White Paper on CAPS Services

August 2016

This CAPS White Paper #2 is an update of the CAPS White Paper from August 2015.
It follows the same principles but updates on the latest progress and thinking.

The target audience for this white paper is professionals in payments and financial services who have interest in the new payment account access provisions introduced with PSD2.
This paper assumes the reader is familiar with the concepts and terms in this environment.

Abstract

The authors fully endorse the aims of the revised Payment Services Directive (PSD2) to provide better and more convenient payment services to users, both consumers and merchants, by opening up access to payment accounts at banks and other account holding institutions (AS-PSPs) via Third Parties (TPPs) in a safe and user-controlled way. In order to realise the regulatory intent behind the PSD2 in a secure and practical way and to turn this into a basis for commercial success the industry has to organise itself. This paper aims to describe how the CAPS services address this goal and how they bring benefits to users (better services, greater convenience, increased security and full users' control of any access), FinTechs (convenient access to many banks across Europe in a harmonised way) and banks (reduction of complexity and cost of compliance plus becoming more attractive for new services provided directly on the bank account by third parties). This open, optional concept of CAPS is being adopted and supported by an increasing number of organisations and is explicitly open to all.

Work Group and advisory members

Introduction

CAPS fully endorses the aims of the PSD2 especially to increase innovation and to make payments more convenient. This is potentially of benefit to all stakeholders:

- the **users** (better, more convenient services)
- the **merchants** (having easy reach and being paid more conveniently from any bank account)
- the new **third parties** - especially FinTechs - who can now get paid more cheaply and conveniently and have better reach (since everyone who is banked has, by definition, a bank account). With CAPS they are then also given aggregated/harmonised access to many banks and provided with a set of tools and a developer community so that they can leverage their creativity in developing new user solutions whilst being insulated from the complexities of access to bank accounts, to data and payment
- the AS-PSPs (typically **banks**) who can reduce their compliance costs and reduce cost and complexity on operational matters beyond compliance (e.g. via common agreements on dispute management) with CAPS.
  Last but not least progressive banks can employ CAPS to make themselves more attractive to new FinTechs with their innovative services and thus attract more users and more direct use of their bank while staying safe and secure.

Thus CAPS' main aim is to make life easier (and thus less costly and complex) for *all* those interested in realizing the opportunities behind PSD2.

Implementing CAPS is, of course, optional but all organisations adopting the open concept outlined in this paper will benefit to the degree they choose to adopt it.

What is CAPS ?

CAPS started as a _concept_ with a common set of beliefs shared by a large stakeholder community:
- to "make PSD2 work" safely and in practice/at scale
- belief in secure Open Banking as a sound principle for the future
- to create win-win situations for all stakeholders
- to explore the collaborative space between market actors

This led to a set of CAPS _principles_
- set up an open, optional framework[1] and governance
- offer optional aggregator services (pre-empting and supporting the emerging pan-European "harmonisation of PIS" access as proposed by ERPB/ECB).
- offer open, optional support for access to accounts by a large number of TPPs/FinTechs and not only one model (i.e. business model and technology agnosticism)
- define standard specific services helping towards 100% PSD2 compliance and further optional value-added services

These principles are being made _concrete_ through the development of specific CAPS services and structures by utilizing
- an open governance structure to maintain and develop the membership, services and framework
- a catalogue of compliance-supporting and value-adding APIs, data elements and messages
- standardised procedures for value-adding services such as dispute management, directories and fraud monitoring

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[1] When we speak of "Framework", we imply an agreed set of rules, a common ecosystem, a choreography of how things are to be arranged for the common good.

Finally the above will be _implemented_ by several competing CAPS Service Providers (CAPS SPs)[2]

- each running their own governance populated by the respective CAPS SP's stakeholders and investors
- each making implementations of the CAPS services relevant in that community under the terms of that CAPS SP
- some optionally supporting interoperability between different CAPS SPs and with non-CAPS service providers to maximise reach for all

The CAPS content, criteria and requirements are currently being developed by the supporting organisations[3] and may be set up in a more formal – but also open – governance structure in the future.

Different organisations are supporting the development and maintenance of CAPS at different levels. Some ("advisory") contribute by advising on the principles or help define some services, while others are going all the way from conceptual development, API/service/data/process definition to implementing and running CAPS as a PSD2 solution in their respective communities. All interested parties are openly welcome to adopt what they find useful and/or to contribute at whatever level they feel comfortable.

CAPS aims to provide benefits to all stakeholders

Many market participants share the belief in the need for collaborative action and see the opportunities this may yield.

Firstly CAPS is of benefit to the new third parties. If each of the thousands of AS-PSPs in Europe were to offer their own flavour of AIS and PIS access methods to each of the hopefully hundreds of new TPPs, chaos and fragmentation can only result:
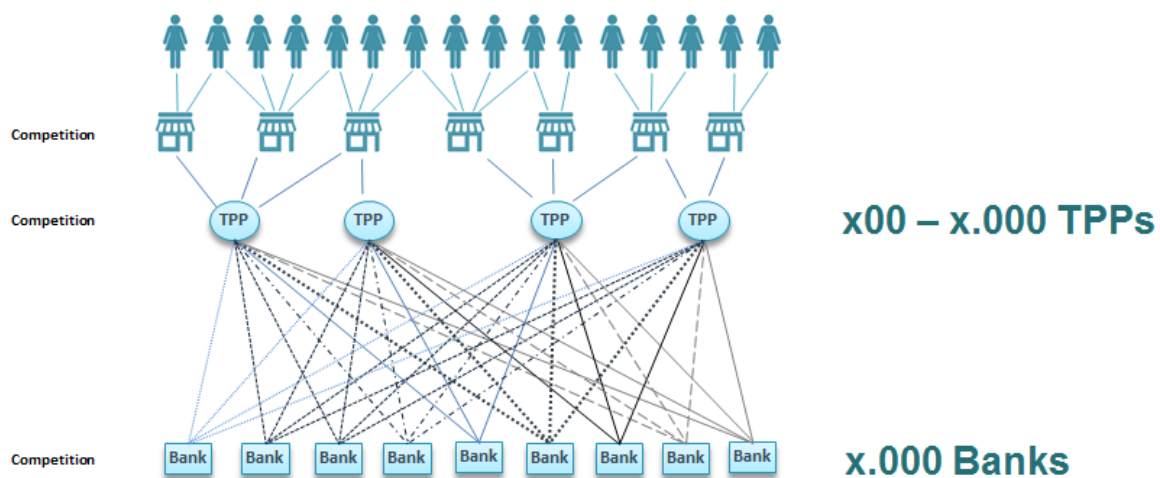

Fig 1: Reach Problem - TPPs have to connect to thousands of different interfaces to access the thousands of banks in Europe

In order to reduce the risk of fragmentation and to support the development of TPPs and their new innovative solutions, which will only emerge if they can connect to many banks easily, CAPS offers optional open aggregator services.

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[2] CAPS SPs will likely not only be set up by processors but also by other market aggregators and even by banks.

[3] Currently the parties at the head of this document are working together openly in the form of a loose coalition-of-the-willing with totally free access, no commercial bindings and consensual decisions on the way forward.

Optional open aggregators such as CAPS Service Providers not only bundle access to groups of banks. Through adopting the standard CAPS APIs/data formats/processes for all stakeholders, standardisation can be leveraged to increase the speed of user adaptation and foster innovation.

The benefits to users, merchants, third parties (TPPs) and banks (AS-PSPs) include:
- ✓ TPPs can access many banks via one interface
- ✓ Fragmentation across Europe will be reduced
- ✓ Users will benefit from a multiplicity of new services from new TPPs
- ✓ AS-PSPs and TPPs have aligned updates on PSD2 compliance
- ✓ AS-PSPs and TPPS have a shared interpretation of data
- ✓ TPPs can share cost and management of regulatory burden
- ✓ TPPs can benefit from directory services to find users' banks
- ✓ All can benefit from a harmonised dispute management
- ✓ All can benefit from transparency, more quality, security and trust

To give a little more background on some of the above, here is an illustrative list of possible features and benefits from the range of services that CAPS Service Providers may choose to develop:

- CAPS will explore modern ways to support the developer (merchant, solution provider) community to encourage the development of new services and foster common understanding and resolution of questions. This improves the speed to market of new solutions using bank accounts.

- CAPS can support small TPPs with out-of-the-box common and legal modern secure authentication mechanisms e.g. to do their own authentication with OAuth 2.0 and Tokens. CAPS will also provide directory services to allow TPPs to find the user's bank to connect to. There will also be sandboxing and testing services. All this allows third parties to concentrate on what they are good at and not be bogged down with the details of account access. TPPs are thus freed up to consider the consumer benefits and how to innovate around their service and experience.

- CAPS standard processes and interfaces can help to harmonise dispute management significantly. This would otherwise require costly search and manual communication activities between AS-PSPs, TPPs and users across the EU.

- CAPS can help AS-PSPs technically outsource some PSD2 services, share costs and efforts now and for future PSDs and security legislations.

- CAPS can enable better fraud monitoring across several channels and banks and geographies thus making the whole system more safe and secure.

Forward looking AS PSPs are especially welcoming some opportunities that PSD2 will enable:
- PSD2 will put bank accounts back at the centre of payments (direct connection between user and his bank account)
- this will surely draw more transactions, more data, more direct connection between users and their bank than with current solutions (less "disintermediation")
- business opportunities (with value added services; with read-only access to accounts at competing banks; sharing costs etc.) which will give commercial and strategic advantages over those who just see PSD2 as a cost factor and compliance burden.

Thus it is believed that CAPS will provide benefits to all stakeholders: users, FinTechs, TPPs, merchants, banks/AS-PSPs and thus also to the EU regulators in helping to make PSD2 work.

CAPS' approach to enable PSD2 services in practice

The basic account access functions for *compliance* with PSD2 are described in PSD2, EBA RTS etc. Any AS-PSP must of course comply with these. Some banks may choose to do this entirely by themselves, others may consider technically outsourcing some of the requirements. This does not remove the legal obligation for banks to be formally compliant but, just as in SEPA, outsourcing can make life significantly easier for some banks now and with future regulatory, technological and market developments. It also offers the opportunity to share costs and leverage scale effects.

Beyond the compliance level, the CAPS **Basic** services aim is to make PSD2 work not only by satisfying the basic compliance functions but to make account access work more easily and smoothly for all actors. Its core value proposition for third parties is "API aggregation" with appropriate directory services offering all TPPs a standard and convenient point of access to whole groups of banks and simple means of finding out how and who to connect to.

Some parties may choose to go beyond the Basic Service Level. For example some merchants, TPPs, FinTechs etc. would welcome optional functions beyond those mandated by PSD2 i.e. beyond facilitating payment initiation and account information services. Examples are: age verification, identity services, address verification and more[4]. Some progressive and forward-thinking AS-PSPs, now encouraged anyway by the regulation to open up their systems to third parties, see such **Premium** services as an opportunity to provide further services to their clients. Since these new services are not regulated by PSD2, they may offer new business opportunities. They also provide a new arena for competition to the benefit of TPPs and users: which bank will offer the best services to merchants/users/FinTechs – and gain the rewards for their innovation?
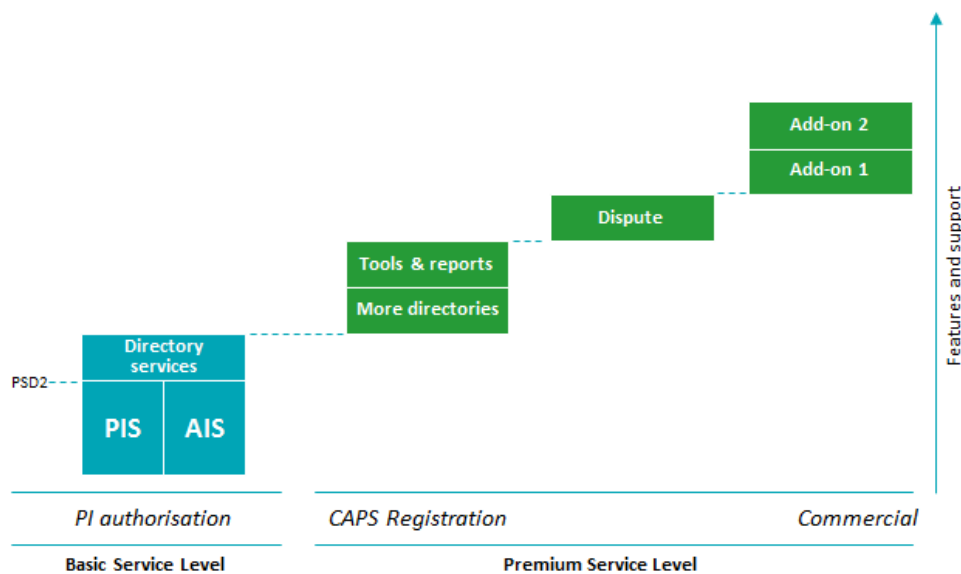

Fig 2: CAPS offers services for stakeholders with different needs

Since competitive optional services, by definition, imply that different AS-PSPs will offer different services, CAPS consciously will not provide totally the same set of Premium services across all CAPS SPs and connected AS-PSPs (as it does for Basic APIs). To avoid fragmentation, functionally identical services should be harmonised to the largest extent possible in terms of technology and processes.

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[4] Many new services very much welcome yes/no attributes (e.g. whether user is over 18, whether she is a resident of that country) or more extensive data (e.g. bank verified address, bank verified telephone number) of course only if the user is actively willing to release that information.

Thus the optional Premium Service Level in CAPS will provide new functions and new business opportunities to the market. The premium services may also offer *enhanced versions* of the basic or compliance services. They may provide extra parameters (e.g. authentication options, support for recurring access), better quality-of-service (e.g. confirmations/guarantees, higher throughput, more detailed directories), enhanced support (e.g. more tools, a hotline, insurance services) compared to what is mandatory under PSD2.

The premium service level also optionally includes a further set of *"Support" services* that enhance the practical running of PSD2 in the real world. An example is Dispute Management. It is to be expected that, especially during the early introductory phase of PSD2, many users/merchants /FinTechs/TPPs will raise questions or challenge transactions made under new PSD2 enabled services. If this is all to be resolved between the relevant parties by using e-mails or calls to hotlines the costs and complexities may become exorbitant. Thus, CAPS offers standardised dispute management with standard messages, electronic workflow processes, notifications of involved parties etc. to simplify processes and save costs and frustrations from the outset.

Another example is CAPS-wide Fraud Monitoring (across accounts, across banks, across geographies which no *single* bank can detect) that will ensure better and early detection of any misuse or new fraud patterns. This leads to a higher level of security that is less costly and more responsive than each partner only relying on its own fraud monitoring[5].

Such Premium services can naturally only be provided to parties that formally sign up to the services with a CAPS SP, either in the form of a simple registration or under commercial terms, depending on the offering of that CAPS SP.

It is important to note that there will be heavy competition between CAPS SPs. At the basic level the CAPS SPs will compete amongst each other and with other PSD2 solutions and will foster strong competition. At the Premium Service Level each CAPS Service Provider will compete by offering a different range of optional additional services. For example:

- one CAPS SP covering access to one group of banks may offer not only standard compliant PSD2 APIs but also age verification and OAuth/tokenisation and payment initiation with guaranteed payment confirmation,
- another CAPS SP covering access to the same or a different group of banks may instead offer as premium services standardised dispute resolution, fraud management, hotline support and host a free developer community for FinTechs.

Both of these CAPS SPs equally offer all TPPs the same *basic* standardised PI and AI access to all their connected banks. But by their diverse *premium* service level offering the CAPS SPs will compete to win more banks and more TPPs. Stakeholders making the better choice of which services to offer and with which CAPS SP will win most customers.

Thus stakeholders choosing to adopt these optional Basic or Premium services will not only be more easily compliant but also reap additional benefits and can go way beyond implementing PSD2 as a compliance issue and turn it into a business opportunity.

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[5] This of course does not absolve any bank from also doing its *own* fraud monitoring.
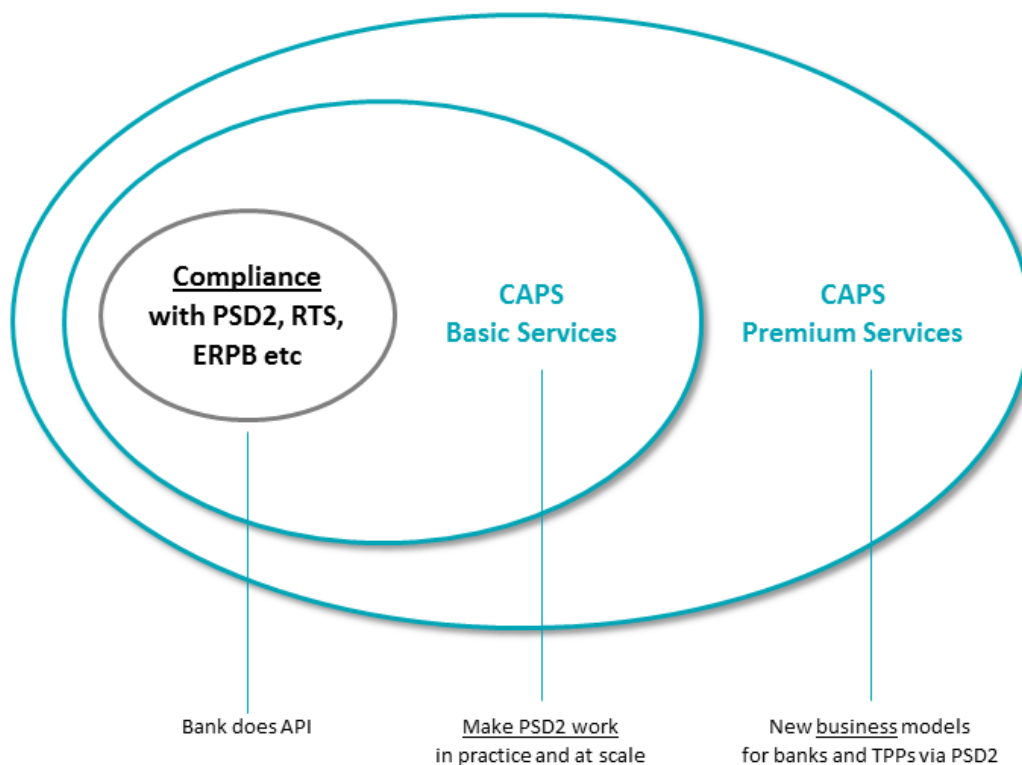
Fig 3: From compliance to making it work

CAPS Framework content

To facilitate CAPS' objective of harmonisation and aggregation in the use of PIS and AIS, the CAPS Framework specifies a common set of rules, processes and data sets to which each of the defined CAPS Participant roles agree to if they choose to participate (on a non-exclusive basis). The four defined roles[6] are: PISP, AISP, AS-PSP and CAPS SP. While the first three roles directly build on top of the corresponding PSD2 definitions[7], the last role is a new service provider, which delivers a range of infrastructure services that ensure the processes defined in the CAPS Framework operate efficiently and correctly.

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[6] Of course some market actors may wish to take on multiple roles, e.g.
- a PISP may also want to be an AISP
- a bank (which already is an AS-PSP) may choose to also become a PISP
- some banks and/or TPPs may wish to come together to set up a CAPS SP
- etc.

Thus the boundaries are blurring and we do not see PSD2 as a "banks versus TPP" topic but a new area where all players can find new roles and new opportunities and can help each other to create win-win situations.

[7] Note that services for the new third parties introduced via PSD2 Article 65 for issuers of card-based payment instruments have so far not been defined at depth within CAPS but could easily be included depending upon market demand.
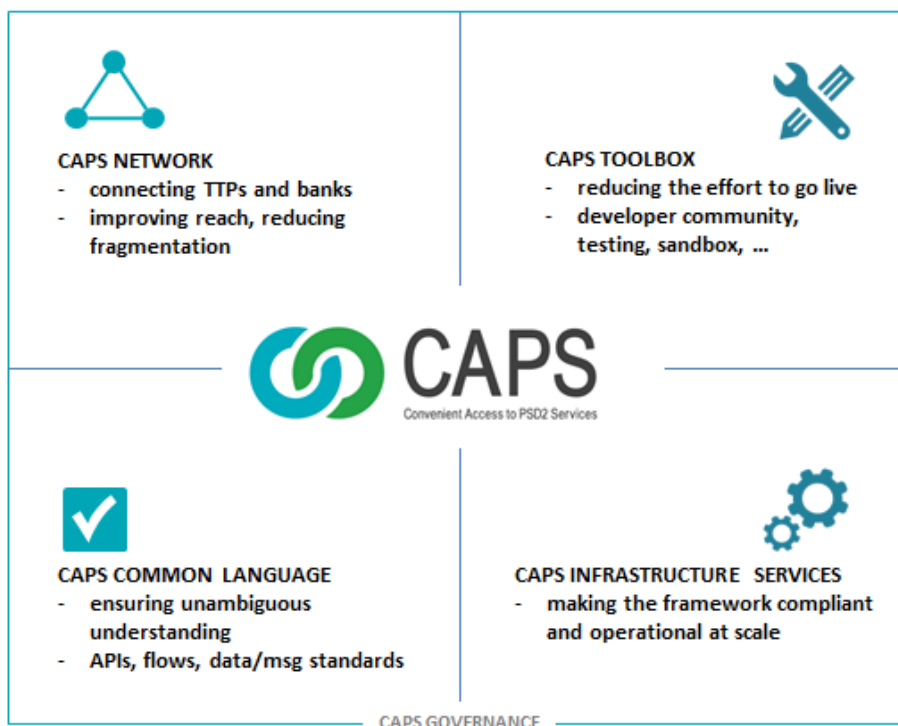
Fig. 4: The elements of the CAPS Open Framework[8]

The CAPS Open Framework has four key elements:

- **The CAPS Network** in order to facilitate easy reach for third parties using a single entry point without bothering about regional flavours, changes and access protocols on the AS-PSP side, directory services and interoperability
- **The CAPS Common Language** that ensures unambiguous understanding of the messages and data exchanged between the participants where no standard exists
- **The CAPS Toolbox** will make it easy for a participant to use the CAPS Framework and provides the supporting tools and environments
- **The CAPS Infrastructure** Services provided by the CAPS Service Providers which manage onboarding and ensure that the CAPS eco-system works at scale and any errors or misunderstandings are resolved fast and efficiently.

The concrete functions are being defined and introduced in phases. In the initial release of the CAPS Framework, focus is on covering the basic needs of third parties and AS-PSPs to enable PSD2 PISPs and AISPs to go live with services and features that ensure convenience, security and efficiency for all CAPS participants.

Some of the basic and premium services CAPS envisioned to include in the future are:

- Enhanced support for those TPPs that must comply with regulatory and business requirements as a regulated institution, e.g. reporting as a Payment Institution
- Services to provide TPPs with out-of-the-box common and legal modern secure authentication mechanisms e.g. to do their own authentication with OAuth 2.0 and Tokens,
- Enable better fraud monitoring across several channels and banks and geographies and thus make the system more safe and secure for all.

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[8] Broadly the two elements on the left specify how the framework should work and the two elements on the right provide the tools to make the framework operational.

CAPS Services Content Preview

The detailed content of the complete CAPS Services catalogue is under continuous development and may also be influenced by the coming Regulatory Technical Standards from the European Banking Authority and from other initiatives across Europe which standardise and/or influence the implementation of PSD2 payment initiation and account information services.

The CAPS community will actively contribute to any standardisation effort in European and international fora and will aim to reuse any available open standards for use in CAPS Services.

To provide some flavour to the expected CAPS Services offering, a preview of the services which are currently on the drawing board is shown below.

CAPS Service Level Capabilities	Basic	Premium
PSD2 compliant payment initiation and account information services	●	●
Find-user's-bank; Access to query bank directory	●	●
Single point of entry for several AS-PSPs without need for specific URLs	●	●
Single message standard for PI and AI across multiple AS-PSPs	●	●
Single message and return information standard for account information	●	●
Conversion between multiple encoding technolgies	●	●
Standard payment initiation attributes for creditor ID and references	●	●
CAPS sandbox and testing environment	●	●
TTP can display their capabilities and meta data to customers and AS-PSPs		●
AS-PSP can display their capabilities and services for TPPs		●
End-user option for alias-to-bank directory		●
Payment initiation utilising tokens without the need for payer's account number		●
Recurrent PI and AI access with low risk token technology		●
CAPS Developer community access		●
CAPS SDK and extended sandbox environment		●
Increased AS-PSP reach via CAPS Interoperablity		●
Dispute management system access		●
Access to own traffic statistics		●
Regulatory reporting services at scheduled intervals		●
Incident and security reporting toolbox		●
Fraud monitoring across AS-PSPs		●

CAPS open framework – call for action

CAPS is explicitly optional and open by design which means that:
- No-one is forced to join or to use CAPS services where they are offered
- Becoming part of CAPS is non-exclusive i.e. members can also be part of other PSD2 initiatives
- Those who wish to join, can do so under transparent conditions by adherence to the CAPS principles and open governance.

Thus, any organisation that believes in the concept and the benefits is welcome to support the CAPS community, further develop it and implement it in their own environment.

This market response to "making the regulation work" in practice will encourage competition at all levels. There will likely be several aggregation services such as CAPS in the market, indeed there will likely be several competing implementations of CAPS itself, so that those convinced of the concept are not forced into any one solution or any particular CAPS Service provider. There will, of course, also be fierce competition between new services from FinTechs and merchants and banks to offer the best service to users. Thus, competition will take place across all industries and at all levels. It may even help create a platform and marketplace for such competition to take place and create that platform and framework in a way which both large and small players[9] can come to market.

In summary we argue that some *standardisation* - especially on the access to accounts by providing harmonised APIs (as also suggested by ERPB) to reach many banks through an aggregation service - will actually result in *more competition[10]*. The same goes for further PSD2 supporting services.

The conceptual development of CAPS was begun when PSD2 was first drafted. It has since been continuously developed by an increasing group of interested parties, honing the framework and defining services, APIs and procedures to an ever greater level of refinement. First pilot implementations with the first TPPs and AS-PSPs are expected to be available shortly after EBA publishes the Regulatory Technical Standards in the beginning of 2017 and several groups of AS-PSPs are considering CAPS as their basis for implementation before PSD2 becomes law.

FinTechs, potential TPPs, AS PSPs and any other stakeholders interested in learning more or joining the CAPS initiative are very welcome and referred to the website www.caps-services.com for further details and participation options.

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[9] We consider it important that innovators of all kinds and sizes are given equal opportunity.

[10] An example from another industry to illustrate this: when Wi-Fi technology first became available, a common access was defined by the industry. This led to easy connection by many devices and a large competitive market of service providers offering Wi-Fi on the basis of a common standard. If every user and device and service would have had to connect to each hotspot using a different standard we would not have the success and convenience of Wi-Fi we have today. We would also not have had the competition of services and, thus, the plethora of new wireless services and devices.