



2021

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 2021 Activity Report, which highlights the association's progress and achievements over the past year.

2021 was a very unusual year, marked by the impact of the health crisis on public transport. Travel restrictions and fewer passengers on the networks meant that once again the entire ticketing ecosystem has been affected. Transport authorities, operators and manufacturers have suffered with significantly reduced activity.

Calypso has of course also been affected by the crisis. I am pleased to report, however, that 2021 was an extremely dynamic year for the development of our standard: we have welcomed new members, which brings our membership to 112 participants at the end of 2021, alongside important technical progress, new implementations, active promotion, positive exchanges and towards the end of the year, a growing events programme.

We also strengthened our governance in 2021 to reinforce the cooperation between 'supply' and 'requirement', which is at the heart of CNA. There were two key elements to this activity: welcoming three new Board directors elected among Calypso users, operators and authorities: Miguel Brito da Silva from Carris, Laurent Probst from Île-de-France Mobilités, and Fausto

Sà Marques from Metropolitano de Lisboa; as well as setting up an Advisory Board representing the manufacturers, in order to better integrate their input into Calypso's development. We look forward to benefiting from the extra insights this contribution will deliver.

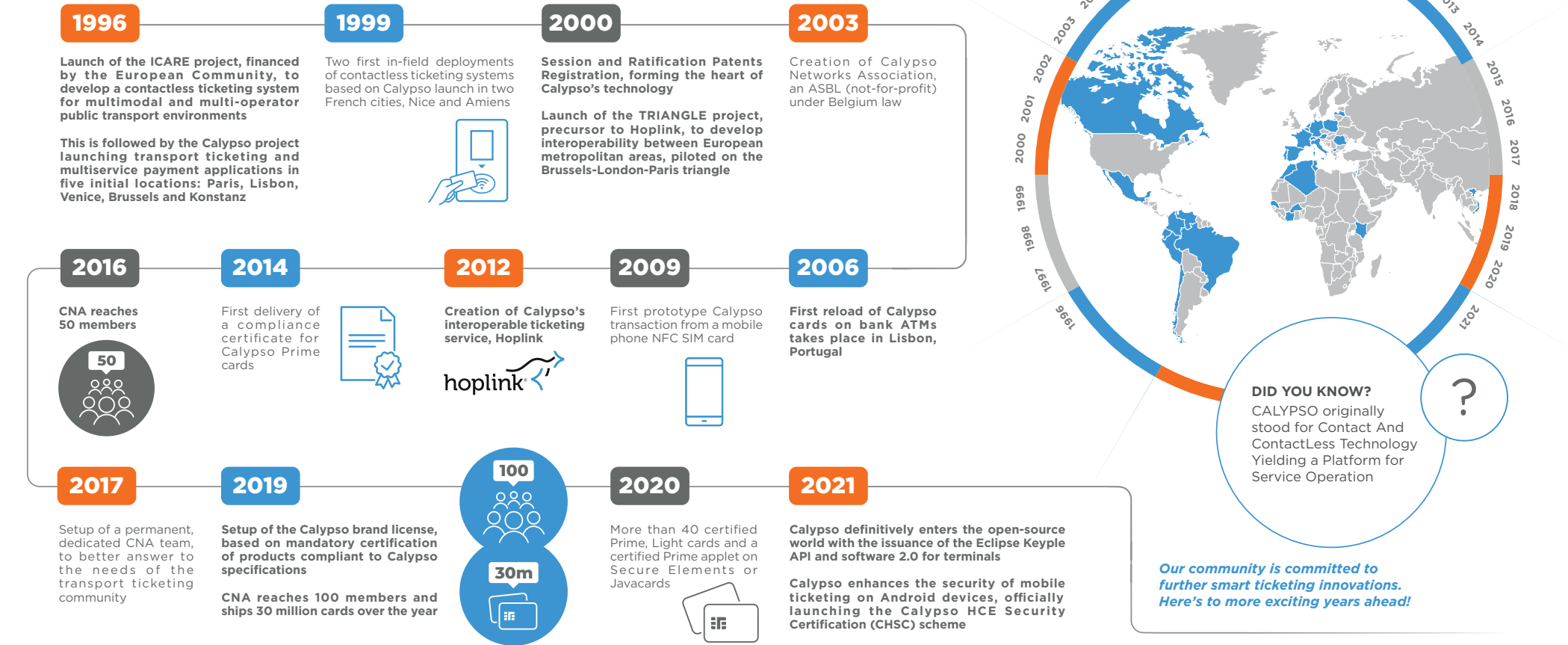
As the governing body of Calypso technology, CNA was founded with one simple aim: to support the use of the open Calypso technology standard to enable transport and mobility operators to control and advance their contactless ticketing systems. With the timeline on the following page you can see how much Calypso has evolved over the last 25 years, and take pride at being part of this journey. In 2022, we will continue to work hard to meet these expectations and objectives. And now more than ever, CNA will go on providing a truly unique opportunity to exchange ideas, experiences, and requirements.

I extend my sincere thanks to the entire CNA team and broader Calypso community, including our users and partners, for their ongoing contributions to the association over the past 12 months. I look forward to the year ahead.

Best wishes,
Philippe Vappereau
Chairman of Calypso Networks Association

Calypso timeline

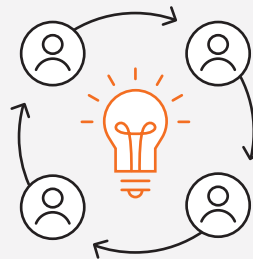
Calypso® 25 YEARS OF TRANSPORT TICKETING INNOVATION



2021 in numbers

Active Technical Committees

6



Number of members

112



14



New members

CARRIS
COMM-IT EMBEDDED
CONTROLNET SA
DIOSS SMART SOLUTIONS
ICARE TECHNOLOGIES
MANAGER ONE
MERCADO LIBRE
METROPOLITANO DE LISBOA
SCHEIDT & BACHMANN
SNOWBALL TECHNOLOGY CO. LTD.
SYTRAL
TK XPORT LLC
TML
TRANSDATA

Geographical

79 EUROPE
18 LATAM + BRAZIL
8 ASIA
4 NORTH AMERICA
3 AFRICA

Activities

3 ASSOCIATIONS
7 AUTHORITIES
21 OPERATORS
42 CONSULTANTS & SOFTWARE PROVIDERS
39 INDUSTRIALS

Calypso Technology

Travel cards shipped
in the last three years

60.7m+



Activated
mobile solutions

1m



Estimated journeys
delivered by Calypso
each day

31m+



Certified products

48



2021 highlights

Supporting the community during the Covid-19 pandemic

2021 has again been a challenging year on a global scale. The pandemic set the scene and strongly influenced the agenda of the association's work plan. Despite this challenging framework, CNA has been able to further consolidate its work tasks and to open up new work strands. Once again, with the dedication of the CNA team and the commitment of our members, Calypso has confirmed its leading position on the global market by adding more deployments of technology, following up new work progresses and achieving key results through the activities of its working groups.

The newly launched services for members have been highly appreciated within our community. The capacity of the association to enable open stakeholder exchanges and to share knowledge, experiences and expertise have proven fundamental in implementation projects. We are delighted at the praise that has been given to our training modules, online and offline events, newsletters and our website.

With these consistent communication channels now established, we have been able to give our members the platform to better engage in exchanges and to stay strongly connected and involved in the association's activities. With the addition of these new services, CNA has increased the possibilities of networking, made the working groups more interactive and increased knowledge sharing.

Technical milestones

Certification is at the heart of Calypso's expansion.

2021 has been a very important year for the development of the Calypso products certification programme. For cards, the process managed by Paycert is firmly in place and new cards have been certified, demonstrating the dynamism of Calypso. Development of the certification tool for Basic cards, and the work on terminal certification, also progressed and is essential in addition to card certification to guarantee card/reader interoperability regardless of the supplier.

Looking beyond functionality, 2021 was also characterised by a new activity for CNA: the implementation of security certification processes. The original security of Calypso relies on software mechanisms implemented in security components, certified to a minimum Common Criteria EAL4+ level. With the HCE mobile solution, it is no longer possible to rely on the security of such components, so CNA has implemented a security certification to address this issue. CNA has also implemented a security certification for the new Basic card, based on a minimum hardware + software EAL2+ protection profile.



Card functional certification

In 2021, eight products were certified, two Calypso Prime rev 3.2 and six Calypso Applet on Java platform. The website was improved to better identify Java-based cards and mobile secure elements. The Calypso basic test tool was achieved, and the certification process is ready. Work has started to define the additional tests necessary for the certification of a Calypso Prime rev 3.3 card which is planned mid-2022.



Contactless interface certification

Paycert and CNA continued their cooperation launched several years ago to roll out and maintain a certification process for the compliance with the European standard for the communication between contactless readers and fare media in public transport - CEN/TS 16794, which is now the ISO 24192 standard. Eight card certificates were issued, and six for terminals.



Terminal functional certification

A contactless Calypso terminal software was divided into three layers, Reader Layer, Calypso Layer, Ticketing Layer, and requirements were defined at each layer to facilitate integration into the terminals, ensure interoperability between layers and allow the modules to evolve independently of each other. These requirements provide the basis for a terminal certification programme whose definition started in 2021 for the Calypso Layer and the Reader Layer. In the meantime, CNA has established a transitional registration procedure for the Calypso and Reader Layers, which is based on a declaration by the vendors that they comply with the requirements.



Calypso HCE security certification

In 2020, CNA started a security certification process for a Calypso HCE mobile application to provide a scheme that gives a guarantee of a certain level of security. Once defined, the complete security reference framework was achieved in October 2020, a first process was set-up and a pilot phase was launched beginning 2021 with an accredited security lab, concluding with the award of a first security certificate to the company HID Global, in July.



Calypso Basic security certification

A first option for a Calypso Basic product is, as for Prime and Light products, to implement it on a secured hardware platform at Common Criteria (CC) EAL4+ level a minima. To foster cheaper components, CNA proposes a second option: a CC EAL2+ certification for both hardware and software, based on a Protection Profile (PP) defined by CNA in 2021 and certified by the ANSSI, the French government agency for information systems security.

Eclipse Keyple

Eclipse Keyple is an open-source ticketing SDK, a reference library to facilitate the implementation of Calypso applications in a terminal. 2021 was the year of maturity for Keyple, with the publication of version 2.0. A great effort was made on documentation and source code of examples of transactions, local and remote. Many actors of the ticketing ecosystem, operators and manufacturers, have adopted Keyple to develop their new applications or to modernise their system, now made possible without requiring specialist transport knowledge.

Keyple 2.0 means transport organisations can now modify ticketing software independently from their hardware solutions, for example whenever they want to implement a new tariff. Ticketing suppliers no longer need to develop and maintain their own complex library to handle Calypso processing or solution evolutions, nor do they need to adapt solutions specifically to integrate an existing ticketing system. Keyple's modular approach enables developers – even those who are new to Calypso – to quickly, easily and inexpensively integrate advanced smart ticketing solutions into their public transport offer.

Philippe Vappereau
Calypso Network's CEO

Calypso Applet

CNA provided customer support for the version 1.3.9 of the Calypso Applet delivered end 2020 and published a version 1.3.10, which mainly follows some evolutions of Java Card and GlobalPlatform with some specific adaptation for the iOS environment.

Calypso specifications

Early 2021, a significant update of the Calypso documentation on the Calypso Technical Support was published with the new Calypso technical documentation template. This concerned more than 20 documents either new or updated or deprecated. Another update of the main specifications of the Calypso cards (Prime, Light, Basic, and HCE) was prepared for beginning 2022.

Promotion of Calypso and institutional relationship

2021 was characterised by the continuation of the established activities of promotion and institutional relations.

We successfully started the operation of our new representation office in Mexico marked by the organisation of the Mexico Tech Days. Besides Mexico we have significantly extended our business network in the Latam market thanks to the successful operations of our Sao Paulo office (CNA Brazil).

- On the African continent we have seen the launch of the Dakar project and increased significantly our market outreach through this success story;
- On the European market we gave momentum to our new strategic partnership with Asstra through a series of jointly organised webinars.

From an institutional perspective we have signed a liaison agreement with the NFC Forum and successfully started our involvement into the workstream MIT SIG by providing use cases. We have maintained our support to the UITP subgroups on Ticketing in MaaS, digitalisation and blockchain. CNA has strongly supported the works of the STA. CNA is also member and an active contributor to the following associations ADCET with focus on developing multiservice usages, ECLIPSE, ATEC ITS, Club Italia and Ukrelektrotrans.

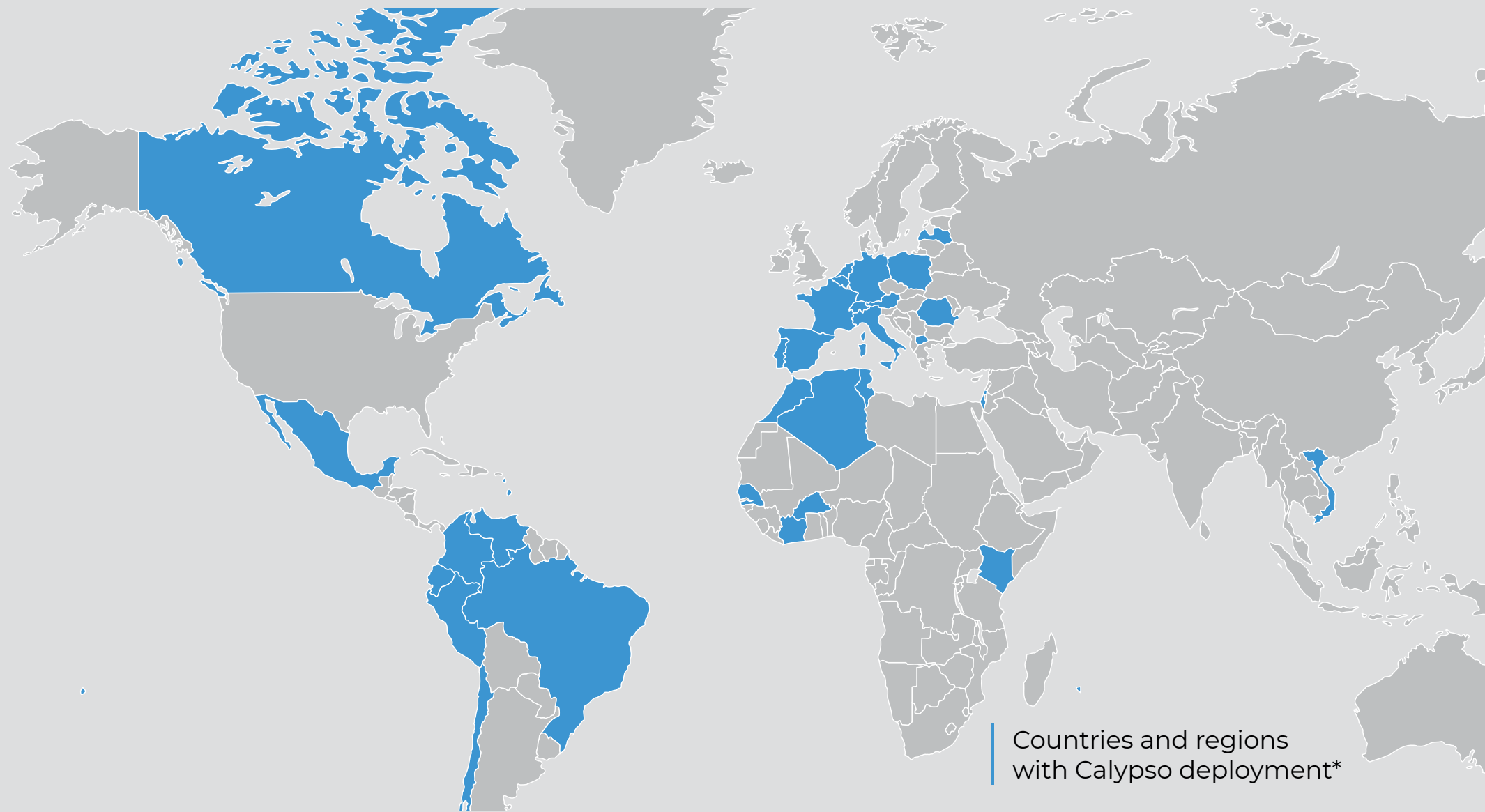
CNA: A Key Partner to All Players in the Ticketing Ecosystem

CNA continued its work to build partnerships with its members and other parties that want to know Calypso better. The CNA team believes this knowledge and relationship is vital to better integrate the needs of all – users and suppliers – in the development of the standard and to prioritise work activity.

In 2021 the CNA team held more than twenty bilateral meetings, remote or face-to-face, with members of the association, local authorities and operators wishing to better understand the benefits of Calypso and open standards. Discussions also covered key topics such as the shortage of components, with manufacturers wishing to integrate Calypso in their commercial offer. Many institutional partners financing ticketing projects highlighted their interest in the principles of openness and sovereignty of Calypso. These exchanges have also been extended to other fields of activity beyond public transport, such as MaaS or parking management.

These exchanges will be further intensified in 2022.

CNA Worldwide



Conference and event highlights

Three events were organised by CNA in 2021. All were held face-to-face and allowed the Calypso community to meet:

Partners Day (July 2021)

The Partners Day was the first event we were able to organise in person in the new CNA Paris offices (although remote participation was possible). Our industrial members were finally able to exchange directly and there was an opportunity to gather from suppliers their market vision, positioning of Calypso and the ongoing development of the standard.

Mexico Tech Day (November 2021)

Organised by CNA, hosted by RTP and with the participation of the Secretario de Movilidad, André Lajous CDMX and Metrobus, the event featured a presentation of the ticketing system of Mexico City, the largest Calypso metropolis in the world, and showcased the benefits of using open standards.

Open Session (December 2021)

After two years we were finally able to organise the traditional Calypso annual event on December 1st in Paris at the Peninsula Hotel, with more than 100 participants who were happy to meet in a friendly atmosphere. A day full of events included a General Assembly during which the Advisory Board was elected, and an afternoon dedicated to technical workshops on the Calypso product range, mobile ticketing, Keyple and terminal certification, the evolution of ticketing and the positioning of Calypso.



Industry liaison

In 2021, CNA participated in several exhibitions, with a stand at the Rencontres Nationales du Transport Public in September in Toulouse, and at Vivatech, the international exhibition of digital innovation in June in Paris, at the Village de l'Innovation, as well as at the virtual exhibition of the UITP Latam week.

The CNA team also regularly participates in numerous industry events where the transport ticketing community meet. These events include presentations and roundtable discussions, either in webinar format or during face-to-face meetings, at forums organized by the World Bank, by the NFC Forum, by our partners and members, the association Asstra, at the Assises de l'Adcet in Rennes, as well as at conferences organized by Club Italia, by Ville, Rail et Transport, at MOVE in London, at the Annual Ticketing Summit in Berlin, at the Economic Forum in Karpacz, etc.

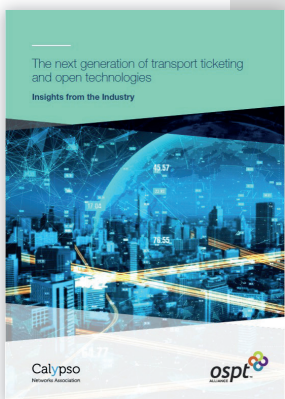
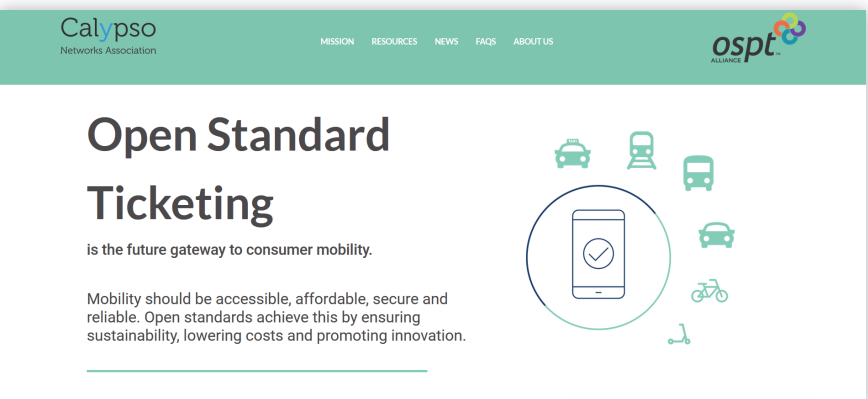
Collaboration with OSPT Alliance

In 2021 the work to achieve a partnership with OSPT has continued. Major milestones have been achieved with the approval of a Strategic Alliance Agreement between the two organisations by the CNA Board. This Strategic Alliance Agreement provides the foundation to continue mapping out next steps and detail how the partnership will evolve.

We also launched a joint 'ticketing open standard' website which provides us with a neutral, informative platform on which to promote our joint work items. In addition to explaining the reason for our collaboration, you can [download our eBook](#) on the benefits of open standards.

An essential work item undertaken together over the last year, was the CNA and OSPT Alliance hosted focus groups with operators and authorities, as well as manufacturers and consultants to better understand longer-term requirements and expectations, and how transport ticketing standards can support these needs. To view the outcomes of this discussion, read our [Focus Group Report](#).

Looking to 2022, work has begun on the production of an « Automatic Fare Collection system » guideline to better position our collective views on the market, and once again, the role open standards play.



CNA/OSPT webinars:

Two joint focus groups have been held with CNA and OSPT Alliance members, in two dedicated sessions, one for mobility providers (operators and authorities), and another for representatives of suppliers. These sessions aimed to help CNA and OSPT Alliance to align stakeholders around the issue of evolving ticketing and open technologies. They were dedicated to exchanges designed to better understand their needs and expectations regarding cooperation between these two open standards. These exchanges identified that implementing a new standard should be an 'evolution' rather than a 'revolution', and have enabled both associations to better define future steps for the ticketing open standards journey.



New resources for the CNA community

CNA continues its commitment to be a valuable resource to the contactless ticketing community. Following the launch in 2020 of the new Calypso website, it is now available in five languages: English, French, Italian, Spanish and Portuguese. This means our website is more accessible to all, providing comprehensive information on CNA membership benefits and details of all upcoming CNA events and webinars, as well as up-to-date information on all Calypso technology, details of CNA's strategic services including training and technical support and much more...

We are also proud to continue to share on the platform insights and new content with the ticketing community. Over the last year, this has included 12 articles on Transport Ticketing Trends, 5 press releases, 6 press briefings and interview articles, 42 media articles, 50+ LinkedIn updates, 4 product brochures, 2 eBooks.



2021 General Assembly:

Improved governance for CNA

To enhance representation from across the transport ticketing world and to ensure that CNA's leadership continues to reflect the diverse ticketing community with the right balance between founder members and elected members, the CNA Board has expanded the number of seats occupied by representatives elected from CNA's members. In 2021 we welcomed Carris, represented by Miguel Brito da Silva, Île-de-France Mobilités, represented by Laurent Probst, and Metropolitano de Lisboa, represented by Fausto Sà Marques.

New board members

Additionally, to further strengthen the contribution of the providers of Calypso solutions and increase their participation to CNA, which we recognise as essential in the life of the association and its governance, the Board of Directors created an Advisory Board of adhering members (Calypso providers). The purpose of the Advisory Board is to share the vision of the industrial world, and its insights on the evolution of ticketing and Calypso technology. It will also take action to increase awareness of Calypso and facilitate its implementation.

Advisory board

The Advisory Board includes four elected members and one gold member:

- Cubic, represented by Christian Senly;
- HID represented by Cristiano Pardo;
- Thales represented by Maria Ramirez;
- Wizway represented by Louis Brosse;
- Infineon represented by Katja Kienzl.

carris

Île de France
mobilités

Metropolitano de Lisboa

CUBIC

HID
Powering Trusted Identities

Infineon

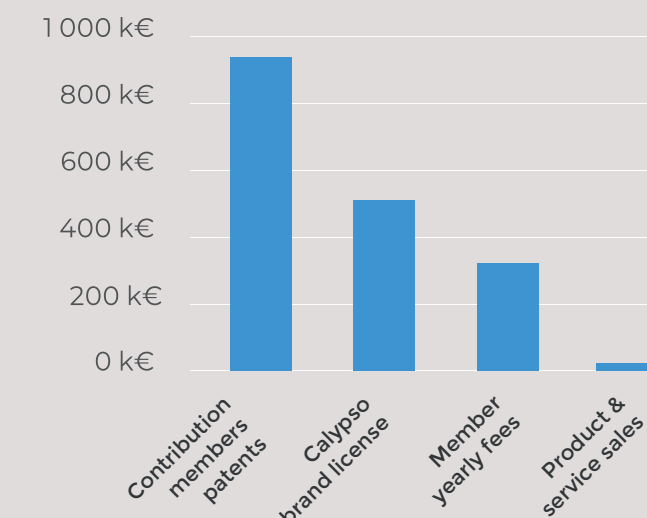
THALES

Wizway
SOLUTIONS

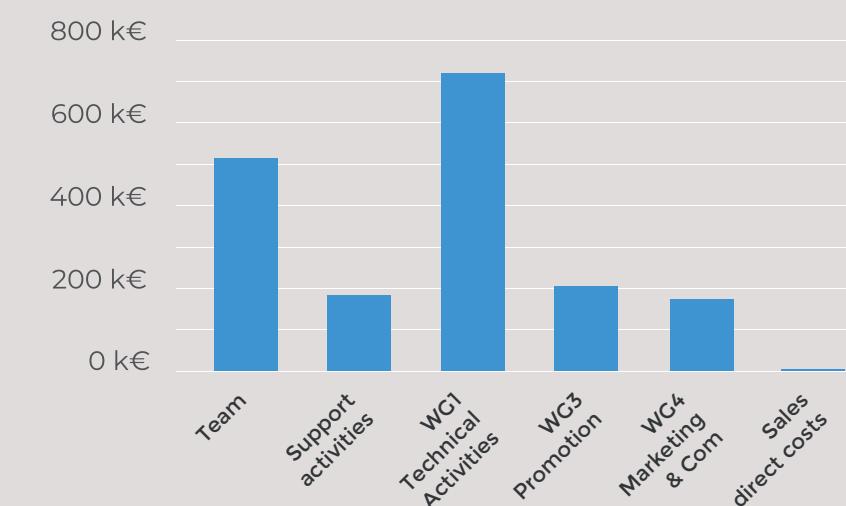
Financial statements

2021 Main figures	CNA Brussels	CNA Paris	Total
Turnover	323 438 €	1 476 914 €	1 800 352 €
Expenses	337 378 €	395 492 €	1 732 870 €
Result	- 13 940 €	81 422 €	67 482 €

2021 Turnover



2021 Expenses



Calypso's financial health

Calypso's financial health is excellent, with a rating of 75/100 from CrediSafe, the multinational provider of online company credit scores and credit report information

As indicated, 2021 is the first year marked by a financial impact of the pandemic. The number of shipped cards drops from 29 million in 2019 to 22 million in 2020, representing a decline of approximately 25% in brand licensing revenue for CNA¹. With the increase in membership at CNA, however, fee revenues are growing by about 10%. In total, CNA's revenues remained at a high level in 2021 at €1.8 million.

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.

Once again in 2021, the budget for Calypso promotion and events was greatly reduced due to the pandemic. But CNA has maintained a high level of exchange with digital technologies and enhanced communication through WG4.

CNA's strategic priorities for 2022

Despite the complex conditions set by the global pandemic, CNA continues to be the leader in ticketing based on open-source solutions. By relying on our growing number of success stories and use cases, we are working to further expand Calypso as the post-Covid sovereign ticketing solution to deliver NFC, MaaS and complement the pay-as-you-go (PAYG) concept.

With many new communication channels in place, we will continue our educational activity to promote the value of the Calypso product range, including cards and mobiles as well as promoting Calypso certification with the availability of the terminal functional certification.

Finalising all elements of Eclipse Keyple is central to CNA's 2022 commitments, with a work plan to integrate all Calypso functionalities.

Making member services more tangible for the ticketing community will see CNA extend the current policy of services. In addition to our existing service offering of training, technical support, test kit, delivery of HAM/SAM, we will concentrate on offering tailored and unique support to operators and authorities. This includes a Club to facilitate better exchange of information among Calypso users about the daily operation of ticketing systems, focusing in particular on the analysis of quality of service and security.

CNA will undertake for the benefit of its members the necessary actions to fulfil its mission.



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.

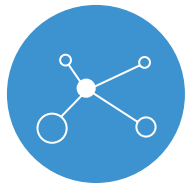
CNA members in 2021*			
5T	DATARAXYS	IQUANTICS	PW CONSULTANTS
ACTV	DEJAMOBILE	ITSO	QILIUM
ADCET	DIGIMOBEE	JM ASESORES Y SERVICIOS	RATP
ADVANCED CARD SYSTEMS	DIOSS SMART SOLUTIONS	KEOLIS	RATP SMART SYSTEMS
ADVANIDE	DIRECTORIO DEL TRANSPORTE PUBLICO METROPOLITANA	KUBAPAY	SCHEIDT & BACHMANN
AEP	DUALI	LANDKREIS KONSTANZ	SELP
AGILTECH	EASYWAY INNOVATION CO	LIGURIA DIGITALE	SEMOVI
ANY Security Printing Company	ELATEC	LINK CONSULTING	SET SRL
ASSTRA	ELISATH	LINXENS	SIA RIGAS KARTE
AZIENDA TRASPORTI MILANESI	ELITT	LOGIPLUS	SIGMA SPA
B-BUS	FAMOCO	LS CARD	SNCF
BILLETTIQUE SERVICES	FIME	MANAGER ONE	SNOWBALL TECHNOLOGY CO. LTD
BMC	FLOWBIRD	MASKTECH	SOCIETE DE TRANSPORT DE MONTREAL
BROXEL	GIESECKE & DEVRIENT	MEDIAMOBILE ITALIA S.p.A.	SONDA S.A.
BUSSI	GRAND AVIGNON	MERCADO LIBRE	SP TRANS
CARD4B	GSD PLUS	METROPOLITANO DE LISBOA	SPIRTECH
CARRIS	HB TECHNOLOGIES	MICROSAFE	ST MICROELECTRONICS
CDMX - MEXICO CITY	HID GLOBAL	MK SMART JSC	STIB
CETUD	HIGHQ COMPUTERLÖSUNGEN	MYCARD	SYTRAL
COMM-IT EMBEDDED	ICARE TECHNOLOGIES	NAGELS	TELEMATICA GRUPO LEFIC
COMUTITRES	ICUBE	NOUVELLE AQUITAINE MOBILITÉS	THALES
CONDUENT	IDEAR ELECTRONICA	NR TEC DESAROLLOS TECNOLOGICOS	TISSEO
CONFIDEX	IDEMIA	ONEWAVE	TK XPORT LLC
CONSORTIUM CB	IDENTIV	OTW - Opérateur de Transport de Wallonie	TML
CONTROLNET SA	ÎLE-DE-FRANCE MOBILITÉS	PARAGON ID	TRANSDATA
CIE TRANSPORTS STRASBOURGEOIS	INFINEON	PAYCERT	UBITRANSPORT
CUBIC	INTERPARKING	PLUSERVICE	WATCHDATA TECHNOLOGIES
Digital Afrique Telecom	INZIGNIA SERVICES AND TECHNOLOGIES	PREFEITURA MUNICIPAL DE PORTO ALEGRE	WIZWAY

* Member list correct as of 31 December 2021

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.

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



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



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



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



Strategic support and expertise:
Receive preferential rates on strategic support aligned to local, national or global ticketing requirements



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



Exclusive access to Calypso technology documents:
Access the Calypso library, including documentation, specifications and guidelines



Technical support:
Receive comprehensive technical support and preferential rates on Calypso technology

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
Vice-Chairperson,
User Committee, Promotion
& Marketing Represented
by Gianluca Cuzzolin



LANDKREIS KONSTANZ
General Secretary
Represented
by Zeno Danner



RATP - Régie Autonome des Transports Parisiens
Chairman
Represented by
Philippe Vappereau



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



ST-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
Katja Kienzl

The CNA Team

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.



Philippe Vappereau,
Chairman and CEO



Erik Baele,
Treasurer



Neide Ohira,
Finance Officer
and Assistant



Ralph Gambetta,
Promotion Manager



Manon Chaix,
Public Relations and
Communications Manager



Philippe Guillaumin,
Technical Manager



Paulo Barreto,
Technical Expert,
Calypso Range of
Products



Pierre Terrée,
Technical Expert,
Eclipse Keyple,
Applet



Ludovic Teixeira Costa,
Technical Expert,
Certification
and Mobile

In February 2021, the CNA team moved into its new offices at:
📍 2 RUE DE LA ROQUETTE, 75011 PARIS
where we will be pleased to welcome all our members passing through Paris.

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 | Claudio Giovannini |
| Danijela Baric | Renzo Brunetti |
| Artur Kassovicz | Fernando Portella |
| Yuliia Kuznetsova | Enrique Gomez |
| Gianluca Cuzzolin | |



We would like to commemorate Guy Van Keer, our colleague from the Calypso team, who left us in 2021. He worked tirelessly and faithfully for many years for the development of Calypso and was at the origin of the creation of the CNA office in São Paulo. Our sympathy goes out to his family.



Resources



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

eBooks

[Calypso Certification: For Ticketing Today, Tomorrow and the Future](#)

Learn why certification is needed, and the value it brings to the transport ticketing and mobility communities. CNA's eBook makes it easy to understand all elements of Calypso certification and licensing with helpful guidance for manufacturers.

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.

Brochures

[Member benefits](#)

Read CNA's member benefits brochure to understand how members will receive greater ownership over the smart ticketing ecosystem, alongside access to networking, events and much more.

[2021 training programme](#)

View CNA's full training brochure for 2021 with details of all modules, as well as information on how to arrange bespoke training tailored to specific requirements.

One-pagers

For all you need to know about Calypso Prime, Calypso Light, Calypso Basic and Calypso's solutions for mobile, our short guides provide the perfect introduction.

Blogs

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

Some highlights from the last year include:

- [How contactless ticketing is transforming public transport on one of the world's largest networks](#) on our work to improve public transport in Mexico
- [Building bridges to advance contactless ticketing](#) on our collaboration with the NFC Forum to help embrace the full potential of NFC technologies in transport
- [Are QR codes a long-term solution for smart ticketing?](#) exploring whether the visual codes are a credible long-term solution for transport ticketing.

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Newsletter:

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Resources

Read CNA's recent eBook:

Calypso Certification: For Ticketing Today,
Tomorrow and the Future

Read CNA's brochures:

- Member benefits
- Training programme

Learn more about CNA's upcoming events:

calypsonet.org/events

Visit the CNA newsroom:

calypsonet.org/newsroom