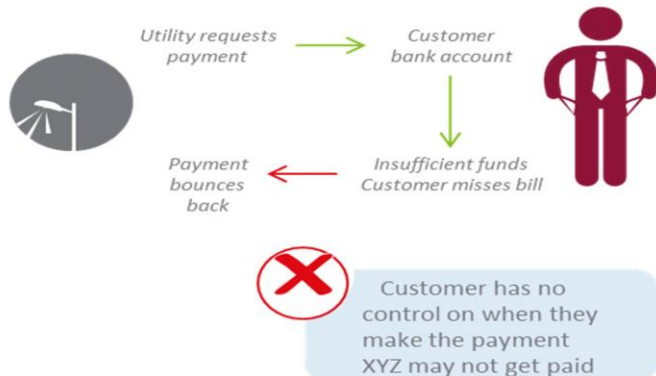
Problem Description

For a majority of end users, current push pull payments work well. However, for an increasing share of the market they are **not flexible enough to meet their needs** especially driven by changing labour arrangements where more and more people/businesses are on increasingly variable income and trading receipt patterns.

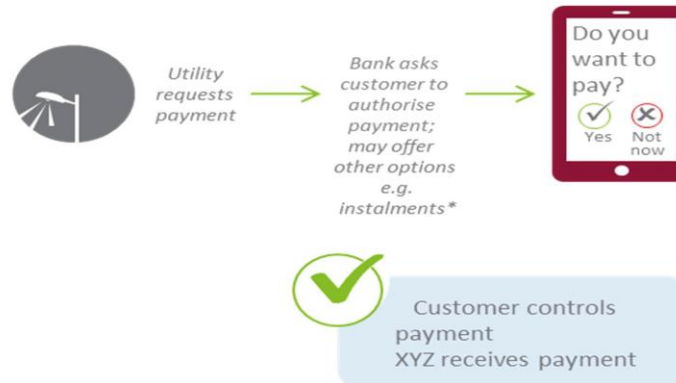
Value proposition

- ✓ Control: Payers would have increased control over the timing of their payments allowing them to sync these to their income
- ✓ Increased customer service quality and brand value for businesses
- ✓ Increased operational efficiency in the collection of bills for payees

Problem



Solution



*This may include, for example, an option to pay part of the balance now, and the rest later, it will take into account the need for certainty of payment

Request to Pay

Payee's view

Use cases



Initiate request to pay

Provide request related information (Invoice, receipt, etc.)

Receive payer's response

Reconcile payment

ED

Update payers account

ED

Example

Green Energy (GE), a UK energy supplier, would like to get paid by John, for energy supplied last month. GE sends John a request to pay with a bill amount and payment period.

Two days later, GE receives a response from John. He will be paying half of the amount and the rest later. One day before the end of the payment period, GE receives a second response from John saying he will pay the remainder immediately.

At the end of the payment cycle, GE reconciles the payments made. They utilize the Request to Pay Reference captured on the payment to carry this out.

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ED

Use Case Supported
by Enhanced Data

Request to Pay

Payer's view

Use cases



Receive request to pay

- Check associated payment info (Invoice, receipt, etc.)

Respond to request to pay

Pay Full amount Pay Partial amount

Request payment extension

Decline payment

Contact requester/ Help

- Select payment method

- Initiate Payment

ED

Example:

GE sends out Request for Payment to its customers.

Both John and Mary, separately, receive a request to pay from Green Energy (GE), their energy supplier, with the amount and associated payment period during which they can make a payment.

Two days later John accepts and pays half of the amount owed. A week later he pays the remainder.

Meanwhile, Mary is not able to make the payment within the payment period. She requests GE to contact her to discuss alternative payment options. GE inform her that as part of their existing contract with her she has the option, and does qualify, for a payment extension. She requests a one week extension. GE approve this.

Three days into the extended period she receives some income and makes the payment to GE.

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Assurance Data

Problem Description

At present **end users making a payment are subject to uncertainty at various points in the payment journey**. They are not able to determine for certain the identity of the recipient and thereafter the status of the payment-Receipt as well as any events mid flight. A recent "Which? Super complaint" to the PSR on safeguards related to push payments highlights some of these vulnerabilities

Value proposition

- ✓ **Increased certainty:** to end users-real time balance information, Intended time of Transaction completion, Confirmation of Payee, Confirmation of receipt
- ✓ **Increased uptake of electronic payments:** as a result of increased end user confidence



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Assurance Data

Payee's view

Use cases



Confirmation of Payer's identity

Determine Payer identity using an associated account reference or proxy

Determine Payer identity using an associated account reference or proxy details for 'indirectly addressable' accounts

*Use cases applicable only to payees acting as billers



Determine status of payment made

Determine position of payment on journey

Determine credit status

Example:

Matt has just signed up for a contract with British Mobile and chosen to pay via Direct debit.

As a DD service user British Mobile are required to verify the identity of the payer to ensure the account details provided relate to the payer.

In addition to validating the account number and sort code combination (modulus check) they proceed to verify that account details relate to Matt.

British Mobile utilises the Confirmation of Payer service to verify the latter.

Once payment has been made British Mobile is able to determine the credit status of the payment.

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Assurance Data

Payer's view

Use cases



Confirm Payee's identity

Determine Payee identity using an associated account reference or proxy

Determine Payee identity using an associated account reference or proxy details for 'indirectly addressable' accounts



Determine Status of payment made

Determine delivery status

Determine position on journey to Payee

Determine debit status

Example:

Peter has received a text message from Mark, his window cleaner, with some bank account and payment details for a job Mark just concluded. Peter wants to be sure that the details he received are correct and that the account actually belongs to Mark when he makes the payment. Peter accesses his online banking account, inputs Marks account details and confirms that the account does belong to the correct Mark he is willing to pay.

The next day Peter consults the payment he made given that he wants to be sure the payment has reached Mark's account and that the full amount has been accredited to him.

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Enhanced Data

Problem Description

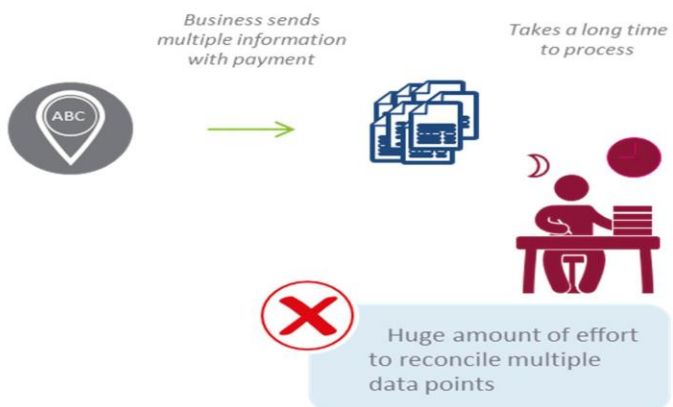
Traditionally a payment carries a limited set of data (Amount, Date, Identity of Origin). This is supplemented by a companion document sent via alternative means usually paper based. Receipts, invoices, tax certificates etc. **This inability to add data creates problems with providing sufficient data for reconciliation, add additional data required for other solutions such as request to pay and assurance data etc.**

End users have expressed a desire to have more data included with the payment.

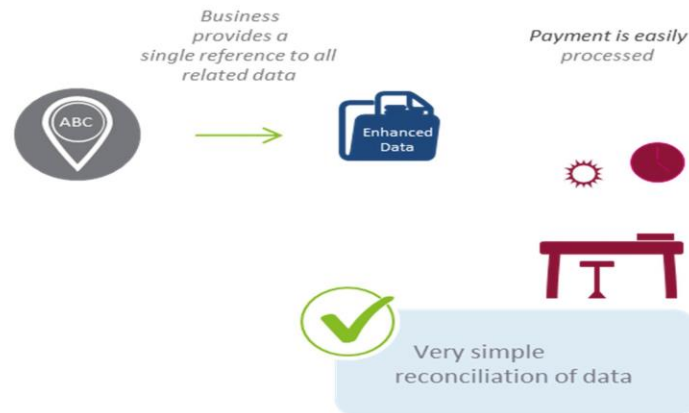
Value proposition

- ✓ **Reduced operational costs:** to end users associated with reconciling payments
- ✓ **Increased efficiency and reduction in errors** currently inherent in the reconciliation process
- ✓ **Greater opportunity for automation**

Problem



Solution



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Enhanced Data

Payee's view

Use cases



Reconcile a remittance to a payer



Reconcile a remittance to a transaction

Example:

Northern Water (NW), a water supplying company, receives a payment into their collection account.

Using the additional data, they are able to determine that the payment is from their customer Anne (Account holder) for her January sewerage bill. (Transaction). They update her account accordingly.

Enhanced Data

Payer's view

Use cases



Add additional data to a payment



Identify a payment made

Example:

Anne is making a payment to Northern Water, her water supplier, for February's bill. Within her online banking mobile application, she looks up her customers account and adds it with the payment as required by NW.

Two days later, Anne accesses her bank and is able to identify every transaction she has made this month and to whom; for what and how much.

Draft WS1 Questions for Consultation (1)

General Questions

- Principles: Do you agree with our design principles?
- Scope: Do you agree with the scope as outlined for each of the solutions?
- Do you agree with our description of the solutions?
 - Does it solve for the detriments identified in the PSF Strategy?
 - Would your organisation utilise this solution?

The workstream has presented what it believes is the core proposition that meets the detriments identified and provides a platform for competition and innovation to build on.

- Do you believe the level of specification we have provided is sufficient to foster a common standard while leaving room for competition and innovation?

Draft WS1 Questions for Consultation (2)

Solution specific questions

Request to Pay

The Forum has proposed flexibility on when a payment is made as a core aspect of the Request to Pay. This is through the Payment Extension functionality. The terms of which, are dictated in the contract between the payer and the payee.

- Would your organisation utilise the Payment Extension functionality? If you are a Payee, would you offer it to all your customers?
- Do you agree with our proposal to leave the terms of the Payment Extension to the contractual agreement between the payer and the payee?

Confirmation of Payee

The Forum has come to the conclusion that for Confirmation of Payee to achieve its intended goals, this must be an opt out service. All accounts applicable must be accessible via the service by default.

- Do you agree with this conclusion?

Enhanced Data

The Forum has made the decision not to specify a minimum set of data elements/fields required as part of Enhanced Data. This decision is driven by the variety of data requirements from one end user to the other.

- Do you agree with this conclusion?

WS1 Next Steps

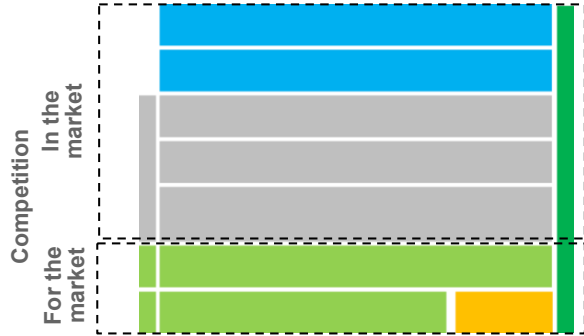
- Incorporate PSF feedback into draft content
- Issue draft Consultation document and supporting document in line with consultation draft schedule.
- Finalise Requirements and Rules and obtain sign off by the workstream.



WS2 – NPA Design and Transition

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NPA Key Features



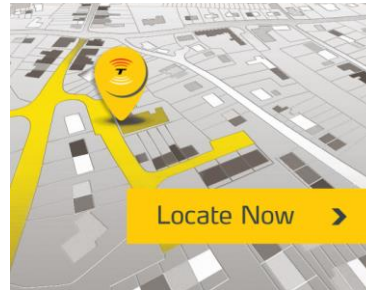
NPA is layered to maximise enablement of competition

EASY!
ISO 20022

NPA uses standard messaging to make market access and innovation easier



NPA is based on push payments to enable simplicity and customer control



NPA will always know where payments are to provide peace of mind & service security



NPA will support compliance

3



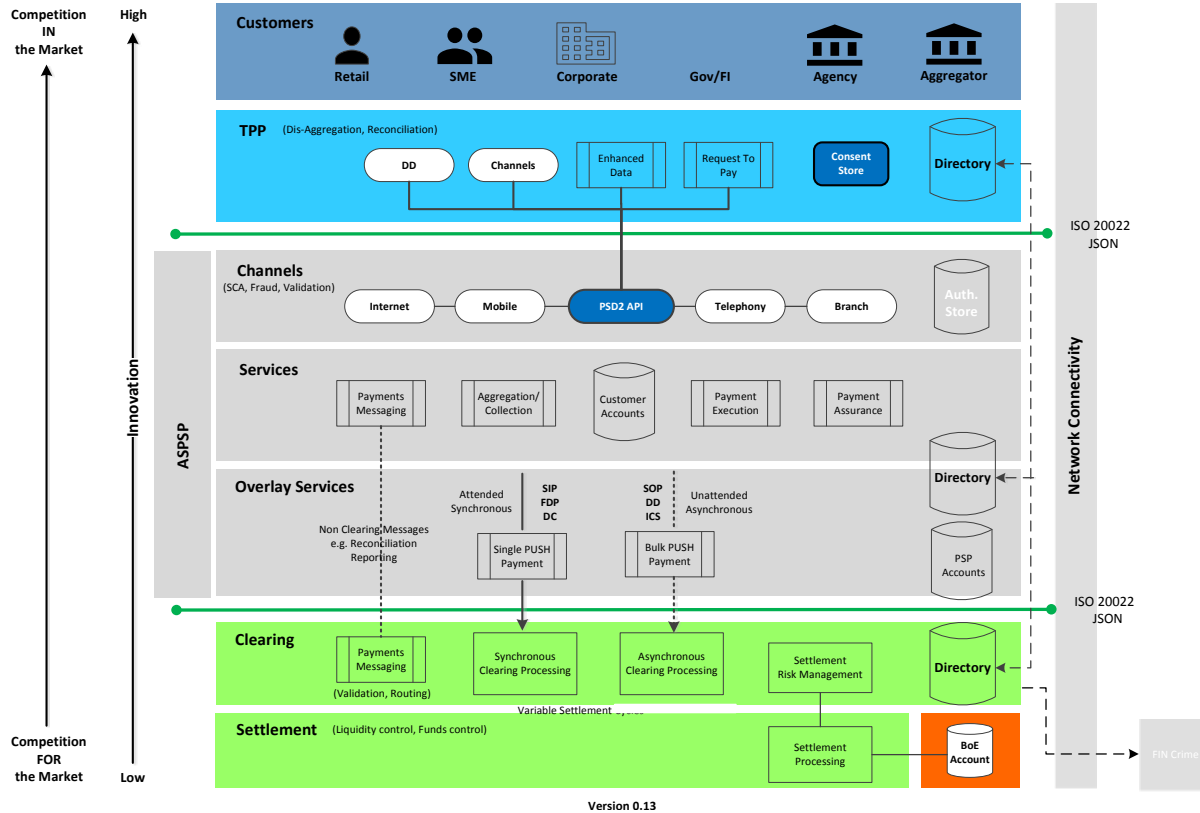
AVAILABLE



NPA will be reliable, available and secure

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Architecture Principles



Core Principles of NPA

1. A single set of standards and rules, with strong central governance
2. End-to-end interoperability (including APIs and a common message standard)
3. A thin collaborative infrastructure, allowing multiple providers of overlay services to compete in the market simultaneously
4. Secure and resilient, with financial stability a key principle

RTGS Principles Supported

1. Strengthened resilience, interoperability and contingency messaging
2. Facilitates direct access and aggregators
3. Convergence of domestic messaging to ISO 20022 end2end
4. Flexible payment models via overlays and APIs
5. 24x7 operation and flexible/shorter settlement cycles
6. Transition designed to minimise impact and isolate users from change

Note: The NPA will support a Push Payment model.

Drivers for layered architecture

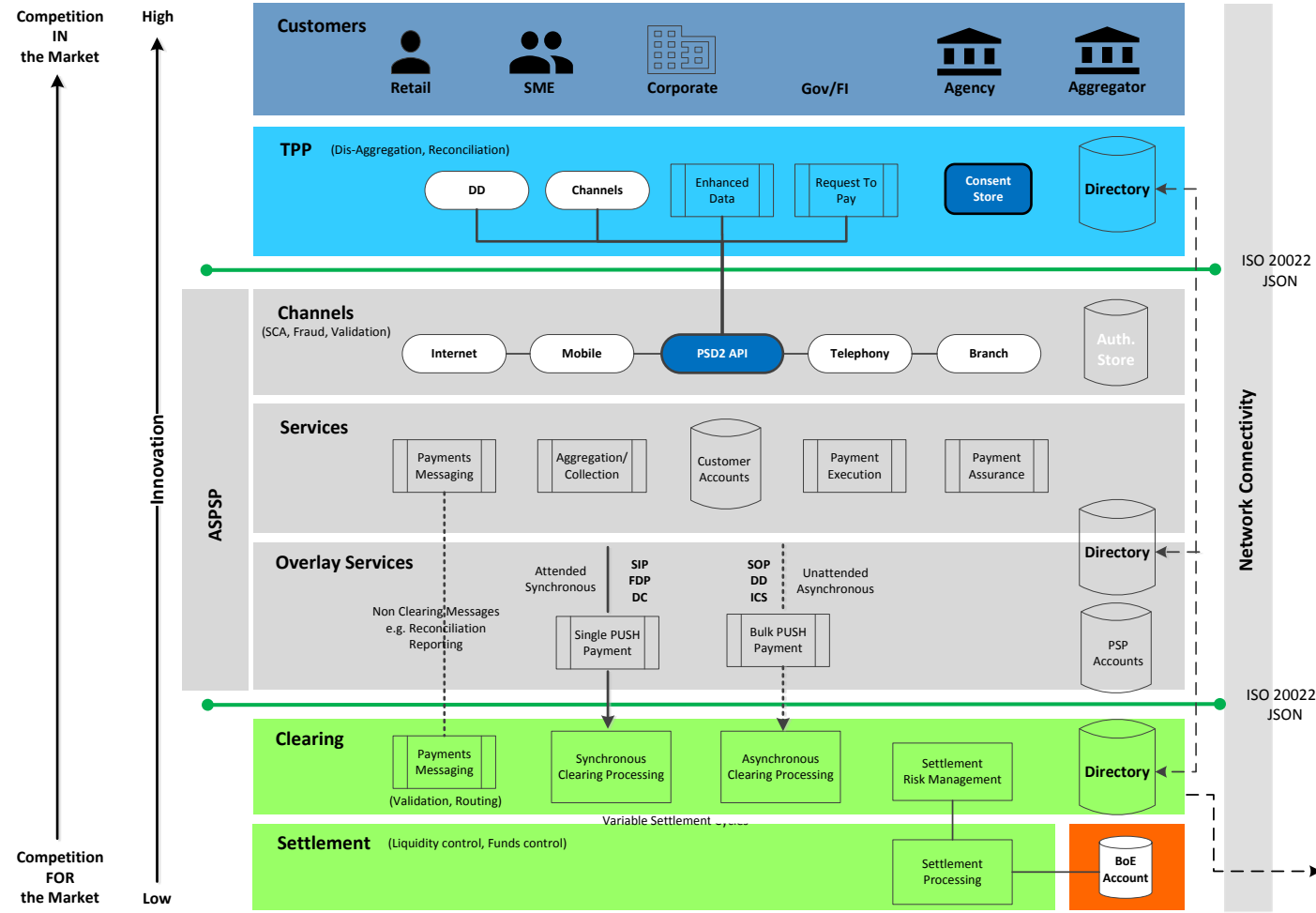
- ✓ Each layer separate from the other – mitigates the risk of contaminations
- ✓ Enables innovation and competition
- ✓ Allows for an easier 'upgrade path' to various components in the industry

NPA Key Features Mapped to Core Principles

Four core principles were defined by the Forum to govern the New Payments Architecture. A set of aligned Architecture Design Principles were established as below to guide the design decisions.

Core Principle	NPA Design Principle
A single set of standards and rules, with strong central governance	<ul style="list-style-type: none"> o NPSO Approved Overlay Service(s) enabling competition o Participants will be required to be certified and registered (likely by the NPSO) ensuring security and resilience
End-to-end interoperability (including APIs and a common message standard)	<ul style="list-style-type: none"> o ISO 20022 - data standard will be used for all messaging enabling market access and innovation o Supports Transition Strategies and Methodologies underpinning resilience and stability o The fate of attended payments will be known immediately providing customer control and service resilience o Unattended Payments will be processed Asynchronously maintaining core payments capability
A thin collaborative infrastructure, allowing multiple providers of overlay services to compete in the market simultaneously	<ul style="list-style-type: none"> o Clear Boundary of Layers enabling competition and innovation o Service features and propositions can be vendor agnostic enabling competition and innovation o Utilizes a push payment model to enable simplicity and customer control
Secure and resilient, with financial stability a key principle	<ul style="list-style-type: none"> o 'Always On' Service enabling 'real time' control of payments and resilience o There will be certainty of settlement for cleared Items to provide assurance and confidence o Common Security Standard use to underpin payment eco-system resilience and stability o The fate of transactions will always be known to provide peace of mind and service security o Real time data to support improvements in FinCrime detection and management

NPA High Level Target Architecture – Overview

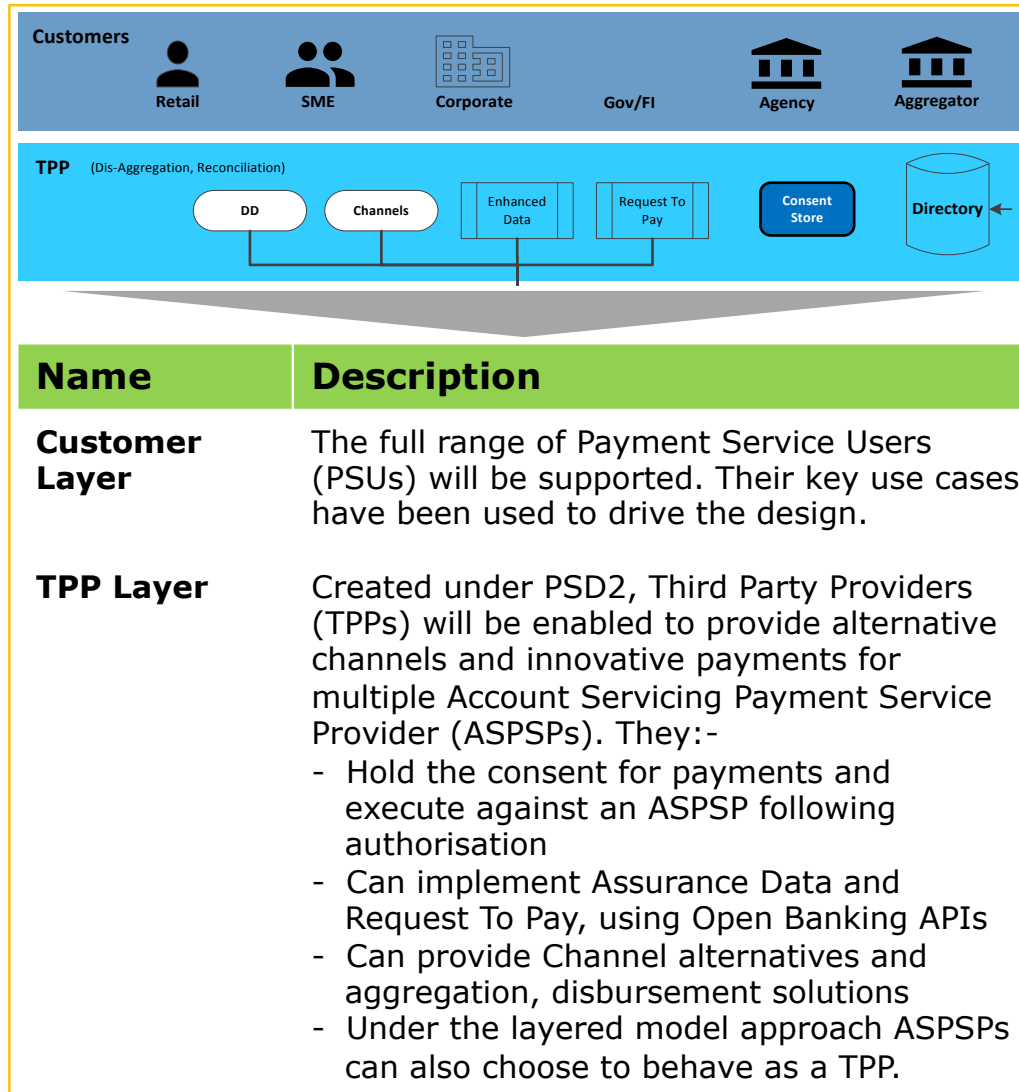


Version 0.13



o Please refer to Appendix B for a description of the components

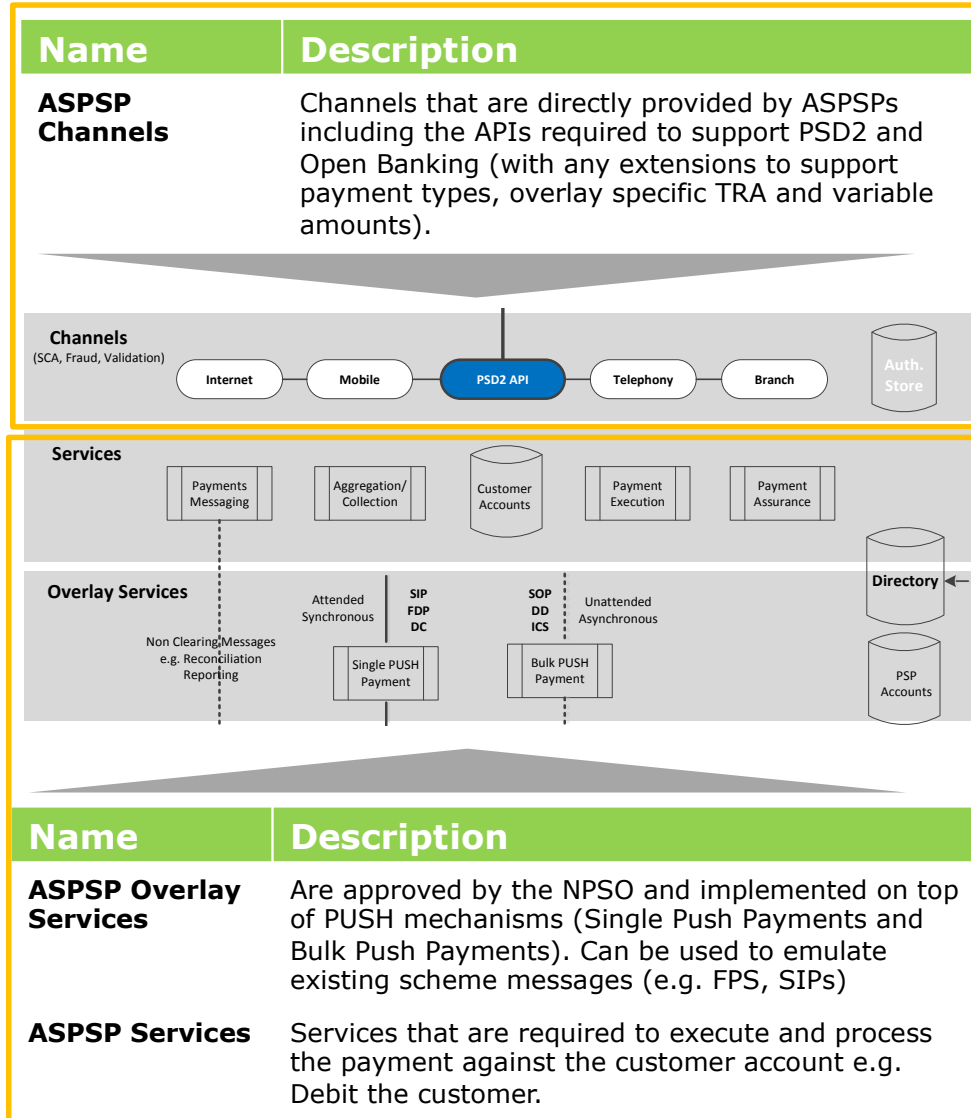
NPA High Level Target Architecture – Customers & TPPs



Note:

- Customers will be able to access the NPA via a TPP or via their ASPSP.

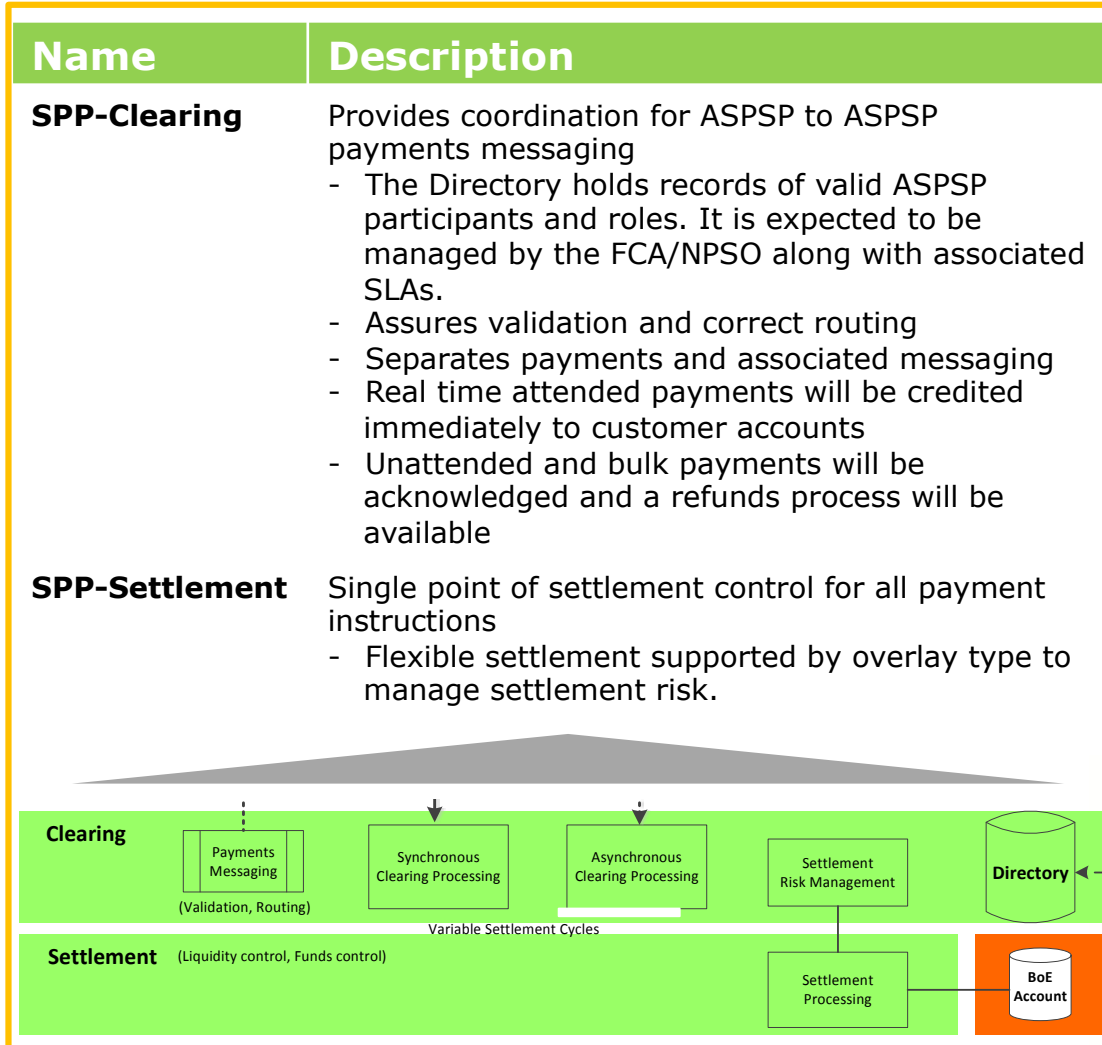
NPA High Level Target Architecture – ASPSPs



Note:

- Customers will be able to access the NPA via a TPP or via their ASPSP.
- PSD2 compliant corporates with their own or outsourced capability will be able to submit to the clearing layer (detailed analysis of options is currently underway)

NPA High Level Target Architecture – Settlement & Clearing



Single vendor and multi-vendor settlement and clearing deployment options (see later slides)

NPA High Level Target Architecture

Networking Layer

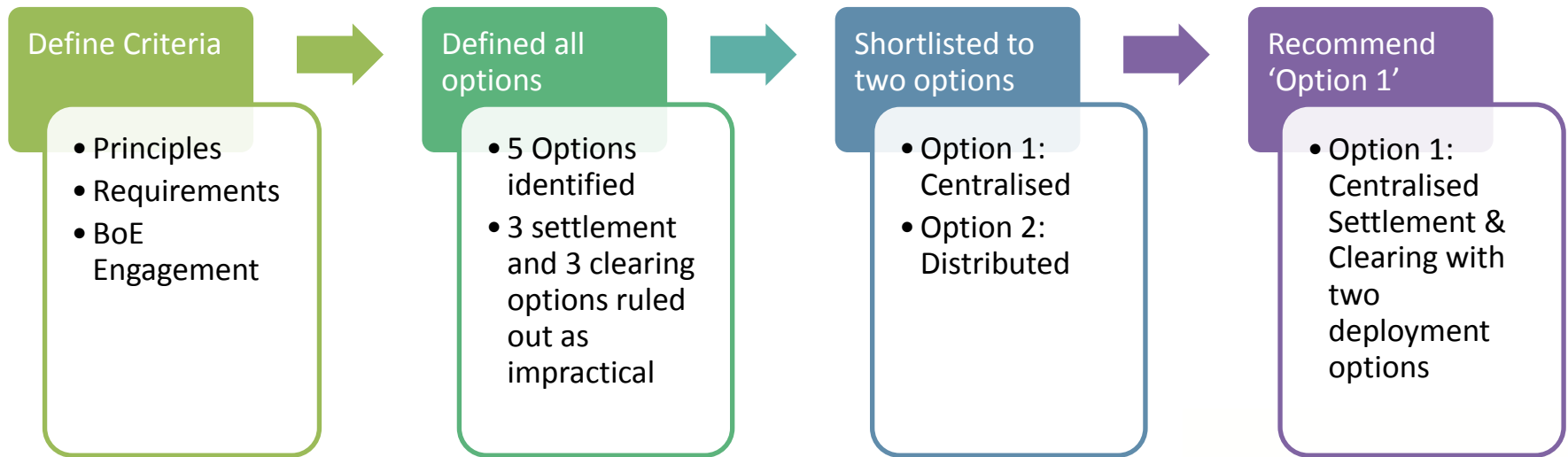
Name	Description
Networking Layer	Connectivity between the layers and components will be open to multi-vendor competition (e.g. BT, Virgin, Vodafone) and not tied to a single or proprietary provider tied to a particular network element.

The diagram illustrates the Networking Layer architecture. It features a horizontal grey bar labeled "Network Connectivity". Two green dots are positioned above the bar, each labeled "ISO 20022 JSON". A dashed arrow on the left points from the first dot down to the bar, and another dashed arrow on the right points from the second dot down to the bar. A large grey arrow points downwards from the top of the table towards the diagram.

NPA Settlement & Clearing

Settlement & Clearing Analysis Process

An exercise has been undertaken to analyse the options for settlement and clearing within the NPA..



- The preferred Option (Option1: Centralised) is described in this main section.
- Option 2: Distributed is described in the Appendix together with the rationale for the decision to recommend Option 1.

Settlement and Clearing Key Considerations

The following key considerations were taken into account when identifying the settlement risk and settlement options for the NPA.

Aligned to new RTGS system

- The settlement risk model for NPA must be aligned to the new BoE RTGS system
- The settlement model should be liquidity efficient for participants, without jeopardising settlement finality and IOSCO principles (the optimal model using 1 or 2 account is yet to be accessed along with the approach being adopted in the US and Europe)

Settle in BoE money

- A key requirement for NPA is that settlement must be done in BoE money

Increased funding available in real-time

- Participants should be able to adjust the value of funds earmarked against Net Sender Caps (NSCs) as close to near real-time as practicable with minimal manual steps

Flexible settlement

- Setting multiple settlement cycles by payment type must be supported unless continuous settlement is employed

Single (attended) and Bulk (Unattended) payments

- Settlement of single and bulk payments must be supported, ideally via reference to a single risk position per participant
- The exact model is subject to any bulk platform decision
- Single common interface to the new RTGS platform

24/7

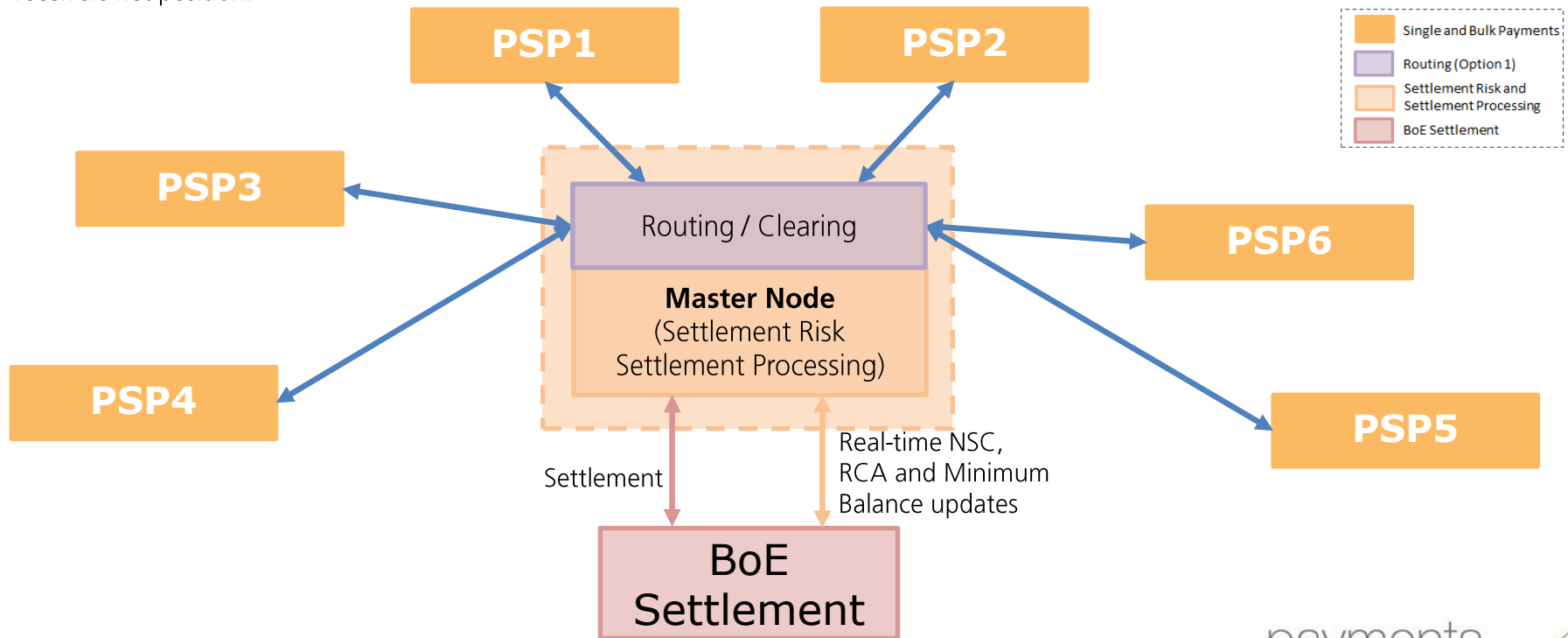
- Target architecture must enable real-time 24/7 settlement risk checking and periodic settlement output to the BoE

Reversals and Returns

- Must allow reversals and returns to be processed
- Notification of payment status must be delivered to the involved participants, so that the participant host system can be updated

Centralised: Hub & Spoke Settlement and Hub & Spoke Clearing

- Central participant messaging with clearing and settlement via a Settlement Risk and settlement via a Master Node.
- The Master Node validates that the sending participant is operating within its Net Sending Cap and clears the payment; and adjusts receivers net position.



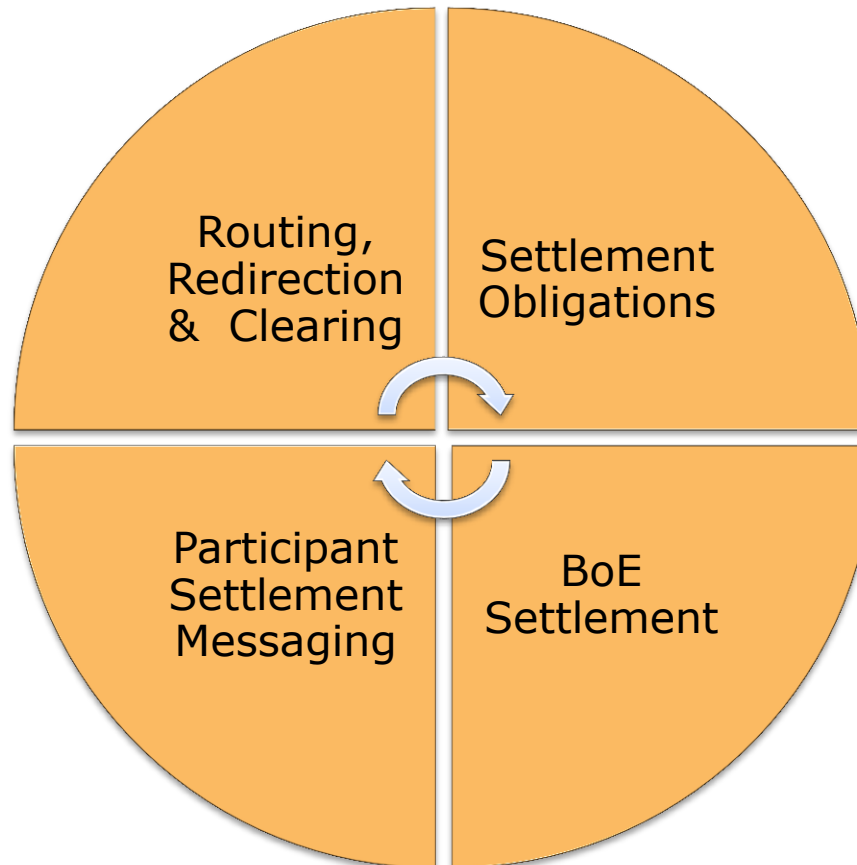
- Controlled settlement processing - no settlement risk
- Simple to govern, operate and reconcile
- Well understood approach with existing schemes and best practice globally including the recent US (TCH) and EU (SCT Inst) models
- Simplified interfacing and messaging
- Simplified PSP to PSP relationship management – a new PSP only needs to establish a relationship with the Clearing and Settlement Risk Manager Infrastructure.
- Easier to add or remove PSPs

Responsibilities of Hub & Spoke Settlement and Hub & Spoke Clearing (Option 1: Centralised)

The proposed clearing and settlement model used the concept of a 'logical' central infrastructure for both clearing and settlement. The primary roles are shown below:

- Manage real-time NSC updates that are used in clearing
- Check the transactions can settle – Settlement and non-settlement participant limits
- Manage peer-to-peer payment message routing between sender/receiver
- Re-route per redirection database

- Notify the PSP participants (depending on model) of the clearing status
- Alert (non-payment messages) PSP when thresholds are near breach



- Create an irrevocable settlement obligation for transactions that have available funds
- Manage the available balance in line with the settling results
- Alert (non-payment messages) PSP when thresholds are near breach

- Maintain the settlement position between the settling participants
- Perform netting between settlement participants and initiate settlement with the BoE according to configured settlement cycles for the payment types – if the settlement cycle model is adopted
- Manage the available balance in line with the settling results
- Alert (non-payment messages) PSP when thresholds are near breach

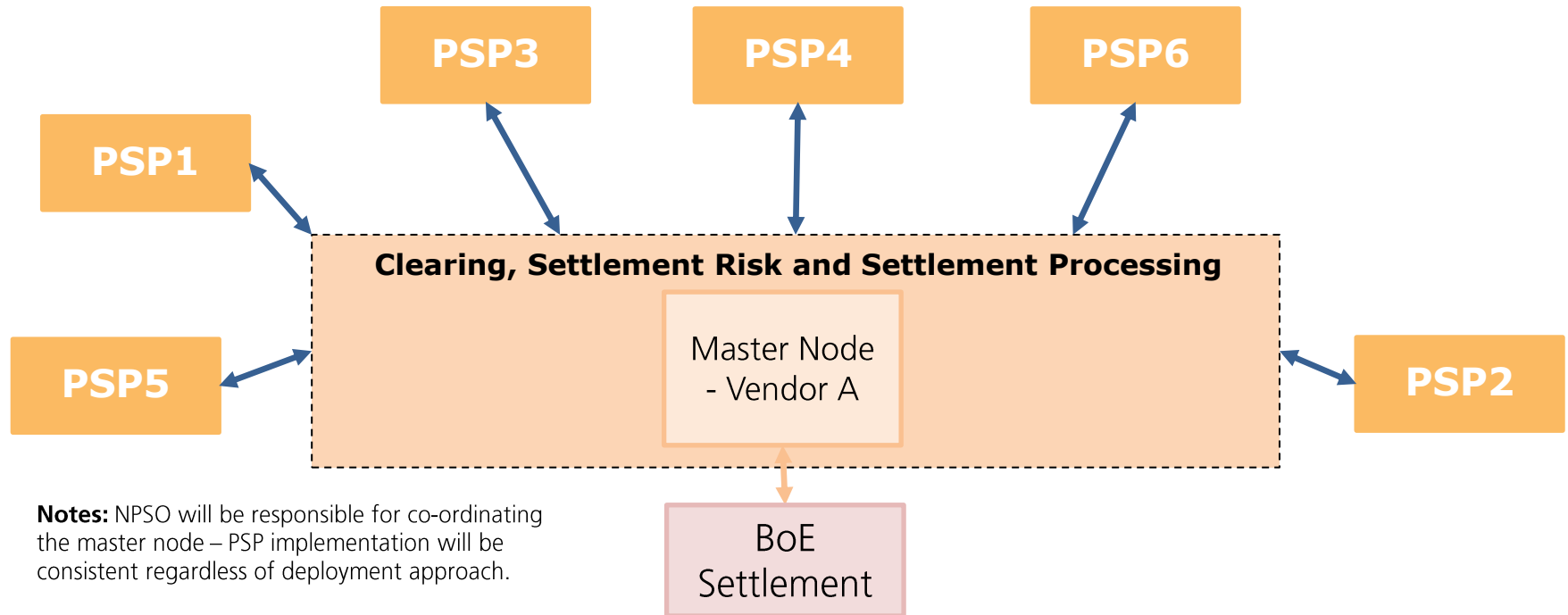
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Deployment Options for Option 1: Centralised

The centralised clearing and settlement model can be deployed to support a single vendor or multi-vendor approach.

Centralised Single Vendor Deployment Approach

A single vendor providing the settlement risk and settlement processing will mean



Notes: NPSO will be responsible for co-ordinating the master node – PSP implementation will be consistent regardless of deployment approach.

Opportunities:

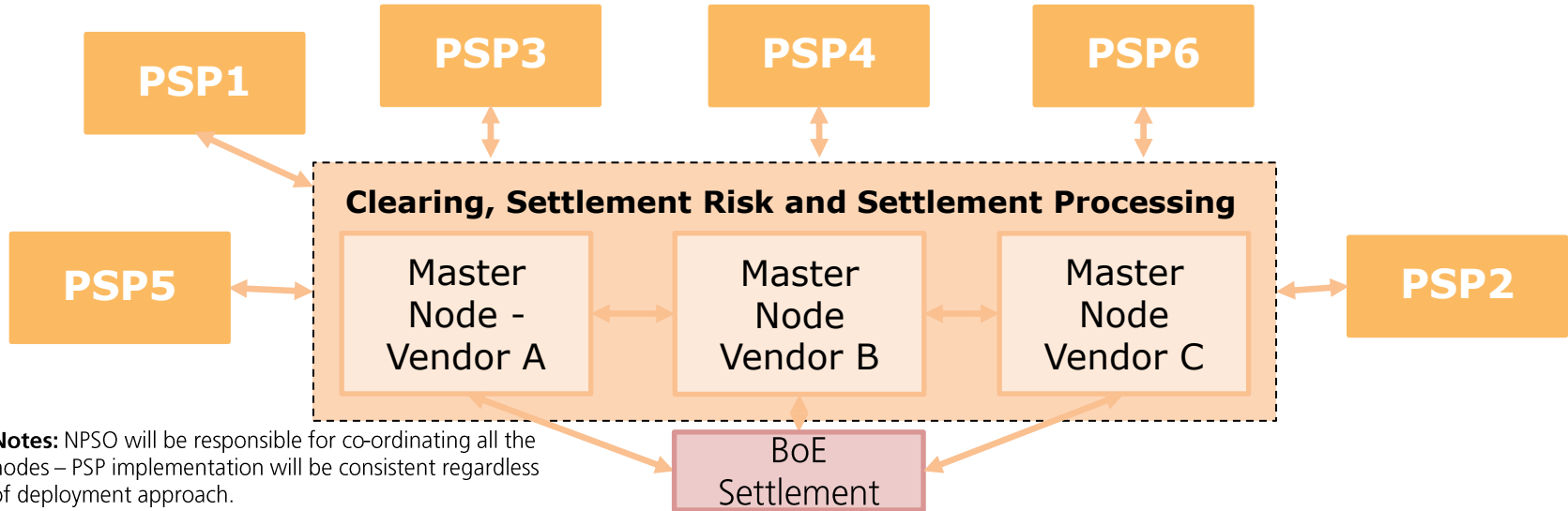
- No sharing of data in real-time between multiple nodes to provide a single risk position for each participant
- Alignment of settlement cycles between nodes
- Reconciliation and reporting will be simpler
- Reduced settlement requests to the BoE
- Consistent and standardised service models
- Single point of contact for operation issues
- Efficient oversight for NPSO
- Maximising volume has potential to reduce unit cost

Considerations

- Reliant on a single vendor to scale for increased demand
- Migration to an alternative supplier in event of contractual issues may require retendering
- Resilience will be provided by a single vendor only (e.g. active-active)
- Reliant on single vendor to accommodate changes – may have resourcing constraints – PSPs are reliant on a single vendor for service (on-boarding and support)
- May lead to reduced negotiating power with single vendor
- Limited opportunities to reduce transition risk between future vendors

Centralised Multivendor Deployment Approach

- Settlement risk and settlement processing could theoretically be provided by multiple vendors – working together based on common standards. Work on the technical and economic efficiency of the deployment approaches will need to be undertaken.
- The solution will allow for one or multiple settlement processing services, both providing resilience. Whether they are provided by the same vendor or not is a NPSO decision.



Notes: NPSO will be responsible for co-ordinating all the nodes – PSP implementation will be consistent regardless of deployment approach.

Opportunities

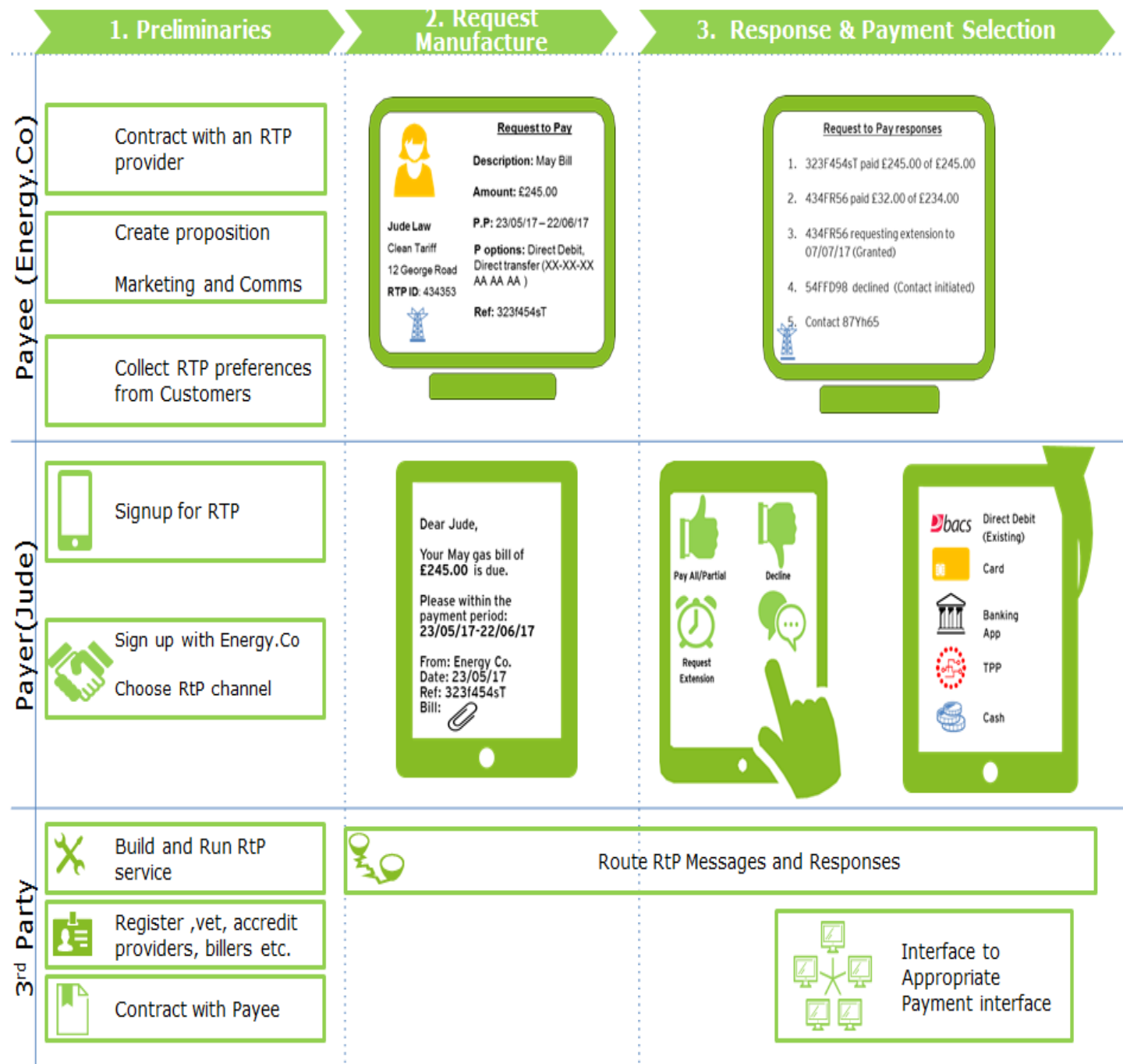
- Flexibility to scale – nodes can scale independently for increased demand
- Traffic can be directed based on market needs – traffic separated by capabilities (e.g. bulk vs. single, volumes, payment types etc....)
- Provisions for failure – simplified redirection in case of node/vendor failure / downtime
- Potential to accelerate changes / enhancements – one vendor may be able to deliver changes faster than the other
- Stronger negotiating power
- Reduced transition risk one model deployed
- Simplified integration / migration to new master nodes

Considerations:

- Will be operationally (NPSO oversight) and technically (vendor communication) more complex
 - Load balancing will need to be implemented across vendors
 - Nodes will need to share limited data in real-time to provide a single risk position for each participant
 - Settlement cycles need to be aligned
- Reconciliation and reporting will be more complex
- Each master node will (one for each PSP/Master Node) submit its own settlement requests to the BoE – BoE will need to process all requests within the time window (each request may affect the same account)
- Less traffic per vendor may have higher unit cost


NPA support of a potential Request to Pay service

Request to Pay – Example User Journey




4. Outcome

Payee (Energy.Co)



Reconcile between:

1. Money received
2. Request to Pay
3. Customer Account




Take appropriate action where required:

1. Contact customer
2. Close Request
3. Initiate debt recovery

Payer(Jude)

Dear Jude,
You have declined the payment request 3231454sT
Energy.co will be in contact soon.
From: Energy Co.
Date: 23/05/17
Ref: 3231454sT

OR

Dear Jude,
Thank you for Paying your May gas bill of £245.00.
Amount remaining: £0.00
From: Energy Co.
Date: 23/05/17
Ref: 3231454sT
Receipt: 

OR

Dear Jude,
Thank you for Paying £200.00 towards your May gas bill of £245.00
Amount Remaining: £45.00
Please pay by 22/06/17
From: Energy Co.
Date: 23/05/17
Ref: 3231454sT


OR

Dear Jude,
Your Payment extension has been approved.
Original Payment Period: 23/05/17-22/06/17
New Payment Period: 23/05/17-22/06/17
Amount due: £45.00
From: Energy Co.
Date: 23/05/17
Ref: 3231454sT


OR

Dear Jude,
You have declined the payment request 3231454sT
Energy.co will be in contact soon.
From: Energy Co.
Date: 23/05/17
Ref: 3231454sT

3rd Party

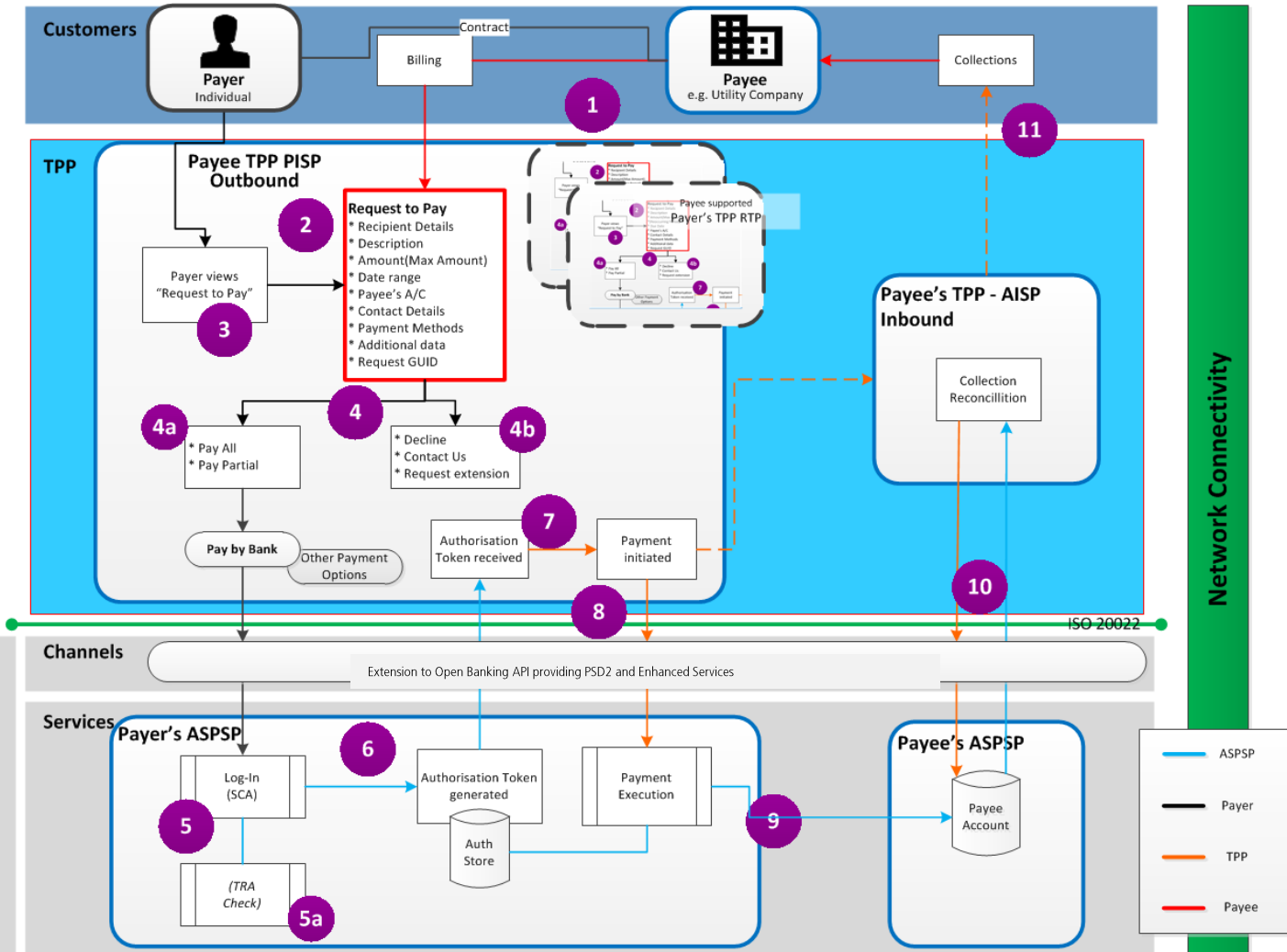


Route RtP Messages and Responses



Update RtP Status

One option showing how NPA could deliver Request to Pay



Note: This example has been established to verify that the NPA can support at least one variant of Request to Pay. This example should not be taken as the only way to deliver the solution.

○ Please refer to Appendix B for supporting explanation

Draft WS2 Questions for Consultation

NPA Design Principles

- Do you agree with the NPA design principles?
- If not, please provide details of what you do not agree with and why.
- Are there any design principles that you think are missing?
- Does the NPA design meet the four key principles?
- If not, please explain why.

Layered Approach

- Do you consider that the proposed design and layered approach creates more or less opportunities for competition and innovation?
- If less, please explain why.
- Do you consider that the proposed design and layered approach introduces more or less security and resilience?
- If less, please explain why.

Real Time Push Payment Model

- Does the NPA Real Time Push Payment approach pose any significant challenges to your organisation?
- If yes, please explain why.
- Are there any further pull payment use cases that have not been covered in this paper?
- If yes, please provide details.

Directory

- Does the concept of real time Directory data replication across multiple layers raise any concerns?
- If yes, please explain why.

Settlement & Clearing

- With the recommended approach (Option 1: Centralised) do you think the right balance of managing risk vs competition enablement has been achieved?
- If not, please explain why.

Performance

- Do you think that the NPA is better placed to support payment, messaging and transaction volumes of magnitudes larger than today's volumes? (assuming the advent of new services such as micropayments)
- If not, please explain why.
- Do you think that the other players in the (layered) ecosystem can achieve the expected payment, transaction and messaging volumes?
- If not, please explain why.

WS2 Next Steps

- Incorporate PSF Feedback and update draft content
- Work on next tranche of content
 - Enhanced Data and Assurance Data solution options
 - Additional use cases for NPA design validation purposes (e.g. direct submission, ICS)
 - Review and update the DCA use case
 - Finalise Transition States – from current state to final state architectures



WS3 – Implementation Planning

payments
strategy
forum

Implementation Planning Principles

1 Ensuring customer considerations are at the heart of any solution development plans

- **Requirements driven and aligned to end user needs:** Shall be fit for purpose and there will be a clear need for any functionality planned.
- **Ubiquity and ease of use:** Subject to legal and regulatory consideration, services will be commonly available to all (both end users and PSPs). The plan will ensure simple access and be easy to adopt by all.

2 Facilitating collaboration with industry participants in the development of any solutions

- **Standards compliant & interoperable:** The plan will map out steps required for migration to the defined and agreed industry standard. Adoption of this standard will be a requirement for participation to ensure interoperability.
- **Simplicity:** The plan will be as simple as possible to avoid any unnecessary complexity in the existing payments environment.
- **Adopt and enhance market best practice:** The plan will align to existing or emerging industry activity recognising that the plan may need to set new market practice in some areas.

3 Recognise wider industry developments when developing the plan

- **Flexible and extensible:** The plan must be capable of being adapted or extended to meet emerging changes to business requirements and to allow for varied pace of participant adoption

Implementation Planning Principles (cont'd)

4 Use best practice in technology implementation

- **Safe and Secure:** The plan must, as a minimum, maintain the existing security, integrity and fraud resistance of all aspects of the end to end payment transaction.

5 Providing optimum benefits for stakeholders

- **Maximum benefits at lowest cost and risk:** The plan will aim to maximise benefits generated for the customer, the industry and wider UK economy at the lowest overall risk and cost.

6 Agree plan approach with regulatory bodies including transition through to end solutions

- **Trust and confidence:** The plan must maintain and continue the trust and confidence in the environment today, minimising residual risks in the existing processes.
- **Business continuity and integrity:** Plan will have sufficient resilience and controls to accommodate planned downtime or unforeseen incidents without loss of service or impact on data integrity.

Planning Assumptions

A number of planning assumptions have been created.

By their nature, the assumptions reflect into the other workstreams. Accordingly, they have been shared and discussed, including with the Design Hub.

Planning Assumptions – detail

1 End users will have the same transaction capabilities as they do today or better

- End users comprise consumers, businesses and government
- They will receive communications about any beneficial changes throughout the implementation
- As a minimum they will be able to transact as they do today with any changes being due to enhancements such as more functionality & greater choice

2 NPA implementation will mitigate any additional systemic risk

- NPA will supersede the existing BACS, FPS and (when implemented) ICS infrastructures through a safe and sensible transition whilst maintaining the resilience and robustness of payment processing in the UK
- CHAPS, Cards and LINK are out of scope
- New or revised RTGS will be utilised for settlement

3 Existing payment services functionality will continue or improve under NPSO oversight

- Existing services include (but are not limited to): mobile proxy look up service, account transfer services (current accounts and ISAs), bulk payment redirection, biller update service & EISCD
- These will need to continue during and after transition to the NPA
- Any services that are discontinued for BAU reasons will not need to be supported

Planning Assumptions – detail (cont'd)

4 An appropriate managed approach to implementation

- Existing schemes, their services and systems will be maintained to run in parallel with the NPA for sufficient time to allow a phased migration - roll back (within the determined period) will provide migration flexibility
- All users of the schemes will be able to migrate to NPA in phases to mitigate volume transition risk, allowing for a broad range of readiness timeframes – there will be no 'big bang' implementation
- Where appropriate, new PSF derived overlay services will support the execution of payment instructions across existing payment types and NPA to enable early delivery of end user benefits

5 Each payment scheme can be transitioned independently

- BACS, FPS & ICS transition to NPA will be independent of each other and can run in parallel
- Institutions will be able to send & receive payments via existing and/or NPA route during transition phase
- Sunsetting of BACS, FPS & ICS infrastructures will occur at pre-determined dates and can happen independently of each other

6 NPSO will be responsible for governance, rules, standards & delivery

- PSPs/TPPs will require accreditation before they can use the NPA
- Overlay services will be approved by the NPSO to ensure NPA interoperability
- NPSO will mandate the sunsetting dates for legacy infrastructure

Planning Assumptions – detail (cont'd)

7 PSPs/TPPs will manage end user interfaces & proposition competitively

- User interfaces and customer channels will remain in the competitive space
- Individual institutions will be able to independently develop and tailor their own propositions unless there is a compelling end user benefit from rules specifying some elements of the user's experience (for consistency and ease of adoption)

8 A transition solution(s) may support the sunset of legacy infrastructure

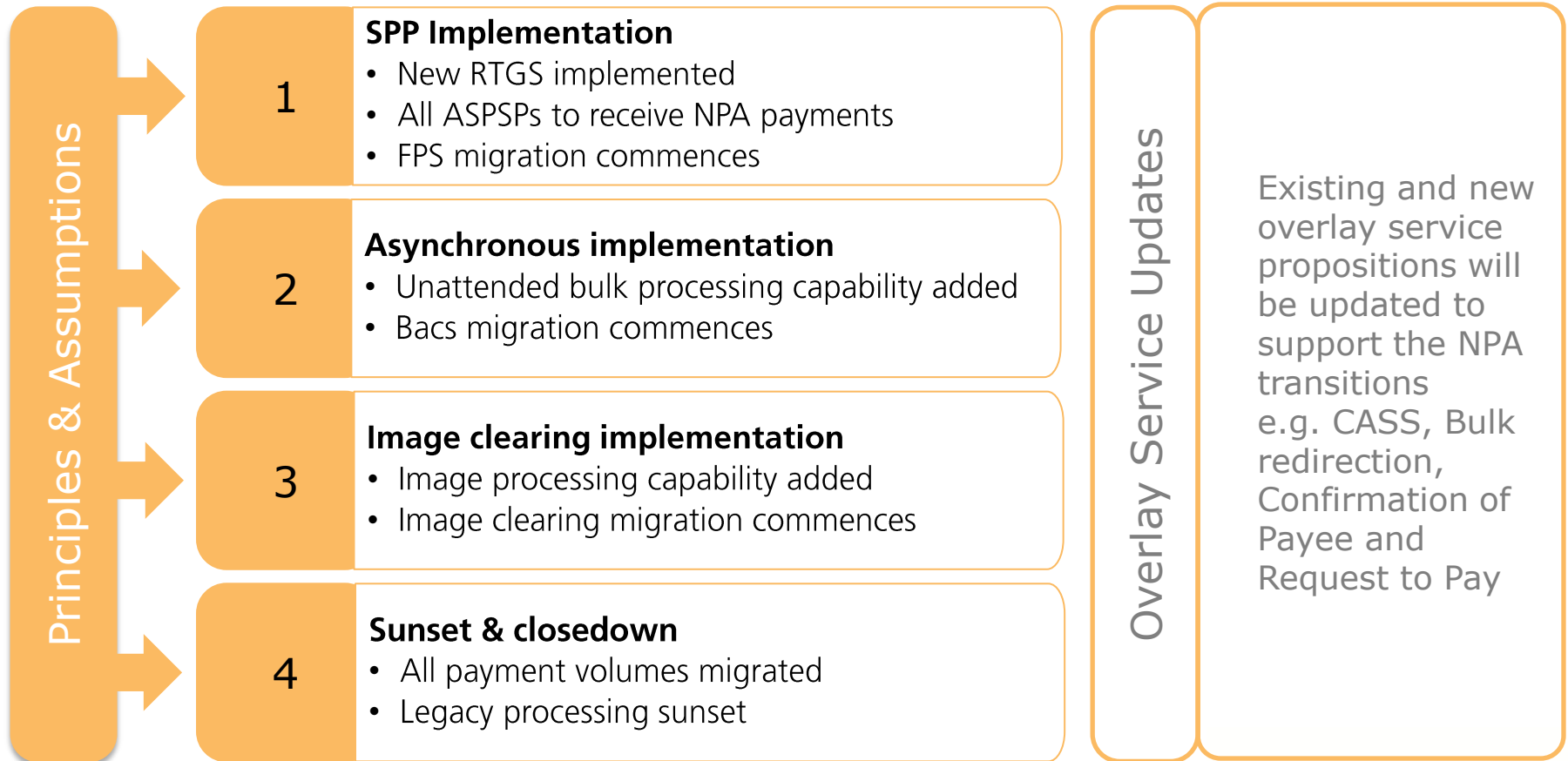
- Transition solution(s) will alleviate the burden of having to immediately change formats enabling a phased adoption
- Will still required a definitive end date to ensure transition solution can 'retire' and full functionality of NPA can be realised e.g. Enhanced data
- Transition solutions will be supplied competitively

9 Transition will be planned to provide continuity with minimal user impact

- Transition and migration will be carefully planned to ensure maximum availability
- From a pre-determined date all ASPSPs will be required to receive NPA derived payments
- All ASPSPs will be required to continue to receive the legacy payments that they currently receive until legacy infrastructures are sunset or switched through a transition solution
- ASPSPs can make other account types (e.g. mortgage accounts) reachable at their own discretion

High Level Architecture Timeline

The implementation timeline proposes 4 key transition periods



Draft WS3 Questions for Consultation

- Timeline: Do you agree with the timetable and sequence of events laid out in the implementation plan? If not, what approach to sequencing would you suggest?
- Principles: Do you agree with the implementation plan principles? If not, please provide details of what you do not agree with and why.
- Principles: Are there any principles that you believe are missing? If so, please provide details.
- Assumptions: Do you agree with the implementation plan assumptions? If not, please provide details of what you do not agree with and why.
- Assumptions: Are there any assumptions that you believe are missing? If so, please provide details.
- Mandates: Are the mandatory dates within the implementation plan realistic and achievable? If not, what would be a more appropriate timeframe?
- Decision points: Do you agree with the key decision points within the implementation plan? If not, please provide details.
- Risk: Are there any potential risks that you think the implementation plan does not address? If the answer is yes, then please provide details as to what they are and how we can best address them.

WS3: Implementation Planning Next Steps

- Incorporate PSF feedback in draft content
- Produce draft implementation timeline
 - including milestones and dependencies
- Agree transition states with WS2
- Share latest thinking in 2nd Vendor advisory meeting scheduled on 16th June
- Continue to populate consultation documentation in readiness for final review



WS3 – Cost Benefit Analysis

Disclaimer

The estimates, projections and assumptions in this document are what we consider reasonable based on secondary research, primary data gathering and discussions with a representation of PSPs, FinTech companies, businesses, payment system operators etc.

However, the assumptions used, when averaged or aggregated are subject to variations and may not necessarily reflect the expectations of individual participants in the payments system.

Introduction

The PSF has tasked WS3 with providing a Cost Benefit Analysis (CBA) of the various overlay services and the underlying New Payment Infrastructure (NPA).

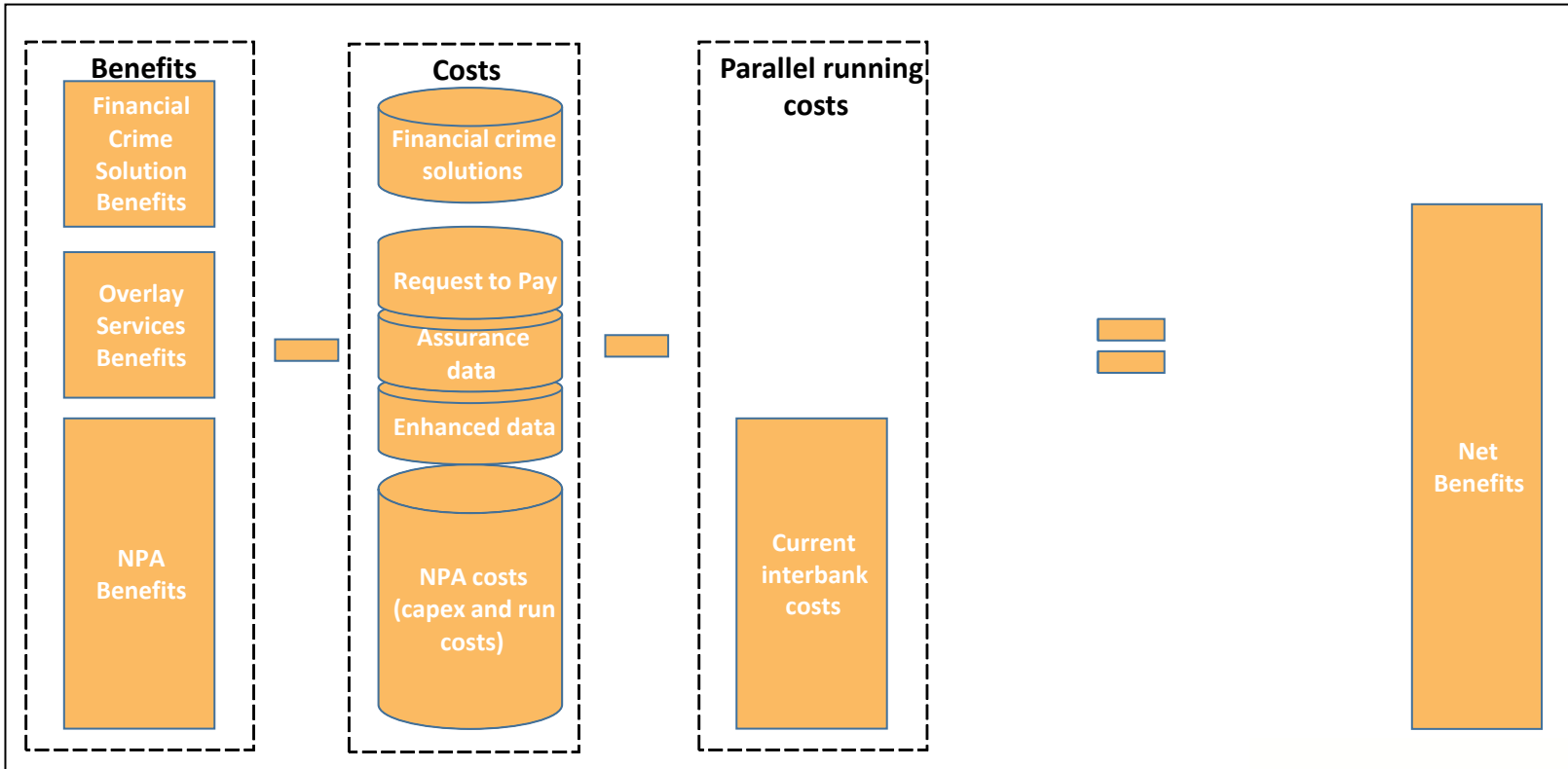
For each of these, the CBA will include:

- Capital expenditure
- Operating expenditure
- Parallel running costs

Assumptions are shared overleaf.

NB: These assumptions have yet to be validated in its entirety. Discussions are still ongoing with relevant stakeholders.

Overview of CBA analysis



Draft WS3 CBA Questions for Consultation

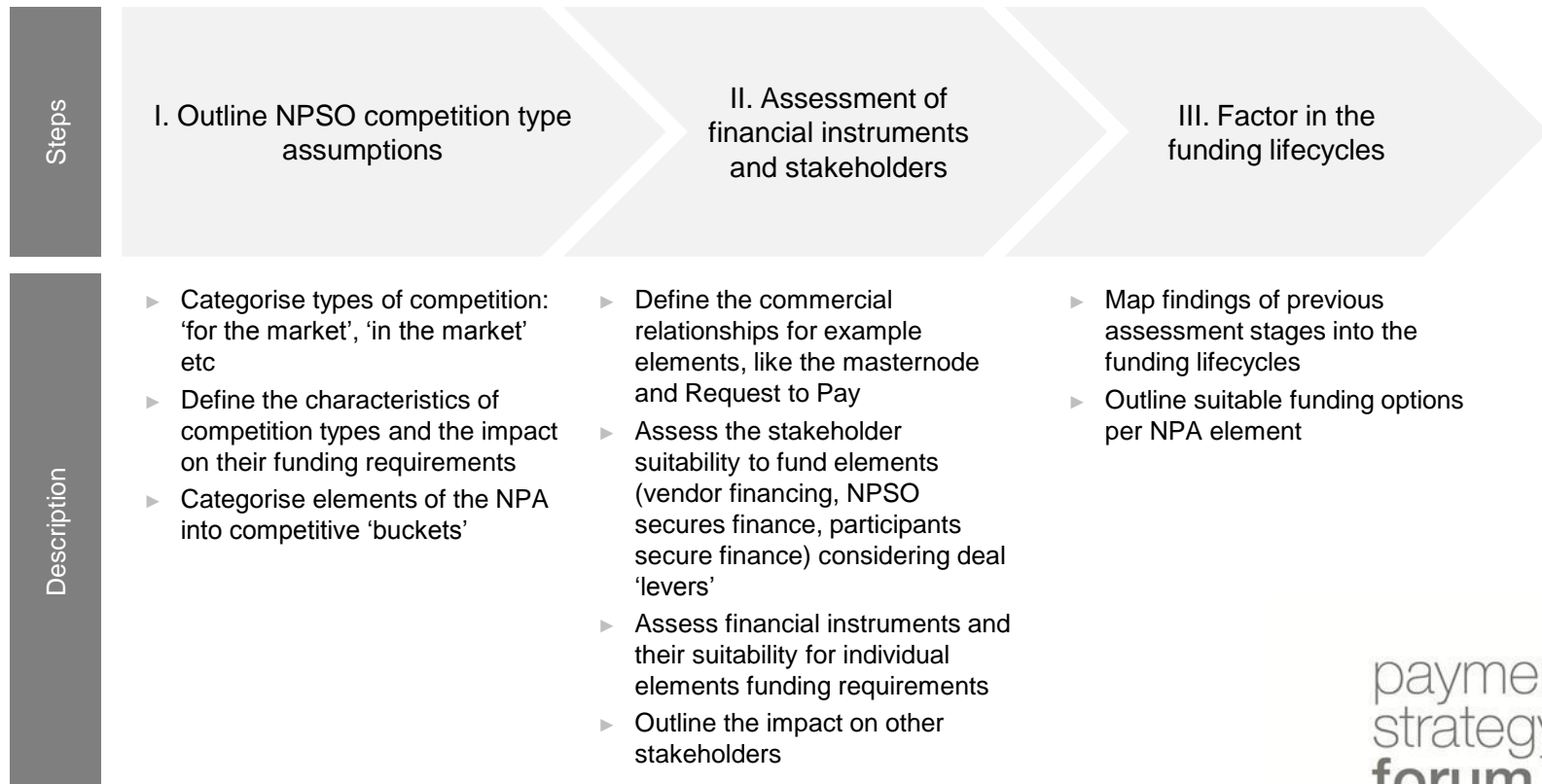
- Do you agree with our main CBA methodological assumptions? If not, please explain your reasons and if possible, please suggest an alternative.
- Do you agree with our cost assumptions with regard to the NPA and each of the technical solutions (Request-to-Pay, Enhanced Data, Assurance Data)? If you do not agree on any of these individual itemised assumptions, please state your reasons and if possible, please suggest an alternative.
- Do you agree with the individual quantifiable benefits we have identified with regard to each of the technical solutions (Request-to-Pay, Enhanced Data, Assurance Data) as well as to their potential scale? If not, please state your reasons.
- Do you think that we may have missed a material quantifiable benefit provided by any of the technical solutions? If so, please state the suggested benefit(s) and potential data sources that could help us quantify it.



WS4 – Commercial Approach and Economic Models

General assessment approach

We are following a 3-stepped assessment approach for the NPSO to analyse suitable funding options for individual elements of the New Payments Architecture:






Inputs into Workstream 4

WS4 is working with the PSR on the commercial relationships of the RtP and the registry and is focussing its own efforts on the 'masternode' element

Additional update

- ▶ The Design hub organised a workshop on the 5th May 2017 to discuss the Competition in Overlay services where representatives from all NPA workstreams were invited to clarify open questions of the PSR on the topic of NPA infrastructure competitiveness
- ▶ The Design hub agreed that commercial relationships should be covered as part of the consultation paper and as part of WS4

Scope	Status	Ownership
 <ul style="list-style-type: none"> ▶ Document current PSO commercial relationships (financial flows) ▶ Agree the profile of competition types: for competition, in competition etc. 	Completed	
 <ul style="list-style-type: none"> ▶ Understand the technical flows of the NPA architecture and use this to inform the commercial relationships of each element ▶ Provide a high level overview of the types of NPA's commercial relationships 	Workshops in progress	WS2 working with PSR
 <ul style="list-style-type: none"> ▶ Document a detailed view of the commercial relationships for two elements: one competitive 'in the market' element and one yet 'to be confirmed': Request to Pay and the Registry [WS2] ▶ Document a detailed view of the commercial relationship for a further element: 'for the market': Masternode [WS4] ▶ Pull together in single WS4 report 	Workshops in progress (WS4 working with PSR)	WS2/PSR to work with WS4 to ensure same framework and consistent output

Competition categorisation

We propose a 4-layered categorisation of Competition types

Categorisation of competition types as they might apply to the NPA		Commentary
Competition	<div style="display: flex; justify-content: space-between;"> "in the market" "for the market" </div>	
Types	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;"> <p>I. Unaccredited</p> </div> <div style="text-align: center;"> <p>II. NPSO Accredited</p> </div> <div style="text-align: center;"> <p>IV. "Market catalyst" ←</p> </div> <div style="text-align: center;"> <p>III. "For the market" of a single element</p> </div> </div>	<p>I. Unaccredited competition</p> <ul style="list-style-type: none"> ▶ Sourced independently and paid for by PSPs, corporates as users <p>II. Accredited competition</p> <ul style="list-style-type: none"> ▶ Purchased by PSPs, corporates from accredited suppliers ▶ Individual PSPs hold some systemic risk and thus need to be accredited by the NPSO to ensure standards and rules are followed ▶ Unaccredited' means participants are not required to be accredited directly by the NPSO. They may be required to meet other 'standards' set out by other bodies like the FC'A <p>III. "For the market"</p> <ul style="list-style-type: none"> ▶ "For the market" services are operated on a fixed timeline by a third party and procured by the New Payment Systems Operator (NPSO). <p>IV. "Market catalyst"</p> <ul style="list-style-type: none"> ▶ In circumstances where there is an identified need but there is a reticence among participants to create a market, the NPSO may become a 'Market catalyst', setting standards, undertaking research or offering a sandbox facility etc.
Systemic Risk	<div style="display: flex; justify-content: space-between;"> <div style="text-align: center;"> <p>Contained</p> </div> <div style="text-align: center;"> <p>Systemic risk managed through accreditation</p> </div> <div style="text-align: center;"> <p>High Systemic risk</p> </div> </div>	
Example elements	<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <ul style="list-style-type: none"> ▶ Data centers ▶ Payment staff </div> <div style="width: 30%;"> <ul style="list-style-type: none"> ▶ Bureaus ▶ Connectivity providers ▶ Aggregators </div> <div style="width: 30%;"> <ul style="list-style-type: none"> ▶ Payment systems (BACS) ▶ Overlay services (Paym) ▶ Settlement services (RTGS) </div> </div>	
Rationale	<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <ul style="list-style-type: none"> ▶ Full risk and liability is held by PSP ▶ Non-payment industry standards apply </div> <div style="width: 30%;"> <ul style="list-style-type: none"> ▶ Provide confidence to the market ▶ Payment industry standards apply ▶ Enable services in the market to operate </div> <div style="width: 30%;"> <ul style="list-style-type: none"> ▶ Technical or economic require "For the market" </div> </div>	

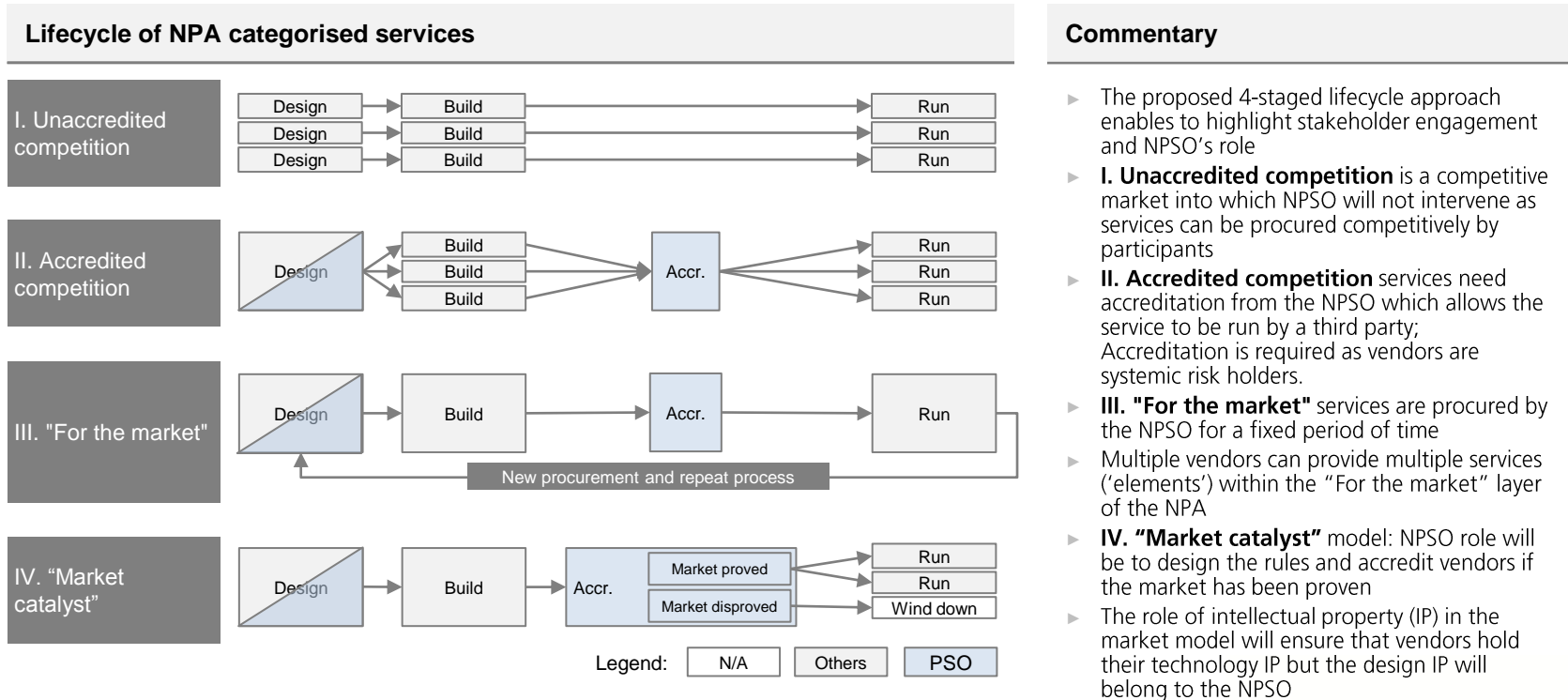
Market Catalyst Competition Type

“Market catalyst” model enables the NPSO to facilitate competition in the market for a service when it appears there is a supply issue

“Market catalyst” model		Commentary
Model types	Description	
<p>“Market catalyst”</p> <ul style="list-style-type: none"> ▶ Driven by end-user needs which are served by a specific service offering ▶ Market participants currently do not envisage a positive business case therefore the NPSO will provide a proof of market 		<ul style="list-style-type: none"> ▶ The intention of the NPSO is to fund projects that currently do not have a positive business case view in the market ▶ NPSO’s accreditation and proof of market concept would provide stronger support for VC funding for new services ▶ The key purpose of this activity is to stimulate market participants and develop a purely competitive market ▶ The PSR has limited appetite for the third role the NPSO could play in procuring a product directly ▶ Examples of existing “Market catalyst” services: aggregators
A	<p>Setting standards</p> <ul style="list-style-type: none"> ▶ NPSO defines rules and guidelines on how the new service should be operated ▶ NPSO defines the consumer protection framework and liability models 	
B	<p>Stimulate the market</p> <ul style="list-style-type: none"> ▶ NPSO will commission research, thought leadership work or provide the industry with an environment to drive innovation (e.g. sandbox) 	
C	<p>Procure a product directly</p> <ul style="list-style-type: none"> ▶ NPSO will commission a 3rd party to build the service with the intent to prove the service prior to opening up the offering to multiple providers ▶ The NPSO carries the risk and pays the vendor for the solution build and negotiates between vendors on licensing price to operate 	

Funding Lifecycle Of Each Competition Type

Each approach requires the NPSO and third parties to play different roles in the ecosystem

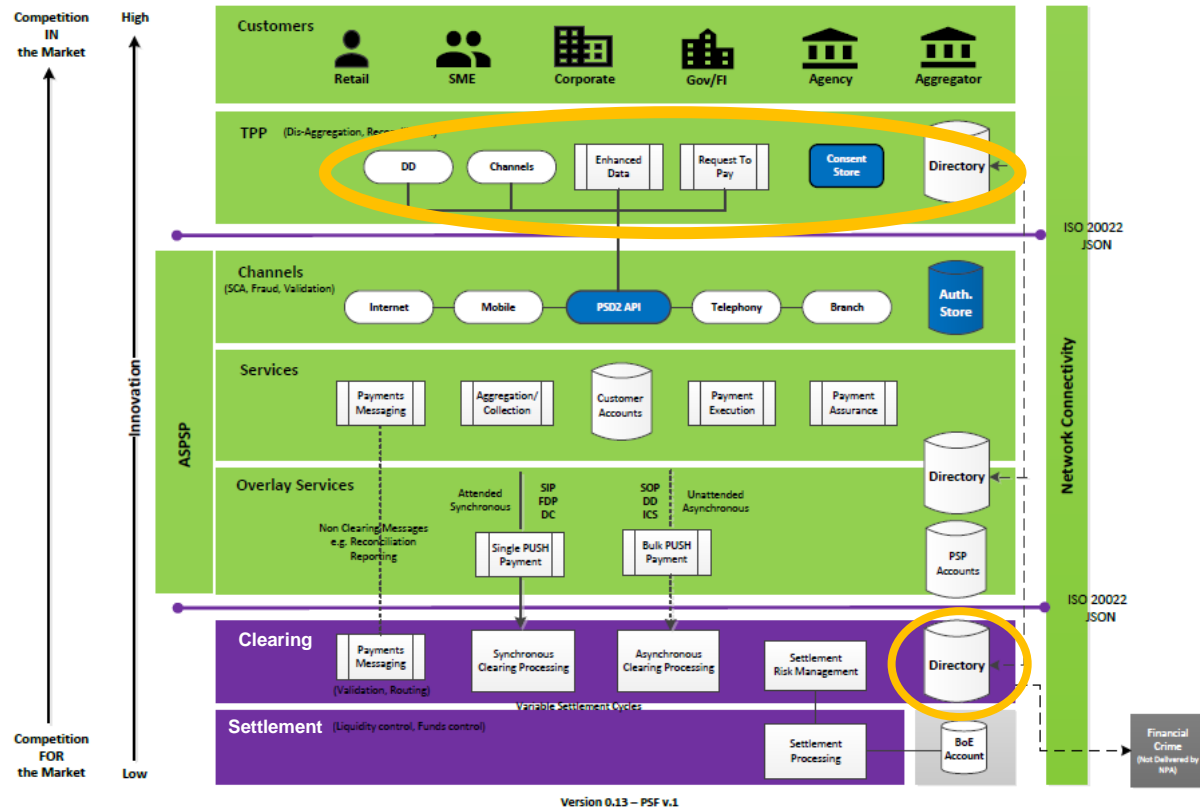


Evolution of current UK payment infrastructure

Layered architecture will open up competition in UK payments

Proposed future payments architecture

Commentary



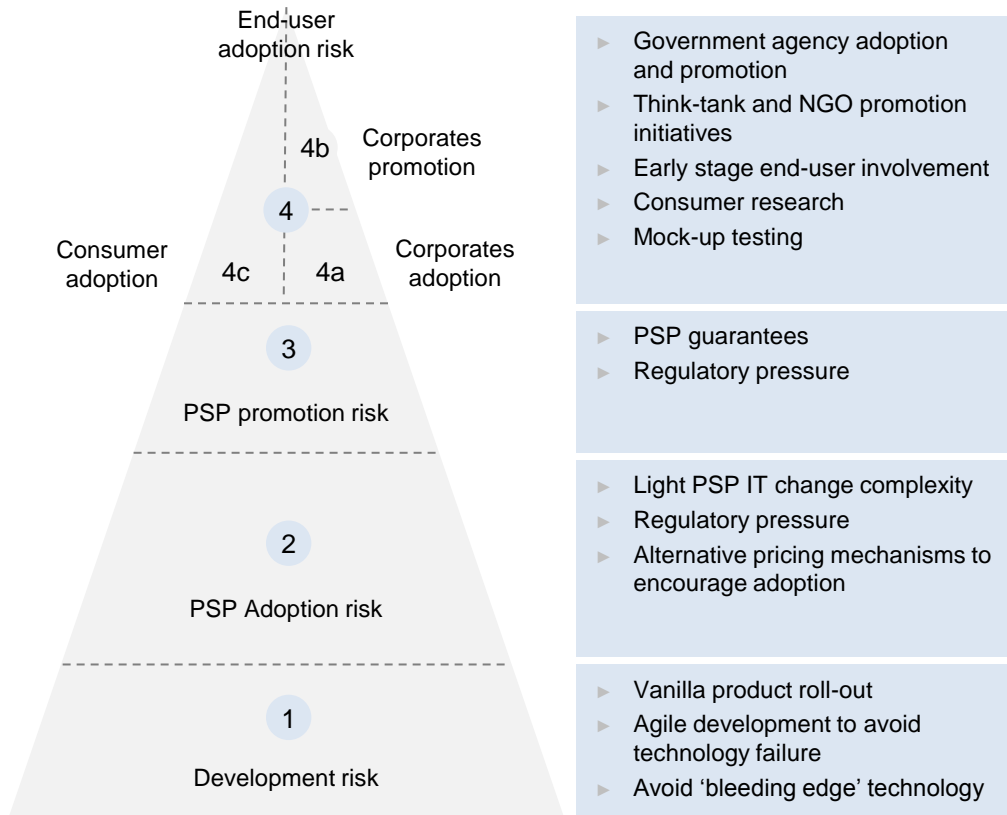
- ▶ The proposed NPA architecture is currently split into three competition types
- ▶ Standards and rules enabling vendors to operate 'elements' of the NPA architecture will be governed by the NPSO
- ▶ The TPP layer doesn't yet exist (as such) and so the entire layer has the potential to be 'market catalyst'. For example, to process a Direct Debit from day one the market will need at least one TPP to offer bulk payment processing services
- ▶ A directory to support payment routing for clearing & settlement will need to be built. However, as a catalyst the directory may need to be extended to support innovative services in other layers
- ▶ The Bank of England is out of scope for the NPA competition analysis

Legend: ■ Competition in the Market ■ Competition for the Market "Market catalyst" Out of scope

Demand-side risk assessment

NPSO will need to consider potential risks inherent in the product roll out and adoption lifecycle

Product roll-out risks



Commentary

- ▶ A crucial risk for Paym's roll-out was getting the critical mass of PSPs to adopt the solution; promotion proved to be the biggest gap in product roll-out

4. End-user adoption risk

- ▶ Corporates need to enable the adoption for consumers and actively promote usage
- ▶ Benefits case for consumers needs to be clear and tested prior to roll-out
- ▶ Ubiquity often applies for consumer adoption also.

3. PSP promotion risk

- ▶ PSP's can limit the time span during which they allocate resources to promote a service
- ▶ Extension of resources and funding beyond planned phase is not likely

2. PSP adoption risk

- ▶ Growing risk since IT change requests burden banks
- ▶ It is easier to establish services that require minimum change from banks
- ▶ Often require ubiquity for an effective service
- ▶ Regulator pressure or new pricing structures aimed at non-adopters can mitigate risks

1. Development risk

- ▶ Low risk as the development of solutions have been proven by schemes in the past
- ▶ Mitigation through selecting right technology and agile development



- ▶ Future product roll outs will need to consider not only the PSP adoption/promotion side but also the vendors (merchant acquirers, terminal network owners and technology providers)

Assessment Criteria

These criteria define the profile of the NPSO's competition types

WS4 has focussed its work on funding options for elements for which there is only one provider, which we define as 'competition for the market'. The PSR is working on the commercial relationships for 'competition in the market' where we expect there to be more than one provider.

Assessment criteria	Dimensions	Definition
Systemic risk	<ul style="list-style-type: none"> ▶ Systemic importance in payments ecosystem ▶ Security and resilience of service 	<ul style="list-style-type: none"> ▶ Risk of failure of vendor solution and the impact it has on continuing providing payment services within the ecosystem ▶ Risk of failure of NPSO to manage systemic risk
Competition	<ul style="list-style-type: none"> ▶ Number of competitors ▶ Level of innovation ▶ Discrimination of access through price or barriers 	<ul style="list-style-type: none"> ▶ Level of competitors interested in the market and wanting to compete on price and quality ▶ Level of innovation that is driven by vendors to differentiate themselves in the market ▶ Barriers to entry for other vendors
Accessibility	<ul style="list-style-type: none"> ▶ PSPs access to a variety of products 	<ul style="list-style-type: none"> ▶ Level of accessibility for PSPs (large or small)
Efficiency	<ul style="list-style-type: none"> ▶ Operational efficiency ▶ Lean structure to keep prices low ▶ Development speed 	<ul style="list-style-type: none"> ▶ Efficient delivery of the system and innovation to the end-users ▶ Corporate governance structures in place ▶ Reduced overheads and efficient operational structure ▶ Pricing impact for the end-user
Financial risk	<ul style="list-style-type: none"> ▶ Capital at risk ▶ Commitment of usage or guarantees provided 	<ul style="list-style-type: none"> ▶ Financial risk (investment at risk) carried by the funder ▶ Size of investment required to Design, Build and Operate service ▶ Risk profile of the investment
Intellectual property	<ul style="list-style-type: none"> ▶ Ownership of intellectual property 	<ul style="list-style-type: none"> ▶ Opportunity and restrictions in the usage of IP to develop other products or use the IP in other countries/sectors

WS4: Commercial Approach and Economic Models

Next Steps

We are in process of finalising our assessment of the NPSO competitive buckets and the funding models available to the NPSO

- Currently the workstream is finalising the assessment of the NPSO competition buckets and the funding models identified by the workstream
- WS4 is looking at the commercial relationship for the masternode element and working with the PSR to understand the outputs from the Request to Pay and Registry elements
- The workstream will also analysis of the so called '**deal levers**' (e.g. volume commitment by PSPs, pricing mechanism, etc.) which will help move the risk and implication of certain criteria among the stakeholders to create more appealing propositions which promote competition, accessibility and efficiency gains where possible
- This will incorporate the workstream's view on the funding options which currently have been identified as following:
 - ▶ **Vendor secured financing (managed service contract)**
 - ▶ **NPSO secured financing (build and operate contract for vendor)**
- Within the above two funding models the source of funding can be through:
 - ▶ **Self-funded by funder**
 - ▶ **Debt instrument funding**
 - ▶ **Incorporate funding from a financial investor (VC, PE or Pension fund)**
 - ▶ **Market participant funding (see PSODG report)**

Draft WS4 Questions for Consultation

- Do you agree with our assessment of the competition types for the individual NPA elements ?
- Are there any further commercial relationships we have not considered?
- Are there any other criteria that we should use to assess the competitive types of the NPA?
- Are there any other criteria that we should use to assess the funding options we have identified?
- Do you agree with our assessment options? Please explain your opinion
- Are there any better funding alternatives?



Appendix A

WS1 – User requirements and rules

Design Principles

Workstream 1 of the NPA Design Hub has the task of defining Requirements and Rules for the 3 End User Needs (EUN) solutions originally defined in the Strategy:

1. Request to Pay,
2. Assurance Data
3. Enhanced Data

The Design Principles provides a basis against which all Requirements and Rules can be tested against.

General Principles

- 1 Payer is always in control
- 2 Transparent
- 3 Available, secure and stable
- 4 Common Rules and Standards
- 5 Open to competition and innovation
- 6 Regulatory compliant
- 7 Payment agnostic
- 8 Accessible and inclusive
- 9 Scalable, future proof

Special case principles

1 Real-time

Request to Pay

Assurance Data

Responses to Confirmation of Payee or Request to Pay should be presented to the end user in real time.

2 Definitive

Confirmation of Payee/Payer

Responses to a request to confirm payer/payee should be unambiguous and clear bar unavoidable limitations such as regulatory restrictions.

3 Integrity of Data maintained throughout

Enhanced Data

At all times, the integrity of the data carried must be assured.

4 Available 24/7 365 days

Confirmation of Payee/Payer

The utility of the Confirmation of a Payer/Payee solution is dependent on it always being available at the point of need.

Request to Pay

In Scope

Item	Notes
1. British Pounds (£) payments	For the purposes of this endeavour, the requirements will cover Payments denominated in Sterling pounds. However this should not restrict innovation or in way constrain support for other currencies in the future.
2. UK only	Restricted to payments occurring within the UK (FCA geographical area of jurisdiction).
3. Users: Individuals, Consumers, SMEs/Charities, Corporate, Government, PSPs, Clubs and Societies	This list of users is based on present day users and should not be viewed as immutable. Where a new user group arises in the future and is capable of participating, it will be automatically becomes part of the scope.
4. Payment types: Credit, Debits. Including cash (physical note and coins) where conclusion / reconciliation of the transaction is electronically done	All credit, debit and cash (physical note and coins) payments that end in an electronic transaction. As soon as any of these enters the electronic environment it automatically becomes part of the scope.
5. Mainstream channels: Online, Mobile, Telephone, Intermediaries, Branch, Paper	Request to Pay can be provided/accessed through electronic mediums such as smart phones, SMS, Web as well as non electronic means such as Bank Branches, Intermediaries such as the Post office, paper sent through the post. Ideally it should be possible to transition from one medium to the other. Respond to a RtP sent via paper online or via Bank Branch.

Request to Pay (cont'd)

Out of Scope

Item	Notes
1. Securities	Debt and Equity securities are out of scope in our design of Request to Pay.
2. Cash (physical notes and coins) transactions that are entirely external of the electronic payment systems	Cash payments that do not Ingress or Egress into the electronic payment systems during their life cycle.
3. Card payments	Face to Face or electronic card based purchases are out of scope. e.g. buying a good on Amazon via a Visa card The PSF has deemed these out of scope. However, this does not put payment for a credit card out of scope. A CC company can send an RtP to a client requesting them to pay their monthly bill
3. Market infrastructure payments	All transactions carried out for purposes of the maintaining the smooth running of the payment systems infrastructure and Financial markets as a whole. E.g. Settlement transactions, Float management etc.
4. Payments in kind	Non monetary transactions such as barter are out of scope.
5. Direct Carrier billing	Payments made through premium rate services. Once they are applied to the client's bill, that would fall in scope.
6. Pre payment (tokens)	Prepaid tokens such as a prepaid electricity meters.
7. Store / Loyalty cards	Closed loop loyalty/Store cards and not white labelled cards.
8. Non £ Digital currency	Digital Currencies that are not denominated in British Sterling Pounds. (i.e. bitcoins). This should not in anyway constrain future development should there be need for multi currency.
9. Anything in the competitive realm	Aspects of the solutions that fall squarely within the competitive realm e.g. Customer Experience, Marketing etc. Unless they have a direct and clear bearing on the efficacy of the solution in solving the detriments identified.

Assurance Data

In Scope

Item	Notes
1. British Pounds (£) accounts capable of making/receiving payments in the UK that are addressable by Sort code and Account number	As a minimum payments made by/to British Pounds accounts in the UK that have a Sort Code and Account number are in scope.
1b. Non Sort-Code/Secondary accounts not directly addressable via a Sort Code and Account number	Accounts that exist behind a typical payment account are currently not addressable. Examples include some building society accounts, Mortgage accounts, Credit card accounts, Utility accounts etc. It is thus difficult to confirm payee or track payment beyond the external pool account. However, given their prevalence there should be a clear strategy to bring these into scope in the near future.

Out of Scope

Item	Notes
1. Cheques	While the cheque is in its physical form it is impossible to track as well as confirm payee/payer.
2. Card payments	Card transactions exist on a parallel infrastructure operated by the card issuers external of the main payment infrastructure. The PSF considers these out of scope of its work.

Enhanced Data

In Scope

Item	Notes
1. All electronic payments excluding Card Initiated payments	Any payment that is electronic in nature. For payments that are not entirely electronic throughout their lifecycle, only the electronic phases will be in scope

Out of Scope

Item	Notes
1. Data not relevant to the payment	Data that is not relevant to the payment is out of scope.
2. Cash (physical notes and coins) transactions that are entirely external of the electronic payment systems	Cash payments that do not Ingress or Egress into the electronic payment systems during their life cycle.
3. Card payments	Card transactions exist on a parallel infrastructure operated by the card issuers external of the main payment infrastructure. The PSF considers these out of scope of its work.

Terminology

Term	Definition	Context
Request	Message sent from Payee to Payer with the intention of requesting for a payment to be made.	Request to Pay
Response	Choice made by a payer to a request sent by a payee that is then communicated back to the Payee.	Request to Pay
Pay All	Accept a request for payment and proceed to initiate a payment equivalent to the total amount (or more when allowed) asked for in a request	Request to Pay
Pay Partial	Accept a request for payment and proceed to initiate a payment equivalent to a portion of the amount asked for in a request, this can be done multiple times	Request to Pay
Request Payment Extension	Request a Payee for an extension to the payment window to give you more time to pay a request	Request to Pay
Decline	Decline a request for payment and inform the Payee that you as a Payer will not be paying a request	Request to Pay
Block	Stop a payee from being able to send you requests in the future. Payees will be notified in this instance.	Request to Pay
Contact Payee	Provides a way for a Payer to contact the Payee that has sent a request. This could be within the RtP solution or simply signposting to other communication options (e.g. phone, e-mail, post)	Request to Pay
Payment Window	The period of time between a request being received and the date that a request must be fully paid by	Request to Pay
Payment Channel	A method of payment used to pay for a request. Different Payees would accept different channels, this also includes cash	All



Appendix B

WS2 – NPA Design and Transition

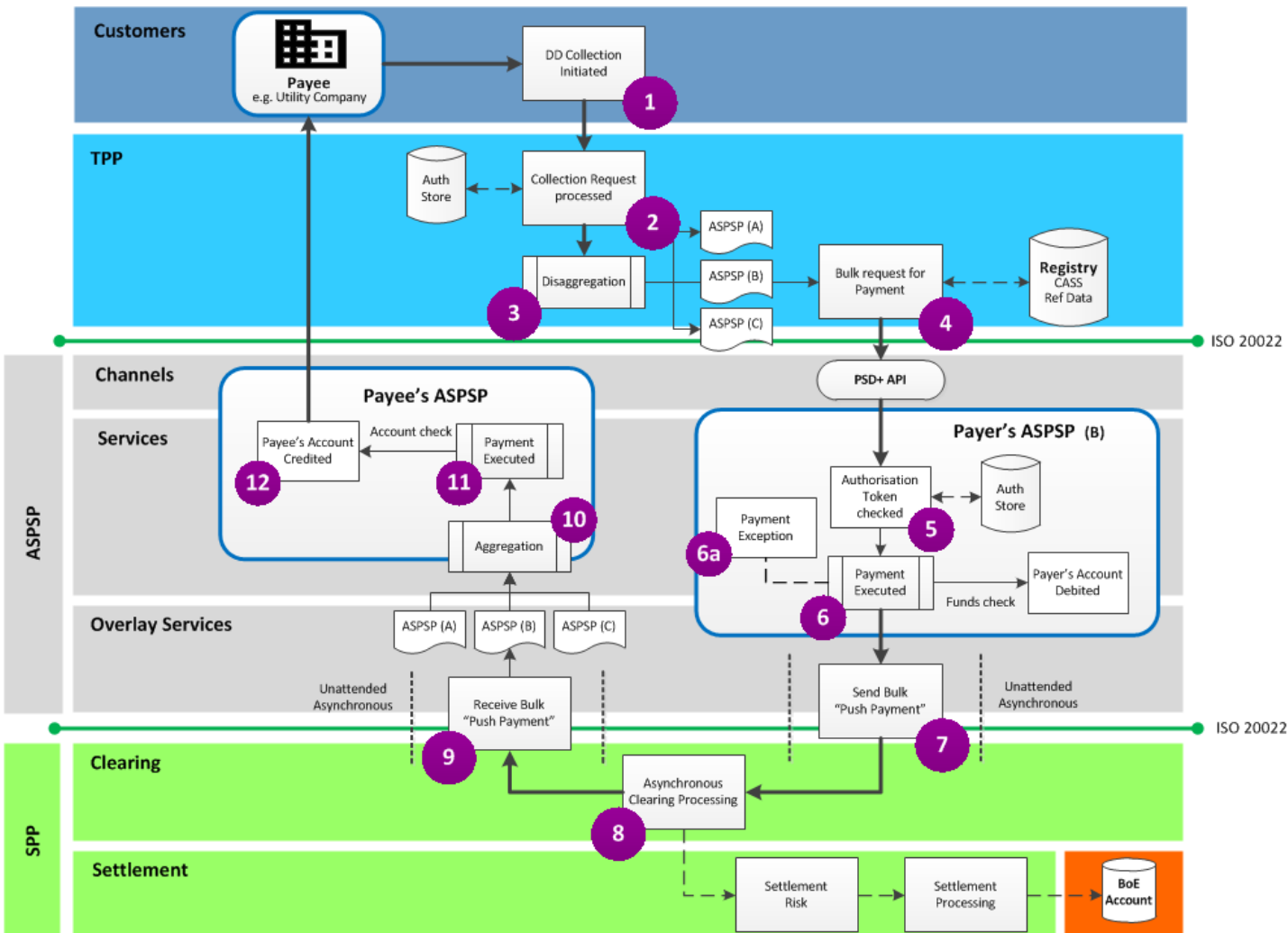
Example Payment Use Case Support

NPA support of a potential Unattended Bulk* Payment solution

One option showing how NPA could deliver unattended bulk payments

1. The Payee creates a bulk Direct Debit file containing each of the Payer's payment details i.e. amount to be paid on the due date
2. The Direct Debit file is sent to the Payee's TPP. The TPP validates the file against the authorised Mandates held for each of the Payee's customers (held in the TPP Auth Store)
3. The TPP disaggregates the Direct Debit file into separate files intended for the Payer's Account Servicing Payment Services Provider (ASPSP). The Direct Debit file is validated against reference data held in the Directory e.g. sort code redirection
4. Each ASPSP receives the Direct Debit file from the Payee's TPP via a PSD2 compliant API
5. The Payer's ASPSP checks a valid Mandate authorisation exists for each of the customer accounts (held in the ASPSP Auth Store)
6. The Payer's ASPSP executes the Direct Debit payment
 - The system checks the account status e.g. funds available
 - The customer's account is debited
 - Where the account status is unable to apply the Direct Debit payment, a Payment Exception message is generated and returned to the Payee
7. The Payer's ASPSP sends cleared Direct Debit payment details to the Clearing and Settlement Service via the Bulk "Push" payment model.
8. The Clearing and Settlement Risk Management checks the ASPSP's risk position and creates a settlement obligation. The Clearing and Settlement Service initiates settlement with the Bank of England (BoE)
9. The Clearing and Settlement Services sends the cleared Settlement Payment details from each of the Payer's ASPSPs to the Payee's ASPSP
10. The Payee's ASPSP aggregates each of the Payer ASPSP cleared Settlement Payment files into a single Payee account
11. The Payee's ASPSP executes the Direct Debit payment
 - The system checks the account status
12. The Payee's ASPSP credits the Payee's account on the due date

One option showing how NPA could deliver unattended bulk payments



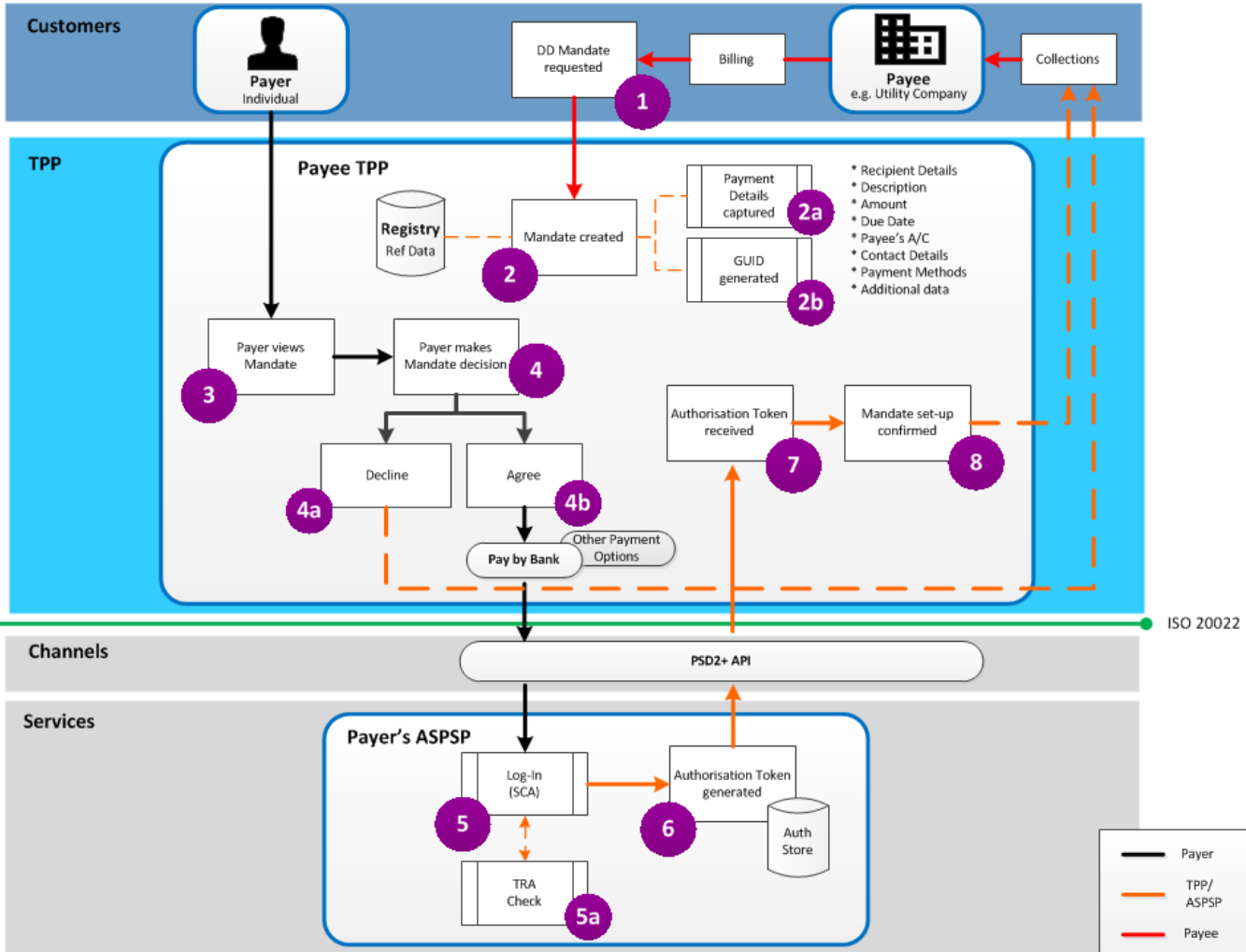
NPA support of a potential Payment Mandate Capability

One option showing how NPA could deliver mandate capability

1. As part of the onboarding process, the individual customer (Payer) agrees to pay the utility company (Payee) via Direct Debit. The Payee initiates a Mandate request for each of its customers
2. The Payee will have a prior contractual agreement with a Third Party Provider (TPP) acting as a Payment Initiation Service Provider (PISP). The TPP will be responsible for managing Direct Debit mandates, including the set-up, amendment and cancellation on behalf of the Payer's customers. The Payee sends a Mandate request to their designated TPP. Reference data stored in the Directory ensures that the TPP is registered with the New Payment System Operator (NPSO) and also ensures that the TPP has permission to manage Direct Debit mandates
 - 2a. The Payee TPP initiates a Mandate instruction, capturing payment details:
 - 2b. A Globally Unique ID (GUID) is generated by the TPP for each Mandate request
3. The Payee TPP will make the Mandate instruction available to the Payee's customers via the Payee's preferred communication channel e.g. mobile app or corporate website. The Payee TPP informs the Payer that a Mandate request is available for authorisation. The Payer views the Mandate via the Payee's preferred communication channel
4. The Payer makes the Mandate decision
 - 4a. The Payer has the option to decline the Mandate request. The Payee TPP sends confirmation to the Payee that the Mandate request has been declined by the Payee's customer
 - 4b. The Payer has the option to accept the Mandate request. The Payer will be required to authorise the subsequent payment via their ASPSP. The Payee's preferred communication channel will allow the Payer to select their payment method. In this scenario, a "Pay by Bank" option could be selected via a mobile app or corporate website. Note; other payment methods could be selected

The "Pay by Bank" option will redirect the Payer to their ASPSP via a PSD2 compliant API. Note: the redirection follows OAuth2 standards and the Payee will not have access or visibility to the Payer account information or security credentials
5. The Payer will access their account using PSD2 compliant Strong Customer Authentication (SCA). The Payer's ASPSP will also complete a Transaction Risk Assessment (TRA) (5a) and the outcome of the TRA will determine if the Mandate request can proceed
6. The Payer's ASPSP authorises the Mandate request and generates an Authorisation token
7. The Payee TPP receives the Authorisation token. The Authorisation token will be used to initiate subsequent Direct Debit collections
8. The Payee TPP sends confirmation to the Payee that the Mandate request has been approved by the Payee's customer

One option showing how NPA could deliver mandate capability



NPA Component Descriptions

NPA High Level Target Architecture Components – 1

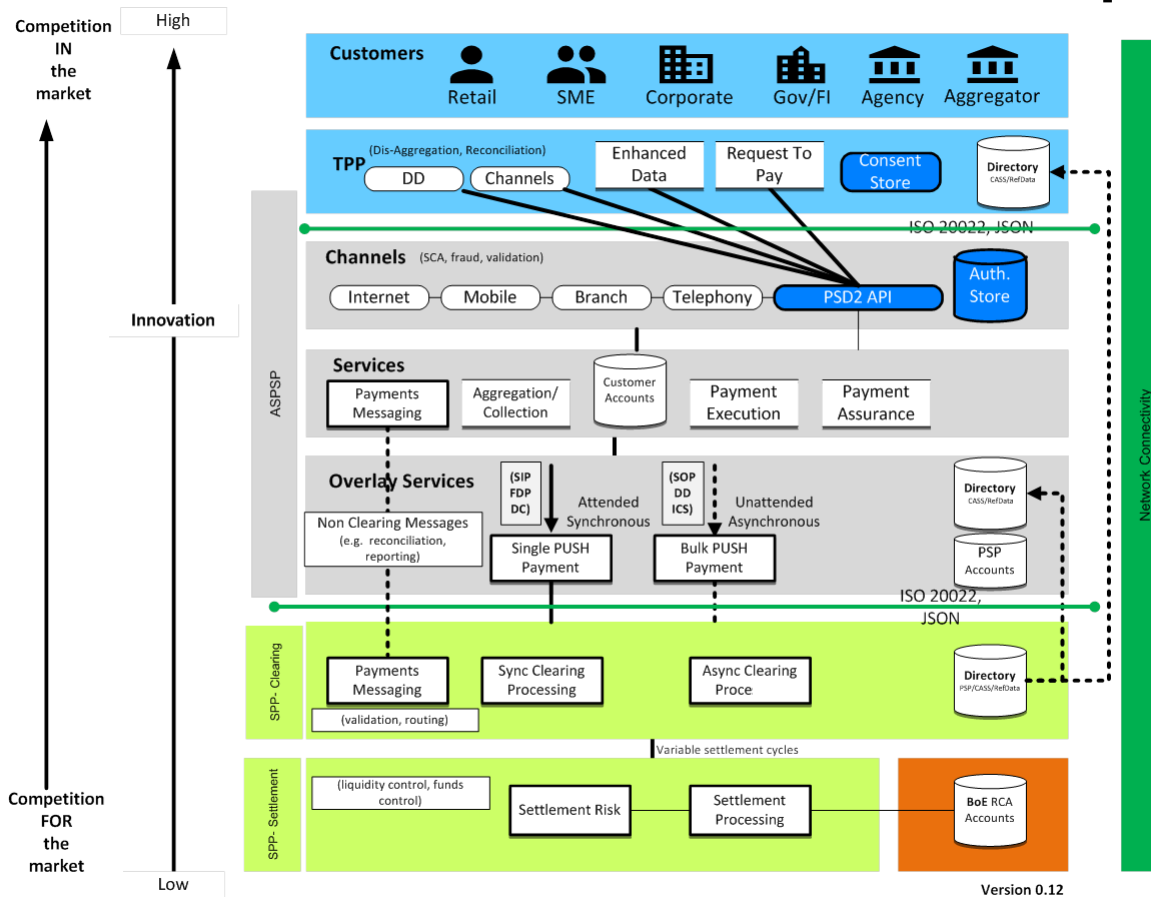
Component Name	Description
Competition for and In the market	The solution has been deigned to enable competition for each layer and component.
TPP Channels	Channels provided by TPPs to their customers in order to access TPP services.
TPP Consent Store	Repository of PSD2 customer consent
Request to pay	Provides the minimum following capability options: (1) Pay all, (2) Pay partial, (3) Pay extension, (4) Decline and (5) Contact Us. Not all options may be deployed by the entity that initiates the Request to Pay. <ul style="list-style-type: none"> - Will be PSD2 compliant and interfaces with the NPA through the Open Banking framework.
Enhanced Data	Support for data content which can be captured by channels or APIs <ul style="list-style-type: none"> - ISO20022 supports additional data content (including images, cloud data storage references) - Payment messaging is enhanced for optimised business processing
Directory	Provides reference data (Sort Code/Bank/Overlay level (EISCD) reference data, CASS account transfers and customer reference data, PSP and TPP endpoints, roles and certificates) <ul style="list-style-type: none"> - Managed by the NPSO - Data pushed to participants (TPP, ASPSP) attended channels, unattended channels within SLAs
PSD2 API	NPA builds on PSD2 and the Open Banking APIs and security models. <ul style="list-style-type: none"> - ASPSPs manage customer authentication and authorisation - Open Banking may need a development to support specific use cases (variable amount, TRA, PULL Payments)
ISO 20022	Message content will be based on ISO types <ul style="list-style-type: none"> - NPA will support JSON syntax for API communications - 4/5AMLD will require that data is not truncated, and available end to end

NPA High Level Target Architecture Components – 1

Component Name	Description
Payment Messaging	Advices, Research and Adjustments plus reporting
Aggregation / Collection	Aggregation and collection of funds to the customer accounts
Payment Execution	Processing of the payment at the payee or the payer ASPSP account and managing the Overlay Service processing
Payment Assurance	<ul style="list-style-type: none"> - Confirms Payee Identity - Provides Payment status - Confirms Payer Identity
Attended Single Push Payment	<p>Routes and manages attended synchronous payment instructions between participants</p> <ul style="list-style-type: none"> - Ensures that instructions finality rules are followed - Supports multiple overlay payment types, whilst maintaining resilience and safety
Unattended Bulk Push Payment	<p>Routes and manages unattended asynchronous bulk payment instructions between participants</p> <ul style="list-style-type: none"> - Ensures that the relevant payment rules are followed - Supports multiple overlay payment types, whilst maintaining resilience and safety
Network Connectivity	The network is in the competitive space and can be provided by competing providers that comply with the technical standards and rules set by the NPSO.
Settlement Processing	<p>Ensures BOE instruction finality rules are followed and interfacing to BOE RCA accounts</p> <ul style="list-style-type: none"> - Supplies only the required information for bank to bank transfers

Clearing & Settlement

Architecture Principles



Core Principles of NPA

1. A single set of standards and rules, with strong central governance
2. End-to-end interoperability (including APIs and a common message standard)
3. A thin collaborative infrastructure, allowing multiple providers of overlay services to compete in the market simultaneously
4. Secure and resilient, with financial stability a key principle

RTGS Principles Supported

1. Strengthened resilience, interoperability and contingency messaging
2. Facilitates direct access and aggregators
3. Convergence of domestic messaging to ISO 20022 end2end
4. Flexible payment models via overlays and APIs
5. 24x7 operation and flexible/shorter settlement cycles
6. Transition designed to minimise impact and isolate users from change

Note: The NPA will support a Push Payment model.

Drivers for layered architecture

- ✓ Each layer separate from the other – mitigates the risk of contaminations
- ✓ Enables innovation and competition
- ✓ Allows for an easier 'upgrade path' to various components in the industry

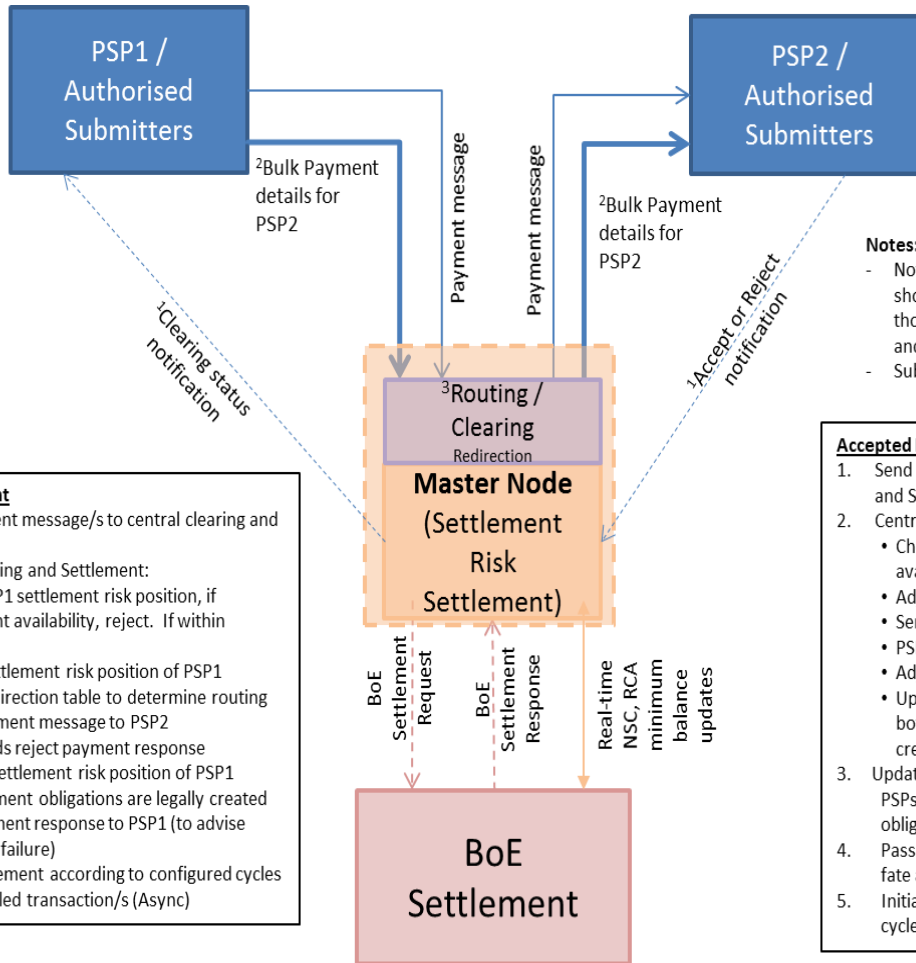
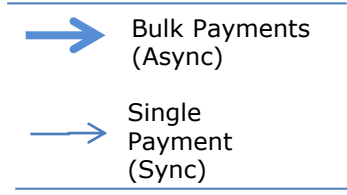
Notes

- The general concept of how the messages are used to support clearing and settlement is provided. The type of message and the content of the messages is out of scope of this document
- Technical failures and message failure are not in scope of this document, but will need to be considered to the final target NPA design
- 'Connected non-settling participants' and 'non-connected non-settling participants' are supported by the clearing and settlement model. The decision has been made to operate clearing and settlement with a pseudo-NSC 'owned' by the sponsor. Calling out to the sponsor for Real-time 'funds checks' will not be required.
- Final notifications to 'Connected non-settling participants' and 'non-connected non-settling participants' have not been illustrated in this document. The current proposed conceptual view supports these, but the final logical design will need to validate that the clearing and settlement requirements for these have been met. It is unlikely the proposed settlement risk and settlement model will change – impact is most likely to be settlement messages issued from the Settlement Processing Service or additional messaging between participants
- Both clearing and settlement models provide the same customer experience – clearing and settlement do not impact the layers above.
- Both clearing and settlement options enable real-time notification to the customers on both end of the transaction.
- **Reversals/returns** are supported by the same model - but the original payee will be the sender and the original payer will be the receiver – with the assumption that information in the payment messages will allow the participants identify the original transactions
- There is no concept or '**failed settlement**', only of delayed completion of settlement. The prefunded collateralisation means settlement will always occur on cleared and accepted payments. The settlement completion may be delayed, and forced manually, but it will always occur
- **Connectivity:** The NPA architecture separates out the provision of connectivity from the clearing and settlement risk management layer. This separation enables each PSP to contract with an appropriately accredited connectivity provider (e.g. BT, VirginMedia, Cable & Wireless), rather than have to use the IP-provider determined by the Clearing provider. This introduces additional opportunities for competition in the market. Detailed connectivity / networking is covered under a different area of the design/consultation paper and is outside the scope of this paper.

Option 1: Clearing and Settlement Model

Option 1: High Level Clearing and Settlement Flows

- All payment messages routed via Central participant messaging



Notes:

- Not all ACK / NACKs message have been shown and not all steps are listed – only those that illustrate the proposed clearing and settlement option
- Submitters will be authorised by an ASPSP

Rejected Payment

- Send payment message/s to central clearing and Settlement
- Central clearing and Settlement:
 - Check PSP1 settlement risk position, if insufficient availability, reject. If within available
 - Adjust settlement risk position of PSP1
 - Check redirection table to determine routing
 - Send payment message to PSP2
 - PSP2 sends reject payment response
 - Reverse settlement risk position of PSP1
 - No settlement obligations are legally created
 - Pass payment response to PSP1 (to advise sender of failure)
- Initiates settlement according to configured cycles – excludes failed transaction/s (Async)

Accepted Payment

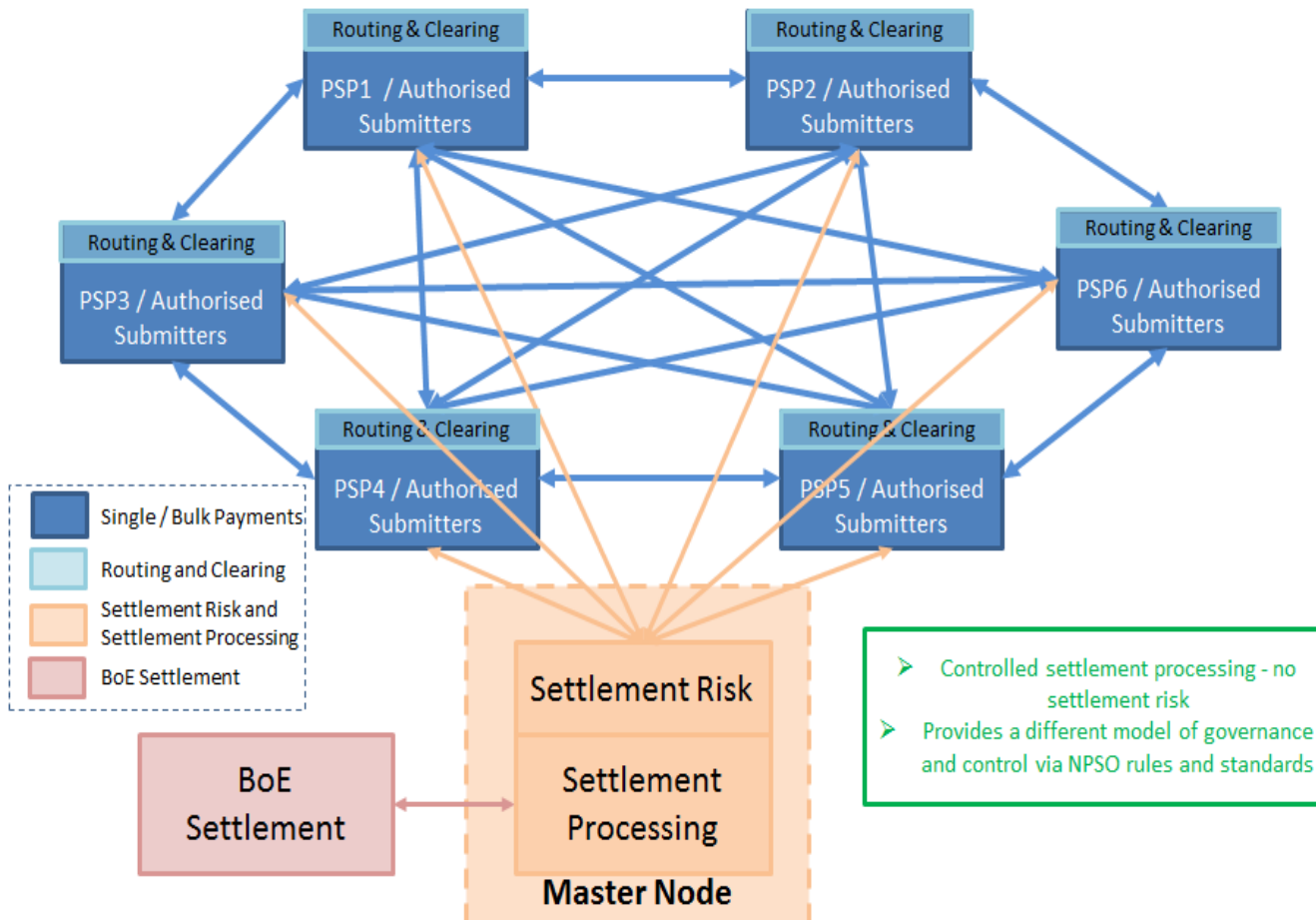
- Send payment message/s to central clearing and Settlement
- Central clearing and Settlement:
 - Check PSP1 settlement risk position, if within available
 - Adjust settlement risk position of PSP1
 - Send payment message to PSP2
 - PSP2 sends [accept] payment response
 - Adjust settlement risk position of PSP2
 - Update Multilateral Net Sender Position of both PSPs (settlement obligations are legally created)
- Update Multilateral Net Sender Position of both PSPs (NOTE – at this point the settlement obligations are legally created)
- Pass payment response to PSP1 [to confirm fate and to enable PSP1 to advise it's customer]
- Initiates settlement according to configured cycles – excludes failed transaction/s (Async)

¹Irrevolable settlement obligation has been created for cleared payment
²The diagram only represents clearing and settlement risk position adjustments between PSP1 and PSP2. Settlement itself is multilateral
³The sending PSP does not have to separate out and work out the routing/redirection of bulk payments

Option 2: Clearing and Settlement Model

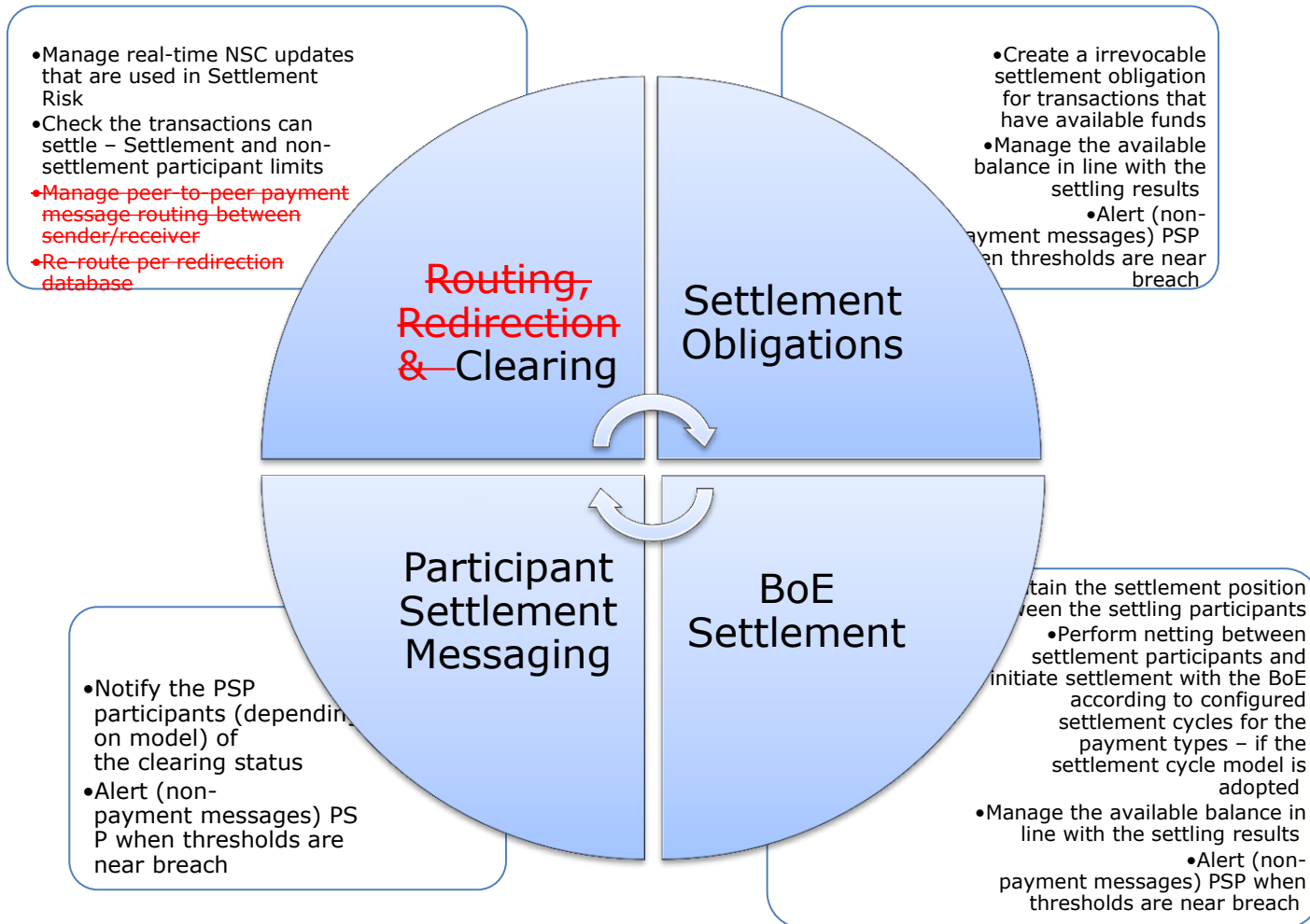
Option 2: Hub & Spoke Settlement and Peer-to-Peer Clearing

- Peer-to-peer participant messaging with hub & spoke risk/settlement management
- Clearing: participants exchange payment messages bilaterally with each other and also communicate payment request to Master Node
- In the Master Node: validates that the sending participant is operating within its Net Sending Cap and adjusts the multilateral positions
- Every payment requires at least 3 (possibly 5) additional request/response pairs, each of which needs to be matched/reconciled



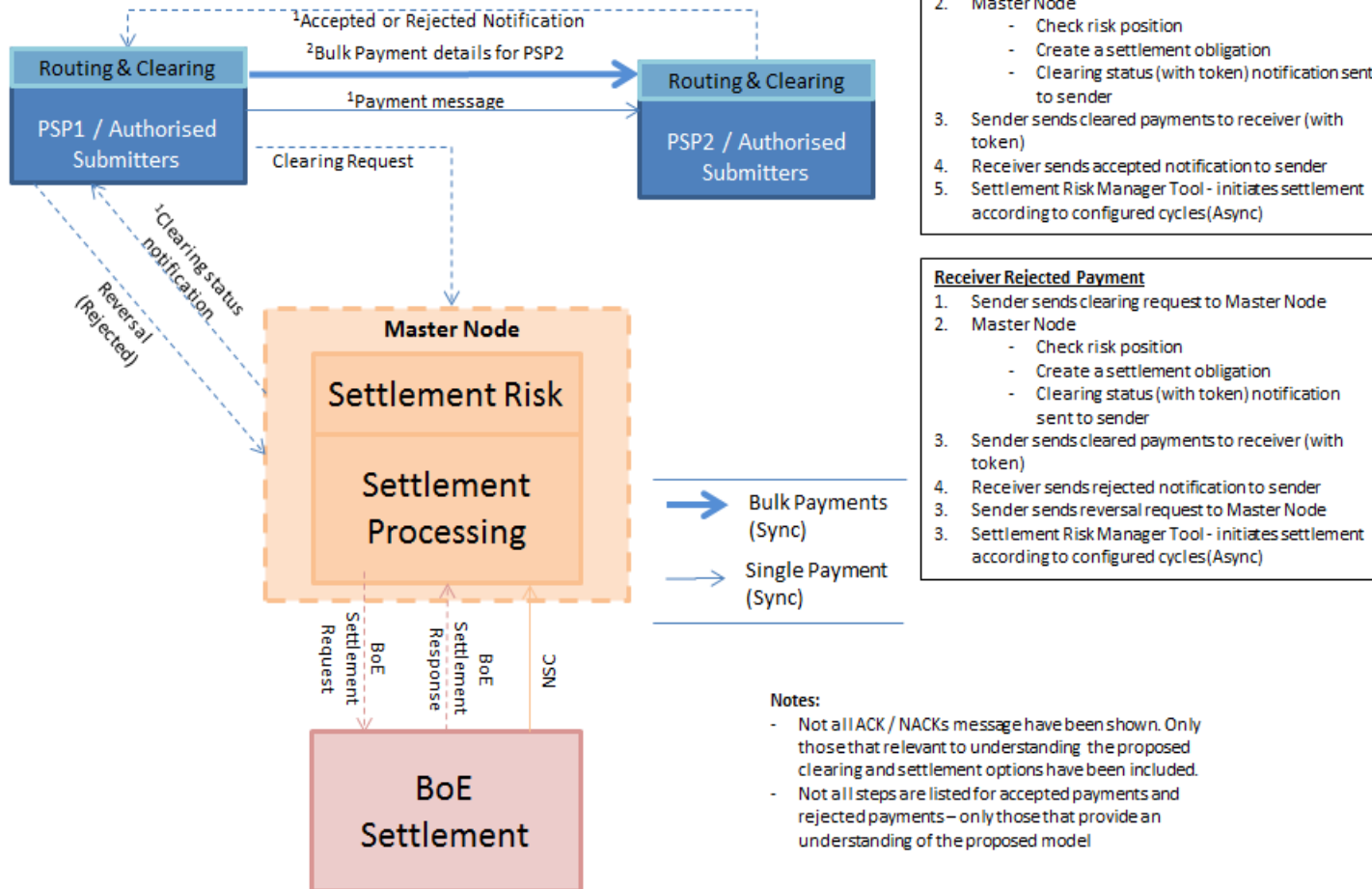
Responsibilities of Hub & Spoke Settlement (Option 2)

The proposed settlement model used the concept of a logical central infrastructure for settlement and peer-to-peer clearing. The primary roles are shown below:



Option 2: High Level Clearing and Settlement Flows

- Sender initiates clearing and settlement
- PSPs will check redirection and separate files by receiving PSPs



¹Irrevocable settlement obligation has been created for cleared payment

²The diagram only represents settlement between PSP1 and PSP2. PSP1 will also send messages for settlement to other PSP

Option 1 vs. Option 2

Flows Comparison

Option 1

Accepted Payment

1. Send payment message/s to central clearing and Settlement
2. Central clearing and Settlement:
 - Check PSP1 settlement risk position, if within available
 - Adjust settlement risk position of PSP1
 - Send payment message to PSP2
 - PSP2 sends [accept] payment response
 - Adjust settlement risk position of PSP2
 - Update Multilateral Net Sender Position of both PSPs (settlement obligations are legally created)
3. Update Multilateral Net Sender Position of both PSPs (NOTE – at this point the settlement obligations are legally created)
4. Pass payment response to PSP1 [to confirm fate and to enable PSP1 to advise it's customer]
5. Initiates settlement according to configured cycles – excludes failed transaction/s (Async)

Rejected Payment

1. Send payment message/s to central clearing and Settlement
2. Central clearing and Settlement:
 - Check PSP1 settlement risk position, if insufficient availability, reject. If within available
 - Adjust settlement risk position of PSP1
 - Check redirection table to determine routing
 - Send payment message to PSP2
 - PSP2 sends reject payment response
 - Reverse settlement risk position of PSP1
 - No settlement obligations are legally created
 - Pass payment response to PSP1 (to advise sender of failure)
3. Initiates settlement according to configured cycles – excludes failed transaction/s (Async)

Option 2

Accepted Payment

1. Sender sends clearing request to Master Node
2. Master Node
 - Check risk position
 - Create a settlement obligation
 - Clearing status (with token) notification sent to sender
3. Sender sends cleared payments to receiver (with token)
4. Receiver sends accepted notification to sender
5. Settlement Risk Manager Tool - initiates settlement according to configured cycles (Async)

Rejected Payment – Receiver Rejected

1. Sender sends clearing request to Master Node
2. Master Node
 - Check risk position
 - Create a settlement obligation
 - Clearing status (with token) notification sent to sender
3. Sender sends cleared payments to receiver (with token)
4. Receiver sends rejected notification to sender
3. Sender sends reversal request to Master Node
3. Settlement Risk Manager Tool - initiates settlement according to configured cycles (Async)

Rejected Payment

1. Sender sends clearing request to Master Node
2. Master Node
 - Check risk position
 - Create a settlement obligation
 - Clearing status (with token) notification sent to sender
3. Sender sends cleared payments to receiver (with token)
4. Receiver sends rejected notification to sender
3. Sender sends reversal request to Master Node
3. Settlement Risk Manager Tool - initiates settlement according to configured cycles (Async)

Options Assessment (1 of 5)

Criteria	Option 1 Central Routing	Option 2 Peer-to-Peer routing
Financial Stability: Only receive cleared and settled funds	<ul style="list-style-type: none"> ➤ Central routing will send cleared funds to the receiver ➤ Simple Process ➤ The routing informs the settlement- a central routing function provides consistent and accurate settlement information in real-time. Allows consistent cap management ➤ Removes systemic risk of participant failures by insulating them from each other ➤ Provides a 'buffer' between Participants - protect a Participant from receiving more payments than they can handle through a central throttling mechanism (particularly useful for handling debulked file volumes), avoiding overload and managing priorities. 	<ul style="list-style-type: none"> ➤ Sending PSPs will route payment messages to the receiving PSP once the sending PSP has received positive notification that the payment has been cleared. Assurance will be provided to receiving PSP through a token to the sender on notification of clearing. ➤ Complex process: the use of the token, and additional (to Option 1) messaging does not draw out that this requires a much higher processing overhead, due to increased complexity for each PSP compared to Option 1 ➤ Provides no protection from a PSP receiving a large volume in a very short time frame, which can lead to timeouts and a degraded end user experience – in extremis such a situation resembles a DDOS attack
Thin Infrastructure: Allowing provider to compete in the market simultaneously	<ul style="list-style-type: none"> ➤ More complex at the centre moves complexity away from PSPs/authorised submitters – both options are just shifting complexity between the centre and PSPs ➤ Thin requirements for each Participant - designed to be as thin as necessary at the centre ➤ Reduced overall cost and risk to industry ➤ Less complex implementation than option 2 	<ul style="list-style-type: none"> ➤ Less complex at the centre move complexity out to PSPs/authorised submitters – both options are just shifting complexity between the centre and PSPs ➤ Increased overall cost and risk to industry ➤ More complex implementation than option 1

Options Assessment (2 of 5)

Criteria	Option 1 Central Routing	Option 2 Peer-to-Peer routing
Scalability: Accommodate future growth in a cost effective manner – encouraging suppliers to compete	<ul style="list-style-type: none"> ➤ Clearing requires a single vendor to scale, which leaves the buyer exposed to the cost and delivery charges without opportunity to seek competitive pricing. A single provider would control the entire market – mitigated by regular competitive procurement and contractual negotiations around scalability; should a vendor seek to exploit their position, then they risk being excluded from future tendering 	<ul style="list-style-type: none"> ➤ For clearing each PSP can scale to its required volumes, which introduces flexibility and makes the model commercially competitive ➤ There is a strong dependency on all participants scaling and the Master Node will still need to scale – along with the additional token and message handling introduced in this model ➤ In both Options, PSPs would need to be scalable, but Opt2 gives less protection if they misjudge this.
Financial Crime: Support sharing of payment details with the Financial Crime Utility	<ul style="list-style-type: none"> ➤ Simpler interface though a single point with to share payment information for financial crime purposes ➤ Simplified regulatory reporting ➤ Operational move efficient (single point of contact for support) 	<ul style="list-style-type: none"> ➤ Requires each PSP to interface to Financial Crime Utility directly ➤ Supervision and control is more complex than option 1 <ul style="list-style-type: none"> • Assurance will be provide confidence that data is shared with the financial crime utility correctly (through testing, accreditation / certification)

Options Assessment (3 of 5)

Criteria	Option 1 Central Routing	Option 2 Peer-to-Peer routing
Redirection (CASS): Support the clearing of payments affected by account switching	<ul style="list-style-type: none"> ➤ Centrally managed through the CASS database - a single redirection database in the centre, such that all transactions are processed against the same version of the truth ➤ Less processing for each PSP to do prior to submission. ➤ Central redirection also caters for the 30k+ direct submitters (SME, Corporate & Govt users) that use PSP-agnostic software 	<ul style="list-style-type: none"> ➤ Centrally managed through the CASS database - a single redirection database in the centre, such that all transactions are processed Controls will ensure that participants can only access data applicable to payments that they are processing. ➤ More complex than option 1 to address the large number of direct submitters without either requiring them to each call out to the Directory/database before submitting payments (process and tech change) or changing the direct submission model to a 'through PSP' model that makes changing PSP a bigger task (and therefore reduces the effects of competition) ➤ CASS redirection data caching restrictions apply – restriction on holding copies of data locally will make implementation more complex ➤ Adds an additional 'call' by PSPs to a redirection database/Directory before submitting payments - more processes for a payment to pass through in its journey, introducing more potential failure points
Transition: the option must support a low risk and smooth transition from the existing payments services to the NPA	<ul style="list-style-type: none"> ➤ The transition options are still being investigated. Currently there is limited information to suggest any either clearing and settlement option advantages over the other 	<ul style="list-style-type: none"> ➤ The transition options are still being investigated. Currently there is limited information to suggest any either clearing and settlement option advantages over the other

Options Assessment (4 of 5)

Criteria	Option 1 Central Routing	Option 2 Peer-to-Peer routing
Trust and Control Reduces risk of errors and enforces control	<ul style="list-style-type: none"> ➤ Centralised implementations have less risk of error as a single capability (validation, duplication checks and rejection management , etc..) is servicing all PSPs ➤ NPSO oversight of ecosystem more achievable 	<ul style="list-style-type: none"> ➤ Multiple supplier implementations have a higher risk of errors - mitigated with simplified published specification, rules and assurance through testing and accreditation / certification ➤ Creates a much higher mutual dependency on other PSPs than Option 1, where the clearing layer insulates ➤ Sender less protected from receiver unavailability. NPSO has less tools to manage the safety and security of service ➤ NPSO has less oversight of ecosystem, without being more intrusive into each PSP
Cost of Adoption: A cost effective model that encouraging suppliers to compete	<ul style="list-style-type: none"> ➤ Purchase power of the entire market would leverage strong negotiation position - contracts would be negotiated to manage risks – e.g. volume growth be agreed as part of contract ➤ There is also the cost of adoption to new entrants, with a central routing requiring less complex functionality to be developed at the PSP 	<ul style="list-style-type: none"> ➤ Smaller PSPs, without scale, would lack buying power – which would mean a material higher item cost, which reduces the potential market of PSPs and therefore gives less competition for end users to benefit from
Cost of Access to Clearing and Settlement	<ul style="list-style-type: none"> ➤ Access for new entrants with a central routing requiring less complex functionality to be developed at the PSP 	<ul style="list-style-type: none"> ➤ Multiple suppliers can compete for providing services encouraging competitive pricing ➤ Each PSP would need to procure a 'thicker', technically and operationally more complex solution – so higher cost than the thin gateway required for Option 1

Options Assessment (5 of 5)

Criteria	Option 1 Central Routing	Option 2 Peer-to-Peer routing
Competition: Promotes competition 'IN THE' market or 'FOR THE' the market	<ul style="list-style-type: none"> ➤ 'Clearing' supports competition FOR THE market ➤ 'Settlement Risk and Settlement Processing' supports competition FOR THE market 	<ul style="list-style-type: none"> ➤ 'Clearing' supports competition IN THE market ➤ 'Settlement Risk and Settlement Processing' supports competition FOR THE market
Reconciliation	<ul style="list-style-type: none"> ➤ Single, multilateral reconciliation process – with absolute clarity as to fate/response to each payment provided by a single party 	<ul style="list-style-type: none"> ➤ Multiple bilateral reconciliations – which would grow and become more complex as new Participants join – overlaid by a multilateral reconciliation of clearing and settlement
Routing	<ul style="list-style-type: none"> ➤ Simpler routing model - senders and receivers only need to connect to the centre 	<ul style="list-style-type: none"> ➤ Many relationships and routing to maintain. Scale of small participants may not support demand from large ➤ Refer to Scalability

Request to Pay – Supporting Explanation

One option showing how NPA could deliver Request to Pay

The following steps represent a sample scenario on how Request to Pay flow may work. In this example, a Utility company requests a bill payment from one of its customers. We assume the utility company uses a TPP (PISP and AISP) to provide the RTP service. The intention is that this scenario can be applied to different type of customers. e.g. Individual, single payments, reoccurring etc.

1. As part of the on boarding process, the Payer (individual customer) agrees to pay the Payee (e.g. utility company) via Request to Pay (RTP). The Payee company's billing system initiates a payment request for each of its customers.

2. We assume the Payee will have a prior contractual agreement with a Third Party Provider (TPP) acting as a Payment Initiation Service Provider (PISP) for them. As a prerequisite this TPP must be a registered with the New Payment System Operator (NPSO) Directory and has the appropriate permission to offer RTP services. The Payee TPP initiates a "Request to Pay" instruction, capturing the following payment details:

- Recipient details
- Description – What the Invoice is for, Recurring, One time etc.
- Amount (Max Amount)
- (Reoccurring Period)
- Due Date
- Payment Methods
- Payee's Account details
- Contact Details
- Additional data
- Request GUID

A Globally unique ID (GUID - equivalent to PSD2 dynamic linking) is generated by the TPP for each RTP request which can be used to reconcile the request throughout its life cycle. The RTP notification is then pushed onto the payer via Payer's preferred communication channel (e.g. Mobile App, Online etc.)

3. The Payer views the received RTP via its preferred communication channel (E.g. Mobile App, Online etc.) and may choose to view any additional information related to the request if that is made available. Payer responds to the RTP specifying what action they wish to take via their preferred communication channels.

4. After reviewing the RTP, the Payer makes one of the following decisions and responds to the request:

- a. Payer decides to make a payment
 - i. Pay All – Payer chooses to pay the entire amount on a specific date within his due date timeline via one of the payment methods offered by the Payee in the RTP.
 - ii. Pay Partial - Payer chooses to pay a partial amount and decides how and when he will pay the remaining (e.g. instalments) within his due date timeline via one of the payment methods offered by the Payee in the RTP

In each of the above two cases the Payer's response is sent to the Payee by the available preferred communication channel and the Payee proceeds to make the payment.

One option showing how NPA could deliver Request to Pay

b. Payer is not paying immediately and decides to

i. Decline – Payer Declines the RTP and notifies the Payee

ii. Contact Payee – Payer wishes to contact the Payee, to get more information or to discuss a request.

iii. Request Payment Extension – Payer asks Payee for a payment due date extension as per the contractual agreement terms.

In each of the above cases the Payer's response is sent to the Payee by the available preferred communication channel and the Payee can decide what subsequent action if any needs to be taken about the RTP inline with their contractual agreements.

We are covering the steps where in a Payee choses to 'Pay by Bank' via the TPP App

5.The TPP looks up the Directory to redirect the Payer to his ASPSP portal via the PSD2+ API.

- As per PSD2 the TPP's are only able connect to an ASPSP via the PSD API Gateway

- The redirection follows OAuth2 standards and the Payee will NOT have access or visibility to the Payer Account Information or security credentials.

- The Payer will follow the ASPSP Portal Log-in process (SCA Strong Customer Authentication)

a. The Payer's ASPSP may chose to perform a TRA check(Transaction Risk Analysis) for this request payment and present the request to the Payer.

6.The Payer views the Request and decides to authorise the payment as a result an Authorisation token is generated and sent back to the Payee TPP.

7.The Payee TPP receives the authorisation token generated by the Payer ASPSP, the authorisation token can be for a single/(reoccurring) payment and will have a specific validity.

8.The TPP then uses the authorisation token and initiates a payment as per the execution date of the token, via the PSD2+ API of the Payer ASPSP. Payee's TPP - AISP will be updated that a payment has been initiated, Payee can then subsequently updates Payer's account with the RTP status.

9.The Payers ASPSP then completes the payment execution. Payee ASPSP receives the payment containing Request GUID.

10.The Payee TPP - AISP's collection and reconciliation process checks with Payee ASPSP whether the payment is cleared. (This is done using the PSD2 APIs)

11.The TPP receives the Payment confirmation and updates the Payee's collections department, Payee updates the RTP status and updates Payer's account.