



2022

Activity
report

Calypso
Networks Association



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Introduction

from the CEO

Dear Calypso
friends and partners,



I am pleased to share CNA's 2022 Activity Report, which highlights the association's progress and achievements over the past year.

2022 was another very unusual year, marked by the continued impact of the health crisis on public transport. Fewer passengers, even if public transport largely went back to normal, meant that the ticketing ecosystem remained affected.

Calypso was not immune to the crisis. Even though the number of cards reaching the market doubled compared to 2021, it remains significantly lower than in 2019, not due to weak demand from transport networks, but due to the shortage of components. This shortage will continue to exist in 2023 and will restrict a recovery that was expected to be very strong by more than 30%.

However, 2022 was a very dynamic year for the development of our standard: we have welcomed new members, which brings our membership to 108 participants as of the end of 2022, alongside important technical progress, new implementations, active promotion, positive exchanges and a large events programme.

I would like to emphasise the importance of the progress and technical results in 2022 despite the context mentioned above: new products essential for the development of Calypso – the Basic ticket and the Prime PKI card – have been put on the market;

a growing number of ticketing players are adopting Keyple for easy integration of Calypso into systems, confirming the relevance of CNA choosing open-source a few years ago; the launch of work on Open SAM shows once again the willingness of the CNA Board to make Calypso a beacon for open standards.

But I would also like to remind you that CNA is not only the organisation that develops, promotes and regulates the Calypso standard. It is also a unique exchange platform where users and manufacturers can co-build the future of the standard to benefit the ticketing ecosystem. The CNA Board is determined to continue its efforts to make Calypso accessible to all. This means making the standard known, demonstrating its advantages, helping to implement it and innovating to make it sustainable.

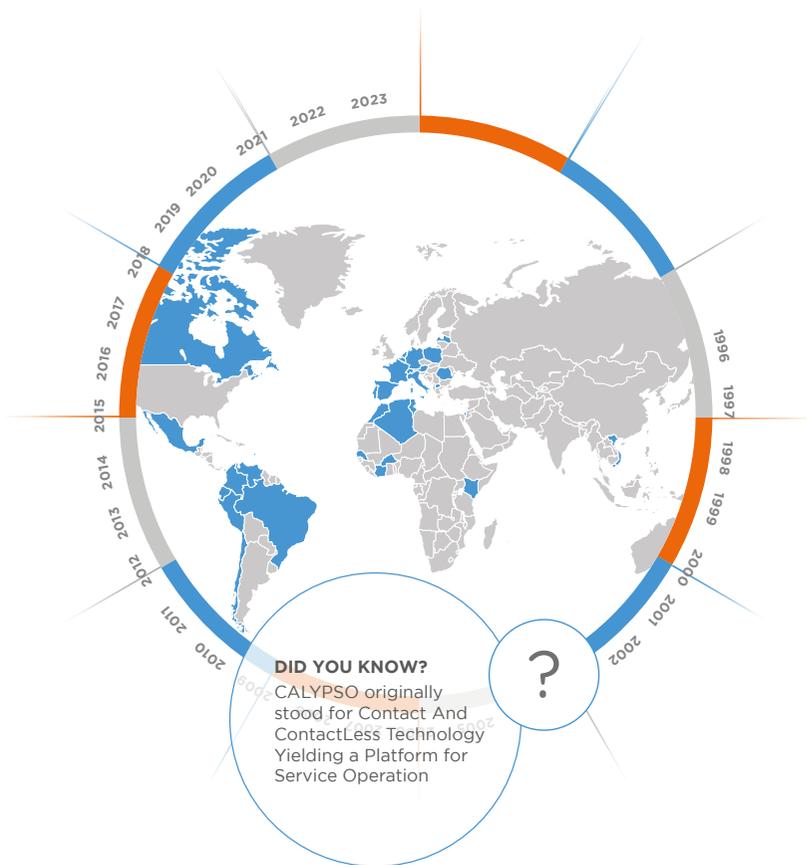
I thank the CNA team for its ongoing work and dedication, and I extend my thanks to the whole Calypso community, including our users and partners, for their loyal contributions to the association over the years.

And, in this important year when we celebrate the 20th anniversary of CNA, let me say: long live Calypso!

Gianluca Cuzzolin
Chairman of
Calypso Networks Association

Calypso[®] 20 years

27 YEARS OF TRANSPORT TICKETING INNOVATION



Our community is committed to further smart ticketing innovations. Here's to more exciting years ahead!

1996

Launch of the ICARE project, financed by the European Community, to develop a contactless ticketing system for multimodal and multi-operator public transport environments

This is followed by the Calypso project launching transport ticketing and multiservice payment applications in five initial locations: Paris, Lisbon, Venice, Brussels and Konstanz

1999

Two first in-field deployments of contactless ticketing systems based on Calypso launch in two French cities, Nice and Amiens



2000

Session and Ratification Patents Registration, forming the heart of Calypso's technology

Launch of the TRIANGLE project, precursor to Hoplink, to develop interoperability between European metropolitan areas, piloted on the Brussels-London-Paris triangle



2003

Creation of Calypso Networks Association, an ASBL (not-for-profit) under Belgium law

2014

First delivery of a compliance certificate for Calypso Prime cards



2012

Creation of Calypso's interoperable ticketing service, Hoplink



2009

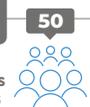
First prototype Calypso transaction from a mobile phone NFC SIM card

2006

First reload of Calypso cards on bank ATMs takes place in Lisbon, Portugal

2016

CNA reaches 50 members



2017

Setup of a permanent, dedicated CNA team, to better answer to the needs of the transport ticketing community

2019

Setup of the Calypso brand license, based on mandatory certification of products compliant to Calypso specifications

CNA reaches 100 members and ships 30 million cards over the year



2020

More than 40 certified Prime, Light cards and a certified Prime applet on Secure Elements or Javacards



2023

CNA celebrates its 20th anniversary!

Calypso[®]
20 years



2022

Launch of the Basic contactless ticket and of Calypso Prime PKI

Calypso[®] PRIME PKI

2021

Calypso definitively enters the open-source world with the issuance of the Eclipse Keyple API and software 2.0 for terminals

Calypso enhances the security of mobile ticketing on Android devices, officially launching the Calypso HCE Security Certification (CHSC) scheme

2022 in numbers

Number of
members

108



Countries with
Calypso deployment

29



Active Technical
Committees

6



16



New members

ASIS ELEKTRONIC
BANCO AZTECA
BILLING PAY
CALMELL GROUP
CONSEIL REGIONAL DE BRETAGNE
EDY NOGA TECHNOLOGY
GAPLET
GCN ITS
KENTKART
MPESO
PLANETA
RTP
SISWEB
SOLARI DI UDINE SPA
SPRINGCARD
SYX GRAPHICS

Geographical

83 EUROPE
16 LATAM + BRAZIL
4 ASIA
3 NORTH AMERICA
2 AFRICA

Activities

3 ASSOCIATIONS
8 AUTHORITIES
20 OPERATORS
36 CONSULTANTS & SOFTWARE PROVIDERS
41 INDUSTRIALS

Calypso Technology

Travel cards shipped
in the last three years

109m+



Certified products

55



Activated
mobile solutions

1.55m+



CNA approved cards

27



2022 highlights

Even though the first part of the year was still dominated by the pandemic, 2022 was a year marked by the strong development of Calypso, not only on a technical level, but also a strong recovery of the promotional activity and exchanges with and between members, with prestigious events that welcomed many participants happy to renew face-to-face contact.

On the technical side, the end of the year saw the launch of Basic and Prime PKI products by our industrial members, resulting from specifications established by CNA working groups in previous years. These two new media are a very useful complement to the range of Calypso solutions, opening up our standard to occasional usage with Basic, a low-cost but highly secure ticket; and also to MaaS and the uses of new mobilities with Prime PKI, which allows the interoperability of services based on card-based and account-based architectures.

2022 also saw a significant increase in the number of players using Keyple, to integrate Calypso more easily and quickly into their ticketing offer, and the launch of work on Open SAM, a new generation of the Calypso security module, offering new functionalities and completely open, with the objective of being available as a multi-source offer.

The comeback of the events organised by CNA has been particularly appreciated by our members and the whole ticketing community. The Budapest forum, the Partners Day for the industry, the User Days in Venice, the Open Session in Paris have allowed us to renew with a rich programme of presentations and to enable networking, open stakeholder exchanges, share of knowledge, experiences and expertise.

And we welcomed the appointment at the General Assembly in May 2022 of a new Chairman for Calypso, Gianluca Cuzzolin.

Once again, over the year, with the dedication of the CNA team and the commitment of our members, Calypso has confirmed its leading position in the global market of open standards.

Technical milestones

Calypso specifications

In 2022, taking advantage of the opportunity afforded by moving the technical documentation library to the main CNA website, a significant update of the Calypso documentation has been published. It includes more than 30 documents either new, updated or deprecated. CNA created an umbrella document, the Calypso Core that brings together the information common to all products and has reorganised the product specifications accordingly.

Eclipse Keyple

keyple

Eclipse Keyple, the open-source ticketing SDK, is a reference library to facilitate the implementation of Calypso applications in a terminal, making the software hardware independent and providing high-level functions to process Calypso transactions.

After the publication of Keyple 2.0 in 2001, which includes the main functions of Calypso Regular, 2022 was dedicated to the implementation of all Calypso Regular functions, considering the SAM functions, except the already-implemented security session. A special effort has been made in the documentation and examples. Work on Prime Extended and Prime PKI has been started and will be completed by mid-2023.





Certification of the Calypso cards

Calypso card functional certification process

Eight products were certified in 2022:

- 2 x Calypso Prime Extended
- 1 x Calypso Prime PKI
- 1 x Calypso Basic
- 4 x applets: 2 x Java Cards & 2 x mobile eSE

The additional tests necessary for the certification of a Calypso Prime PKI card have been added to the test tool, as well as some evolutions of the specification leading to the certification of the first Prime PKI card at the end of the year.

In the same way, a dedicated tool has been used to validate the first Calypso Basic card.

Work has been initiated to develop a Calypso HCE functional test plan, as well as an upgrade of the Calypso Prime tool, in order to take into account the evolutions brought by Edition 2 of the Calypso Prime rev3.3 specification. These tasks will be completed by the end of 2023.

Paycert and CNA also strengthen the process test tool updates, by clearly defining the rules of transition.

Contactless interface in public transport

Paycert and CNA continue their cooperation to roll out and maintain a certification process for compliance with the European standard for the communication between contactless readers and fare media in public transport - CEN/TS 16794, supported by CNA's technical expertise.

The level of activity was quite low in 2022, since seven card certificates were issued and six for terminals.





Calypso certification for terminals

A contactless Calypso terminal software is divided into three layers to facilitate integration into terminals, ensure interoperability between layers, and to allow the modules to evolve independently of each other:

1. Reader Layer that provides a consistent and uniform interface, regardless of the reader provider (and even type of PO), ensuring that all readers provide a minimal common set of functionalities.
2. Calypso Layer that contains all the Calypso functionalities and Calypso settings.
3. Ticketing Layer that includes all the other components of the system like the Data Model processing and business rules management.

These requirements provide the basis for a terminal certification programme, which started in 2021 for the Calypso Layer and the Reader Layer. Pending the finalisation of this program and the implementation of a certification based on a technical evaluation, CNA has established a transitional registration procedure for the Calypso Layer and the Reader Layer of a terminal, which is based on a declaration by the vendors that they will comply with the Prime rev3.3 specification published by CNA in mid-2022.

Simultaneously, the Calypso Layer and Reader Layer test plans were achieved by the end of 2022, and CNA decided to internally manage the development of the tests tool based on Keyple from the start of 2023.

Open SAM

In 2021, CNA launched the development of a SAM Applet to prototype some technical solutions. After this first phase, it was decided to completely redraw the specification of the SAM to easily implement new features and enhanced functionalities written more than 15 years ago.

It was therefore decided to focus the work in 2022 on the drafting of this new Open SAM specification, which will be available for manufacturers who wish to make this development.

For this purpose, CNA has set up a working group, the TC SAM, which meets every 2 weeks and whose lead is provided by SNCF with the support of CNA's internal teams.





Calypso mobile solutions

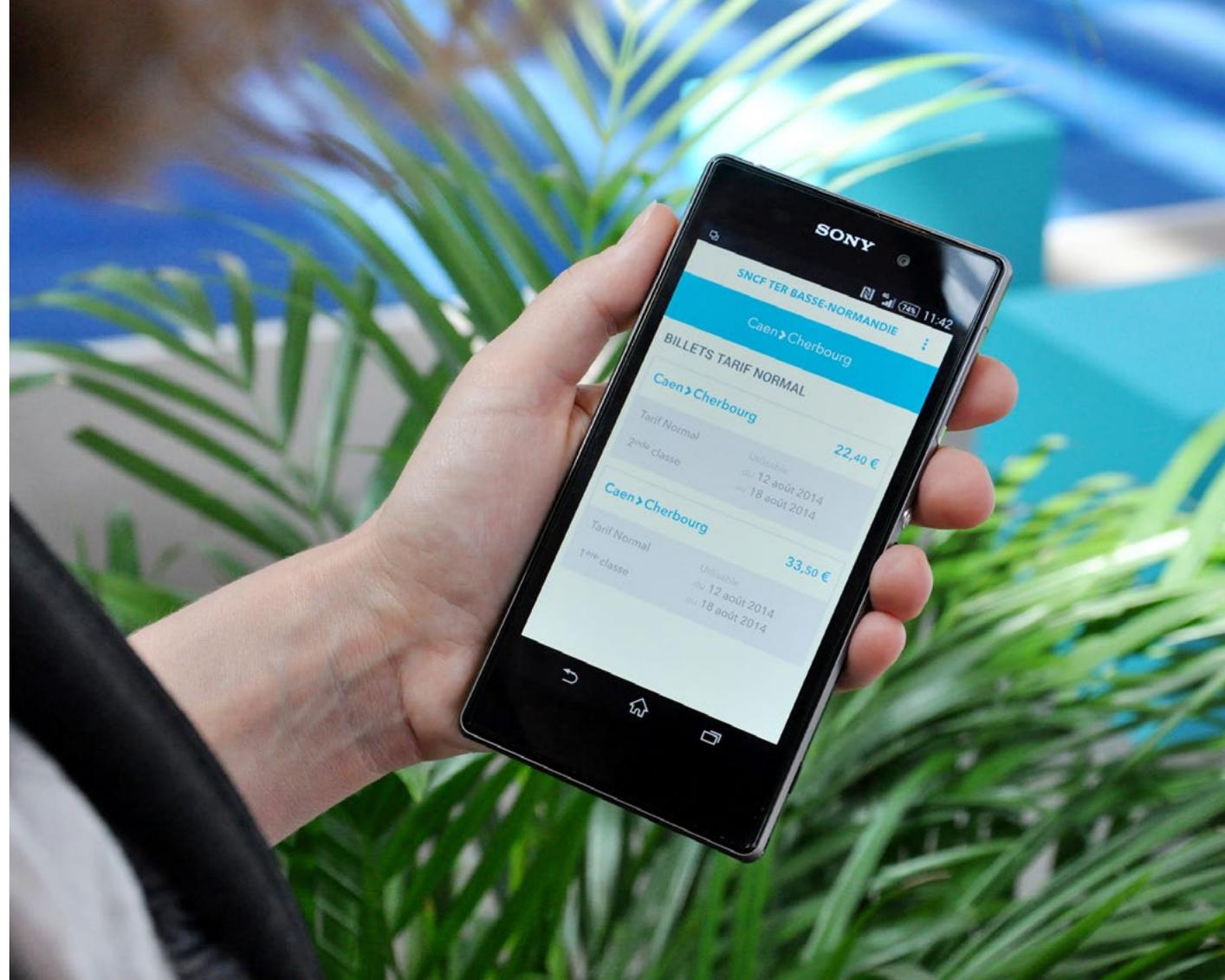
Calypso Applet

CNA provided customer support for the version 1.3.10 of the Calypso Applet delivered at the end of 2021. Versions 1.3.x are based on Calypso Prime Regular. A prototype to support Calypso PKI was developed, and implementation of the requirements of Prime Regular were published in the last Calypso Prime Specification (3.3 Ed2), with version 1.3.11 expected in mid-2023.

HCE and Calypso

At the end of 2019, CNA started a security certification process for a Calypso HCE mobile application with the objective to provide a scheme that gives a guarantee of a certain level of security to the end customer.

The process is now fully available with two laboratories. A second vendor has now launched the certification process.



Promotion of the Calypso Standard

2022 saw the consolidation of our established activities dedicated to promotion of the Calypso standard. The representation office in Mexico has delivered a great impact on the regional stakeholder ecosystem, highlighted by numerous new members we gained in the region. Many new local market players have been onboarded to Calypso technology and more cities in Mexico have started to consider Calypso technology for their future smart ticketing schemes.

Besides our Mexican office, we significantly extended our footprint on the LATAM market through the successful work of our São Paulo office (CNA Brazil). Further milestones have included the work on regional UITP initiatives dedicated to MaaS and involvement in a national project dedicated to helping elderly mobility in Brazil.

In Africa, we have deepened cooperation with our local members in Senegal and Ivory Coast. Abidjan and Dakar are now the first Calypso-based ticketing in West Africa. We were also part of the Sustainable Mobility and Climate Week in Dakar in October 2022, as an active member of CODATU.

Looking to the European market, we have continued our strategic partnership with Asstra. We have

organised a first meeting of the Italian members of our association to get a better understanding on how we can support them. Despite the ongoing conflict in Ukraine, we have supported the national transport operator association as far as has been possible. In Romania, we have continued to support the transport authority of Bucharest-Ilfov in its ticketing integration project and have reached out to newly appointed city mayors to support them in their path to reshape urban mobility.



Conference and event highlights

Several events were organised by CNA in 2022. All were held face-to-face and allowed the Calypso community to meet and exchange ideas, experiences and requirements:

Smart Ticketing and Digital Services Forum > June 2022 in Budapest

Returning to a face-to-face format, the Forum in Budapest was an opportunity to discuss topics such as open standards, MaaS, urban mobility digitalisation, the recovery of public transport after pandemic, new digital challenges in railways, innovation in the field of ticketing ... as well as a wonderful cruise on the Danube on a beautiful sunny evening.



Partners Day > July 2022 in Paris

Our industrial members were able to exchange directly with each other and there was an opportunity to gather suppliers' market visions and positioning of Calypso, while discussing the ongoing development of the standard. The meeting was also an opportunity to explore the projects carried out by the Advisory Board of adhering members and its mission to ensure the voice of manufacturers in the ticketing community is heard and continues to support CNA's vision of a smarter, innovative and sustainable ticketing ecosystem.



Calypso User Days > September 2022 in Venice

Our traditional and always successful event returned in 2022 after a three-year absence, welcoming more than 100 participants from across the public transport world. This conference was dedicated to MaaS and multiservice for all, as well as to mobile ticketing, with the participation of Apple and the NFC Forum.



Calypso Tech Day and Open Session > December 2021 in Paris

The Calypso Open Session was held in three main sessions:

- First, the Tech Day, where attendees learned more about the latest technical and strategic developments of the Calypso standard.
- Second, the open session itself, to welcome the entire ticketing community in a friendly atmosphere in a prestigious venue, the Peninsula hotel.
- And third, the Calypso Awards ceremony was back. Always popular, this evening of stakeholder recognition saw Secretaría de Movilidad de la Ciudad de México (SEMOVI CDMX) awarded with “Best Customer Service” for its remarkable transformation of public infrastructure in Mexico City. SEMOVI CDMX has championed Calypso open standards as a cost-effective way to help address urban inequalities by providing more users with accessible ticketing. The “Best Innovation” award saw HID Global win for its work in mobile ticketing. HID Global uses Calypso’s HCE (Host Card Emulation) offering for Android to create a solution that integrates multiple ticketing apps into a single digital wallet.



Industrial liaison

In 2022, CNA participated in multiple exhibitions and conferences, including UITP IT Trans in Karlsruhe, Transport Ticketing Global in London, multiple Kontiki events, Club Italia and Asstra events, International Railway Summit, the 6th Annual Ticketing Summit in Berlin, Sustainable Mobility and Climate Week in Dakar, MOVE in London, Assises de l'Adcet in Strasbourg and the Economic Forum in Karpacz.

From an institutional perspective, we have continued our set liaison agreement with the NFC Forum by contributing use cases to the MIT SIG workstream. Since early 2022, we have held the chair position of the UITP IT&I Committee, and we have strengthened our position in the Smart Ticketing Alliance by running successfully for the chair position with a mandate for 2022-2025. In 2022, we successfully applied for the European

Commission DG MOVE initiative Multimodality Passenger Mobility Forum (MPMF).

CNA is also an active contributor to the following associations:

- **ADCET**, with focus on developing multiservice usages; ECLIPSE, the global open-source foundation;
- **ATEC** Intelligent Transport Systems, with a focus on smart mobility;
- **MEDEF**, a leading network of entrepreneurs;
- **CODATU**, supporting sustainable urban mobility in developing countries;
- **Club Italia**, encouraging the use of public transport in Italy;
- **Ukrelektrotrans**, representing electric transport enterprises in Ukraine.

Collaboration with OSPT Alliance

In 2022, the two associations agreed that as the market recovers from two years of significant challenges (e.g. COVID, geopolitical conflicts and climate issues ...) an immediate merge of specifications is currently not appropriate. Instead, a unified effort to endorse and promote a collective approach to simplify open standard implementation for transport operators and authorities has been considered as a fruitful outcome of the convergence talks. CNA and OSPT will continue to work towards sustainable and innovative mobility for the urban transport market and to promote open standards across the industry.



Ralph Gambetta
from CNA,
*new chairman of
Smart Ticketing Alliance*



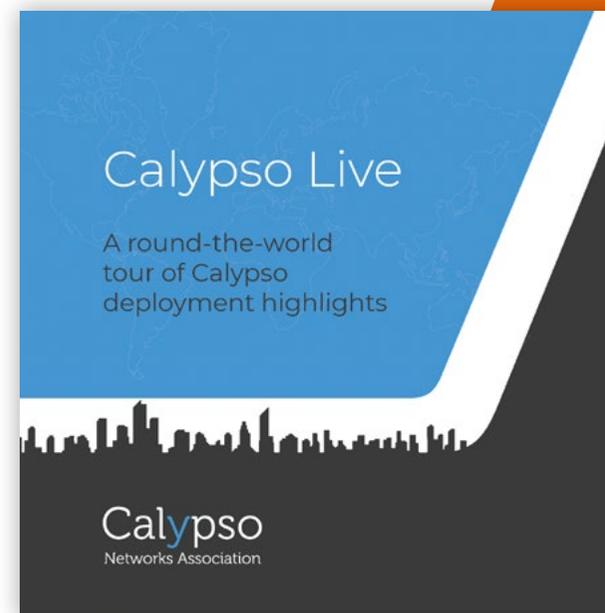
New resources for the CNA community

CNA continues its commitment to be a valuable resource to the contactless ticketing community, working to help its members stay informed and one step ahead. A new [technical documentation library](#) has been set up (see later in this report). Two brochures were produced on [Eclipse Keyple](#) and [Prime PKI](#), completing the set of brochures currently available for Calypso [Prime](#), [Light](#), [Basic](#) and [Calypso for Mobile](#).

An infographic «Calypso: 25 years of innovation» has been produced as part of the celebrations for CNA's 20th anniversary in 2023, focusing on technical milestones since Calypso technology was first created.

Two new ebooks were made available: [Eclipse Keyple: A Blueprint for a Smart Future](#), to help you discover the advantages of this open-source SDK from all points of view (authorities, operators, industrial...); and [Calypso Live](#), a stunning set of use cases in different cities around the world that show how transport networks have been able to make the most of Calypso and drive local innovations.

We are also proud to continue to share on new insights and content with the ticketing community. Over the last year, this has included 10 articles on [Transport Ticketing Trends](#), 2 press releases, and 110+ [LinkedIn updates](#). The media continue to show interest in Calypso, with 10 editorial articles published in titles including [Intelligent Transport](#), [Rail Professional](#), [Mobility Payments](#), [Metro Report International](#), [Global Banking and Finance review](#).



A new Document Library for Calypso

In 2022, CNA carried out a complete reorganisation of its documentation, starting with the technical documentation.

It is no longer necessary to visit several sites to access all the documents useful to those who want to know or master the Calypso standard.

All the documentation can now be accessed on the [Calypsonet.org](https://calypsonet.org) website via the [Document Search](#) tab, with four levels of access: public, registered, CNA members, or signed-NDA required, depending on the classification of the document.

The Document Search tab provides dynamic filters and tiered access levels for an easy-to-use, secure library, simpler functionality for an enhanced user experience, and a clear navigation and search process for all documents.

The screenshot shows the Calypso Documents Search interface. At the top, there is a navigation bar with links for About, Solutions, Services, Join CNA, News & Events, Resources, and Contact. Below this is a search bar with a 'Search' button and filters for 'Document Age' and 'Current'. A 'Clear Filters' button is also present. The main content area displays a table of documents with columns for Document #, Doc Type #, Calypso Solution #, Access Level #, and Published #. The table lists several documents, including 'Calypso Prime - Functional Test Plan - v6 | 121003', 'Calypso Prime - Profiles Definition for Certification - v6 | 19124', and 'Reader Layer Evaluation - Process - v2 | 220304'. On the left side, there are three filter sections: 'DOCUMENT TYPE' (Forms Template, General Presentation, Guidelines, Meeting Minutes, Registry, Release Note, Specifications, Technical Note, Test Plan, User Manual), 'CALYPSO SOLUTION' (Card, Central System, Interoperability, Mobile, SAM, Terminal), and 'CALYPSO PRODUCT' (Applet, Basic, HCE, Hoplink, Link).

The screenshot shows the 'My Documents' section of the Calypso website. It features a table with columns for Document #, Doc Type #, Calypso Solution #, Published #, and Download. The table lists several documents, including 'Calypso TN 313 - Secure Session Examples - v5 | 09010', 'Terminal Calypso Card API - v1.4 | 210421', 'Calypso Prime - Functional Test Plan - v6 | 121003', and 'Calypso TN 323 - Initialization - v5 | 190606'. Each document entry has a dropdown arrow and a download icon.

The screenshot shows the document details page for 'Calypso Prime - Functional Test Plan - v6 | 121003'. The page includes a 'Document Summary' section with a document icon and a download button. The summary text states: 'This document gathers the tests used for the functional certification of Calypso Prime cards. It provides a strong assurance of interoperability with the Calypso three-replica 3 specification. It is assumed that the RF interface and the underlying transport protocol have already been validated. Thus, the RF interface (including characteristics and AP protocols) are out of scope of the test cases defined in this document. The set of the functional layer is therefore independent of the RF and protocol layer. It should be noted that it remains at the discretion of the Certification Committee to implement additional tests during a certification process.' Below the summary is an 'Additional Information' section with fields for Document Published (23 Nov 2022), Document Type (Test Plan), Version (6), Reference (121003), Calypso Solution (Card), and Calypso Product (Prime, Applet, System Context: Evaluation Process). On the right side, there is a 'Download' button and a 'Registered' status indicator with a note: 'As a registered user you can access these documents.' A 'Download' button is also present below the document icon.

News from the General Assembly and the Board

A new chairman for CNA

CNA held its 2022 General Assembly in Milan in May, in a hybrid format. Yann Poirier and Agnes Cougnard were nominated as new RATP board representatives at CNA, taking the seat from Philippe Vappereau, who retired from RATP. This resignation also meant that a new chairman was mandated for the remaining period of the 2020-2023 overall board mandate. The board elected the Vice Chair, from ACTV Venice, Gianluca Cuzzolin, as the new chairman of CNA.

The Board and the General Assembly took the opportunity to express their deep gratitude and respect for Philippe Vappereau's presidency over the last decade. Since May 2022, Philippe Vappereau has acted as General Manager of CNA. The board thanked him for his willingness to continue his work from this operational perspective.



Advisory Board to begin its work

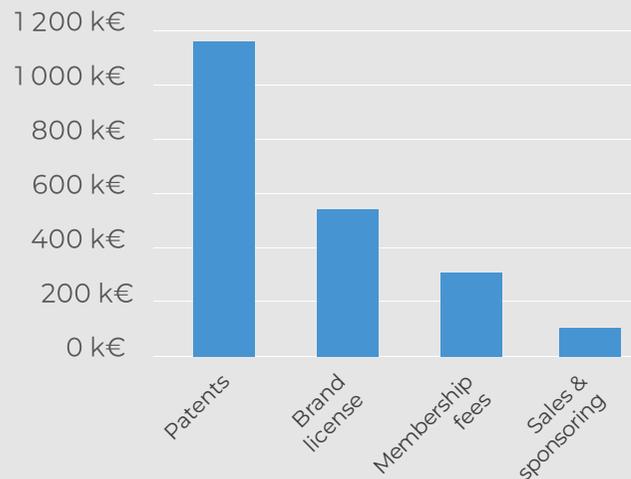
An important milestone in 2022 was the official launch of the works of the Advisory Board of adhering members. The four Advisory Board members elected in 2021 are Cubic, HID, Thales and Wizway. A significant outcome from the first year of exchanges was the creation of a Market Committee in order to meet the dynamic and rapidly changing market demands.

The first meeting of the Market Committee took place during Open Tech Day and provided a forum for stakeholders to discuss and seek new ways for Calypso to actively expand its global market position. The Advisory Board also proposed the creation of an approval system for Calypso cards combining the RF CEN TS16794 standard and Calypso certifications. This approval is now operational. All cards approved and presently shipped can be consulted at [Calypso website](#).

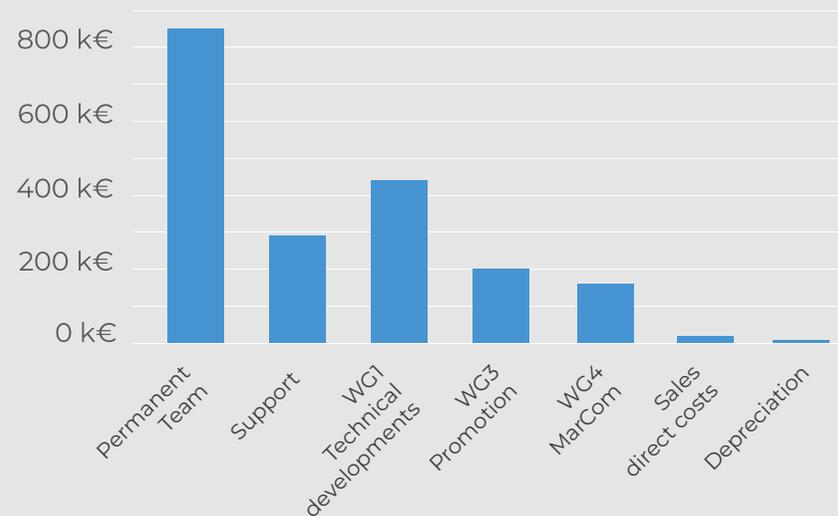
Financial statements

2022 Main figures	CNA Brussels	CNA Paris	Total
Turnover	€ 346 750	€ 1 759 036	€ 2 105 786
Expenses	€ 302 835	€ 1 647 511	€ 1 950 346
Result	€ 43 915	€ 111 525	€ 155 440

2022 Turnover



2022 Expenses



Calypso's financial health

Calypso's financial health is excellent, even better than last year with a rating of 83/100 (or international rating A) from CreditSafe, the multinational provider of on-line company credit scores and credit report information.

In 2022, due to the impact of the pandemic, the number of shipped cards dropped from 20 million in 2020 to 10 million in 2021, representing a decline in brand licensing revenue for CNA.¹ But with a significant increase in the revenues of the ISO B patent (due to the increase of smartphones including an NFC chip), the 2022 incomes were at a very high level, at €2.1 million.

The expenses of the permanent team may appear high. It is linked to the decision to internalise more technical developments than previously, of course to make substantial cost savings, but above all to have full control over these developments.

¹ There is a time lag of approximately one year between the shipping of a card by a manufacturer and the licensing revenue received by CNA.

CNA's priorities for 2023

In mid-2017, CNA's Board of Directors validated a major action plan to ensure Calypso's sustainability and to respond to the evolution of the ticketing ecosystem, both in terms of new technologies and solutions as well as new players. This 5-year plan was based on setting up a permanent team and finding a new technical and economic model for Calypso and CNA.

The new technical model was particularly original, as it was totally new in the world of ticketing and was a real challenge: it had to combine the switch of a patented technology to open source, for simple and rapid access to Calypso for all, with a strong certification policy, to guarantee interoperability for all users, regardless of their supplier. The new business model was to shift from a patent licensing policy (the last of which ended in 2022) to a brand license policy, based on certification of compliance with the specifications.

This plan was completed at the end of 2022, and the objectives have largely been met: the open-source model is in place, with the Eclipse Keyple SDK being used by more and more players. The certification programme is almost complete, the new business model based on brand licensing is operational, Calypso's worldwide reputation is strong, and new implementations of Calypso have emerged,

particularly in Latin America and Africa. Finally, CNA is a recognised platform for knowledge exchanges, experience sharing and services.

2023 is therefore a year of consolidation of these achievements: finalising the development of Keyple to cover all the functions of Calypso, finalising the certification programme with the terminals and HCE, and completing the full opening of the standard with the development of Open SAM. The economic model will be fully operational with the end of patent-based revenues and CNA will continue offering value-added services to all its members and, more broadly, to all actors in the ticketing ecosystem. This includes training, technical expertise, implementation support, security and operational analyses via the Security and Quality of Service Club.

All of the results achieved and actions in progress will allow us to fully celebrate the 20th anniversary of the association in 2023, looking towards the promising future of a technology that is undoubtedly the leader of open standards.

CNA, its Board members and its team, remain committed to undertaking the necessary actions to fulfil its mission in 2023, for the benefit of all members.

LOOKING AHEAD

CNA's mission

Connecting the contactless ticketing community

CNA is a not-for-profit organisation that brings together members of the transport, mobility and services communities to exchange ideas, experiences and requirements to advance open systems that support consumer ticketing needs.

Specifications

Advance global standardisation through interoperable systems and open standards

Mission

To regulate and ensure the long-term sustainability of Calypso technology and promote open standards to enable their use across local, regional, national and global ticketing requirements.

Community

Share knowledge, experiences and expertise

Testing and certification

Ensure performance, security and reliability

Calypso brand

Promote trust and quality

Collaboration

Work together to create opportunity through open standards

The CNA community combines transport and mobility authorities, operators, and service providers, as well as technology manufacturers and transport consultants. It is a diverse and welcoming community which spans public and private sector organisations.

CNA members in 2022*

5T	DAT – DIGITAL AFRIQUE TELECOM	KEOLIS	RTP
ACTV	DATARAXYS	KUBAPAY	SCHEIDT & BACHMANN
ADCET	DIGIMOBEE	LANDKREIS KONSTANZ	SELP
ADVANIDE	DIOS SMART SOLUTIONS	LINK CONSULTING	SEMOVI
AEP	EDY NOGA TECHNOLOGY	LINXENS	SET
AGILTECH	ELATEC	LOGIPLUS	SIGMA SPA
ANY SECURITY PRINTING COMPANY	ELITT	MANAGER ONE	SISWEB
ASIS ELEKTRONIC	FAMOCO	MASKTECH	SNCF
ASSTRA	FIME	MEDIAMOBILE ITALIA	SNOWBALL TECHNOLOGY
AZIENDA TRASPORTI MILANESI	FLOWBIRD	MERCADO LIBRE	SOCIETE DE TRANSPORT DE MONTREAL
BANCO AZTECA	GAPLET	METROPOLITANO DE LISBOA	SOLARI DI UDINE SPA
B-BUS	GCN ITS	MICROSAFE	SONDA
BILLETIQUE SERVICES	GIESECKE & DEVRIENT	MK SMART	SPIRTECH
BILLING PAY	GRAND AVIGNON	MPESO	SPRINGCARD
BMC	HID GLOBAL	MYCARD	ST MICROELECTRONICS
BROXEL	HIGHQ	NAGELS	STIB
CALMELL GROUP	ICARE TECHNOLOGIES	NOUVELLE AQUITAINE MOBILITÉS	SYTRAL MOBILITES
CARD4B	ICUBE	NR TEC DESAROLLOS TECNOLOGICOS	SYX GRAPHICS
CARRIS	IDEAR ELECTRONICA	OAKLEN CONSULTING	THALES DIS
CB	IDEMIA	OTW	THALES RCS
CETUD	IDENTIV	PARAGON ID	TISSEO
COMUTITRES	IDFM - ILE DE FRANCE MOBILITES	PAYCERT	TK XPORT
CONDUENT BUSINESS SOLUTIONS	INFINEON	PLANETA	TML
CONFIDEX	INTERPARKING	PLUSERVICE	TRANSDATA
CONSEIL REGIONAL DE BRETAGNE	ITSO	QILIUM	UBITRANSPORT
CTS	JM ASESORES Y SERVICIOS	RATP	WATCHDATA TECHNOLOGIES
CUBIC	KENTKART	RATP SMART SYSTEMS	WIZWAY

* Member list correct as of 31 December 2022

Join the CNA community

CNA provides a unique opportunity to exchange ideas, experiences, and requirements within a supportive and collaborative environment. By working together, it creates an opportunity to secure control over the smart ticketing ecosystem and create a sustainable framework for the future.

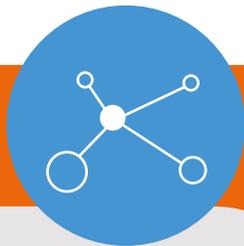
Member benefits

All CNA members benefit from greater ownership over the smart ticketing ecosystem via:



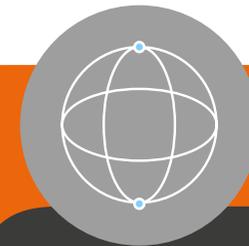
Access to CNA's working groups

Join and participate in CNA's working groups to promote open standards and influence the future direction of Calypso technology



Networking and collaboration

CNA brings together the brightest minds within the transport and mobility community to share experiences and facilitate industry collaboration



Invitations to CNA's global events programme

Partake in CNA's global programme of events, networking opportunities and annual awards ceremony



Training opportunities

Gain new skills via preferential rates on CNA's year-round training programme, tailored to member requirements



Technical support

Receive comprehensive technical support and preferential rates on Calypso technology



Strategic support and expertise

Receive preferential rates on strategic support aligned to local, national or global ticketing requirements



Exclusive access to Calypso technology documents

Access the Calypso library, including documentation, specifications and guidelines

Board of directors

CNA is managed by a Board of Directors appointed by the General Assembly every three years. There are currently 17 board members, represented by 17 officers.



ACTV – Azienda Consorzio
Trasporti Veneziano
Chairman,
Represented by
Gianluca Cuzzolin



LANDKREIS KONSTANZ
General Secretary
Represented
by Zeno Danner



RATP – Régie Autonome des
Transports Parisiens
Represented by
Agnes Cougnard
and Yann Poirier



SNCF – Société Nationale de
Chemins de fer Français
Vice-Chairperson,
Industrial Strategy
Represented by Joël Eppe



STIB/MIVB - Société des Transports
Intercommunaux de Bruxelles
Represented by
Jean-Luc Van Ginder Deuren



TML – Transportes
Metropolitanos de Lisboa
Vice-Chairperson,
Keyple Development
Represented by
Sonia Alegre



5T-TORINO
 Represented by
 Massimo Cocozza



ASSTRA
 Associazione Trasporti
 Represented by
 Giovanni Foti



ATM
 Azienda Trasporti Milanesi
 Represented by
 Roberto Andreoli



B-BUS
 Represented by
 Vitalijs Komars



CARRIS de Lisboa
 Represented by
 Miguel Brito da Silva



GIE CARTES BANCAIRES
 Represented by
 Pierre Chassigneux



**CTS - Compagnie des
 Transports Strasbourgeois,**
 Hoplink Governance President
 Represented by Alain Caffart



ÎLE-DE-FRANCE MOBILITES
 Represented by
 Laurent Probst



INTERPARKING
 Represented by
 Roland Cracco



**METROPOLITANO
 DE LISBOA**
 Represented by
 Fausto Sà Marques



INFINEON
 Represented by
 Björn Scharfen

The CNA Team in 2022

CNA is led by a world-class team of industry experts with extensive knowledge and experience across the transport and mobility sector.

The team operates from Paris, Brussels, Lisbon, Konstanz, São Paulo, Mexico and the Island of la Réunion to support CNA and its members.



Gianluca Cuzzolin,
Chairman



Philippe Vappereau,
General Manager



Erik Baele,
Treasurer



Neide Ohira,
Finance Officer
and Assistant



Ralph Gambetta,
Promotion Manager



Manon Chaix,
Public Relations and
Communications Manager



Paulo Barreto,
Technical Expert,
Calypso Range of Products



Pierre Terrée,
Technical Expert,
Eclipse Keyple,
Applet



Philippe Guillaumin,
Technical Manager



Ludovic Teixeira Costa,
Technical Expert,
Certification and Mobile

CNA consultants around the world

The core team also benefits from local support across the globe. The extended team is available to answer any local questions with their regional knowledge and can also act as a bridge to the core global experts.

Ana-Maria Paladus

Danijela Baric

Artur Kassovicz

Yuliia Kuznetsova

Gianluca Cuzzolin

Claudio Giovannini

Fernando Portella

Enrique Gomez

Resources



CNA is committed to providing free, valuable resources for the contactless ticketing community including eBooks, brochures and blogs.

Calypso library

Access all the technical and non-technical documentation about Calypso, and CNA services, with a powerful Document Search tool

One-pagers

For all you need to know about Calypso Prime, Prime PKI, Calypso Light, Calypso Basic, Calypso's solutions for mobile, Keyple, our short guides provide the perfect introduction, all available in the [Calypso Library](#).

Calypso handbook

The CNA Handbook provides an extensive guide to the role, offering and governance of the Calypso standard. It is a must-read for both existing and potential users of the technology.

Training programme

View CNA's full training brochure with details of all modules, as well as information on how to arrange bespoke training tailored to specific requirements.

Guide for calls for tenders

The purpose of this document is to outline what is required in a call for tenders for Calypso contactless cards, NFC mobile ticketing systems and terminals to guarantee compatibility and scalability.

Blogs

Read CNA's official blog, [Transport Ticketing Trends](#), to get the latest insights and commentary from the CNA team and its member community on contactless ticketing advancements, opportunities and challenges.

Newsroom

Read the latest updates and announcements from CNA in the [newsroom](#).

Newsletter

Subscribe to CNA's monthly newsletter to stay up to date with the latest news, events and insights from the organisation. Your email address will never be shared with third parties and you can unsubscribe at any time.

Events

CNA offers a [global programme of events](#) for members and non-members throughout the year with the latest information on the website.



Calypso

Networks Association

Headquarters

Calypso Networks Association
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1000 Bruxelles, Belgium

Paris Office

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Passage du Cheval Blanc,
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75011 Paris, France

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 [company/calypso-networks-association](https://www.linkedin.com/company/calypso-networks-association)

 [Youtube Calypso Channel](#)

Newsletter:

Subscribe to the CNA newsletter via
the [contact form](#)