**SHOWCASE:**
**Borderless Real Time Economy (RTE)**
**Spearhead: eReceipt**

## Showcase Partners

**Finland**
- DIMECC Oy, Showcase lead
- Technology Industries of Finland, Showcase member
- Ministry of Finance, Showcase member

**Estonia**
- Ministry of Economic Affairs and Communications, Showcase member
- Tallinn Science Park Tehnopol, DIGINNO project WP3 showcase coordinator

**Latvia**
- Ministry of Environmental Protection and Regional Development, Showcase member
- LIKTA, Showcase member

**Lithuania**
- Ministry of Economy, Showcase member
- INFOBALT, Showcase member

**Denmark**
- Aalborg University, Showcase member

**Poland**
- Polish Chamber of Commerce of Electronics and Telecommunications, Associated member

**Sweden**
- Findity, Associated member

## The Showcase in Brief

The goal of Real Time Economy (RTE) showcase was to demonstrate that the whole society, including companies and citizens, spend too much time and money on activities that could work in real time and in a secure and automatic manner. RTE is a digital ecosystem that helps to simplify business processes in order to help companies to focus on their main activities and save resources on various maintenance and support activities. In the center of such ecosystem is the data movement occurring in real time or with a minimal delay between various information systems, organizations, sectors and even countries in a digital, structured and standardized format. The idea behind RTE solutions is to fully automate data exchange processes and transferring it to a machine-to-machine communication without a human interrupting the process.

RTE is a cross-sectoral and borderless approach. Basically the Nordic-Baltic region has potential to become a frontrunner and test-laboratory in RTE in Europe by providing companies and people the necessary preconditions for a standardized and unified data exchange processes and by finding out the enablers that support this process. BSR countries have already developed many successful RTE applications and solutions. eInvoices and eReceipts can be seen as exemplary enablers for the RTE concept.

In the Nordic-Baltic region there are many of the needed infrastructures, ecosystems and services are already in use, several programmes for the next phases are up and running and the countries are small enough to get the needed public and private sector stakeholders around the tables. Similarity in legislation, attitudes and understanding of innovation also makes cross-border interconnections easier to achieve.

This showcase shows as a RTE spearhead application how eReceipt as a document of a paid purchase in digital, structured and standardized format can provide digital receipt to businesses in order to exchange financial data and transactions automatically in public and private sector both within and over borders. eReceipt

enables both the seller and the buyer to simply and efficiently have real-time data on all their transactions and their overall economic situation. Digital purchase data can further be used to digitalise other processes concerning financial data, e.g. company financial statements and VAT collection. This kind of digitalisation, added with integration of product and process information in the structured data model, paves a way for development of fully new services and businesses.

## The "As-Is"

Real-Time Economy is a vision materialised through applications using the collection of interacting ecosystems needed to deliver data-based new services and increase productivity mostly in the financial administration area, covering a wide range of different e-services, incl. e.g. eInvoices, eReceipts, real-time payments, eProcurement, eSalary, eAddress, eID and eSignature, automated accounting, automated reporting, automated risk evaluation processes, real-time economy forecasting and many more. Progress here will speed up the development for a data-driven and Artificial Intelligence (AI) supported cross-border e-services (e.g. eReceipt). The Payment Service Directive (PSD2) model and General Data Protection Regulation (GDPR) provide strong incentives for this development.

RTE vision at EU and national level is gaining visibility, but too much of the actual work being done is either on a very high level or hidden in silos that do not benefit from each other's innovations or do not have open standardised interfaces. In order to improve the situation, it is necessary to get a clearer and shared vision both in the Member States and the Commission, and based on this to decide for determined implementation by setting up capable RTE bodies to steer the development and enhance interconnection of both existing services and ongoing projects and pilots.

For example, in Estonia and Finland there are already big RTE communities being led by governmental or public sector organisations to discuss and develop new RTE related e-services (incl. eReceipt). If this is not done together in all EU Member States or at least Baltic Sea Region countries, national solutions will not aim at serving Europe, standards for interoperability will not materialize, double work will be done and the best ideas will not flow fast enough. The Single Market will stagnate on lower levels.

In Finland the Taltio project (2016-2017) formed a base for eReceipt, and in the later RTECO project the functional and technical guidelines and the 4-corner model for transfer of data have been tested and documented in the *eReceipt Guidelines* document which can be used as a rule book for a future operator network. Even if major eReceipt pilots are still missing, important development has happened in certain G2B services, e.g. State Treasury (procurement documents), Patent and Registration Office (financial statements), and Tax Authority (VAT reporting). Figure 1 illustrates the eReceipt flow and ecosystem.


*Fig. 1. eReceipt Flow & Ecosystem [ref. RTECO]*

DIGINNO eReceipt showcase partners are interested in innovating European retail sector and making eReceipts a part of BSR's and Europe's next digital success story. The long-term goal in this direction would be the abolishment of all wallets and plastic cards that people carry around. For these purposes, showcase partners have identified three most important outcomes:

1. Development of unified and commonly used EU eReceipt standard which gives different countries and market players same understanding of the document.
2. Developing or re-using any existing cross-border infrastructure for data exchange in order to move the eReceipts securely and trustworthy.
3. Development of the addressing logic, especially on how to reach citizens in different BSR countries.

Experiences in eInvoices have shown that lack of common standards, cross-border networks and unified regulation has hampered and slowed down the uptake of cross-border eInvoices. To learn from those experiences and to prevent similar lagging situation with eReceipts, it's important to regulate the cross-border eReceipt service from the very beginning.

## The "To-Be"

All showcase partners have agreed that cross-border eReceipt service needs a lot of technical and organisational input and increased political will in all EU countries to become a viable cross-border e-service, but the service itself will be viable as soon as people start to realise the real benefits behind the service.

A reasonable To-Be vision could be focusing on innovating the European retail sector and making digital receipts a part of Europe's digital success story. This would include fine-tuning the interoperable cross-border eReceipt standard and using it in real-life cross-border pilot. The long-term goal in this direction would be the abolishment of all wallets/plastic cards that people carry around. An interoperable eReceipt standard would integrate all the existing and known eReceipt systems, welcoming companies currently not having eReceipts and also making information available (by means of electronic identification) to other service providers. Another important outcome based on the To-Be model could be a live-prototype demonstrating cross-border data exchange for eReceipts. In connection with the To-Be model and possible DIGINNO-Proto project, the showcase partners have discussed different possibilities on how to make the cross-border eReceipt service technologically possible, cost-effective and efficient.

Technical and functional models enable ecosystem actors to transfer eReceipts in a structured form from the seller's system to the buyer's system. With common operating models and standardised eReceipt data model all actors can develop various services to the companies and consumers. Furthermore, these services will be interoperable without surplus integrations or data transformations.

Essential technical principles for the eReceipt ecosystem are:

- eReceipt is a standardised, structured and machine-readable data entity. A structured data model is an essential prerequisite for transferring eReceipt information. For the most part, a national structured data model is used, such as Finland Finvoice.
- There is a common standard addressing and identification method for transferring eReceipts
- eReceipts are transferred in a four-corner model where the seller and the buyer can use different eReceipt operators and the actors can have only one agreement relationship
- eReceipt and the payment methods are kept separate as well as the transfer of payment events Thus, the eReceipt data transfers are immune to various or emerging payment methods
- eReceipt enables automation and provides for considerable cost reductions in the data handling processes
- eReceipt is a technical prerequisite for Real-Time Economy

Cross-border eReceipt services must have a number of basic principles to follow, incl.:

- Paper receipts, receipt pictures or PDF receipts are not considered as eReceipts.
- The buyer must have the right to select which receipt service company it uses.

- The merchants can choose the receipt service provider or they can also select a payment terminal service to forward the eReceipts.
- The form of the eReceipt should be standard.
- The operating model should be the four-corner model. The three-corner model is not appropriate for cross-border services.
- The operating model should be open to new eReceipt service providers who meet the criteria.
- The eReceipt should be viewable in the display application "quickly enough" after the payment.
- EReceipt processing must comply with the GDPR regulation and European Data Protection Board (EDPB) guidelines.

Partners have highlighted that Member States must have agreements on the governing model and common standards used in the community. Also, the network and transfer standards between countries have to be agreed on in the international actions.

Four-corner model is a model for interoperability in which the seller and buyer are not using the same service provider/operator. In the three-corner model, the buyer receives receipts only from those sellers who have an agreement with the buyer's service provider/operator (Figure 2). The market requires a four-corner model as an absolute prerequisite for accessing eReceipt market. The Finnish Consumer and the Competition Authority also sees that the four-corner model is necessary for the competitional neutrality.

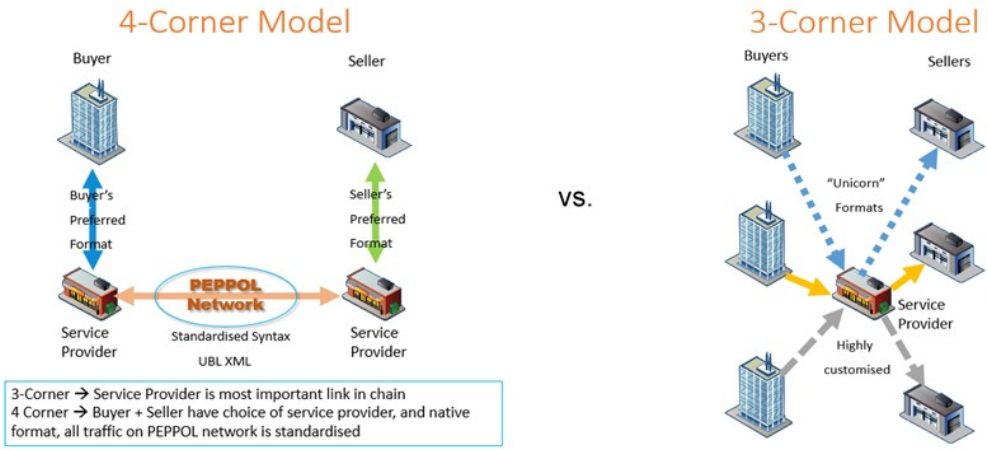


*Fig. 2. Comparison of three-corner and four-corner models*

In the four-corner model the seller's and buyer's service providers/operators transmit receipts to each other, either based on bilateral agreements, or as part of a multilateral network. The concept of the four-corner model originated in the banking sector. It is seen as a network usually based on open standards and provides connectivity and the facilities for the secure trusted exchange of invoices and/or other business documents. It helps to avoid an endless number of point-to-point integrations and agreements. Importance increases for cases of large international and cross-border merchants. For cross-border eReceipt service the four-corner model involves the Point-of-Sale (POS) system/seller, seller's receipt operator, payer's receipt operator and user's application for the buyer/user.

Following challenges and barriers have been identified for deployment of cross-border eReceipt services:

- low political will and unsupportive regulations/legislation
- eReceipt is not accepted by critical mass of people
- eReceipt is not accepted by people with influence
- lack of good cooperation and communication between eReceipt service partners (both public and private)
- low number of integrations and systems updates from the service providers
- integration to retailer's databases is complicated and resource intensive
- service providers not finding cost-effective business model

- low uptake from the consumers
- fake transactions and false data or data breaches
- problems with sharing the data and being aligned with GDPR
- disruptions caused by cyber-attacks
- malware infestation of the eReceipt application
- malfunctioning of the data exchange infrastructure

## Key stakeholders and needed actions

Showcase partners have identified the following relevant stakeholders for engagement together with users and beneficiaries in the cross-border eReceipt service. The key stakeholders are POS service providers, retailers, merchants, payment service providers, eReceipt service providers, accounting service providers, accountants and legislators. Joint collaboration with a wide group of actors in Estonia, Finland, Sweden, Poland, Latvia, Lithuania and Denmark continue developing the eReceipt service and network. In the DIGINNO eReceipt community there has already been successful collaboration with:

- legislators: Ministries of Finance and Economics in Estonia, Finland, Latvia and Lithuania and Tax Administrations;
- associations: associations of accountants and ICT;
- banks – Swedbank, SEB, Nordea;
- service providers: Telia, Fitek, Eesti Post (Omniva), Cost Pocket, Kuittilompakko, ReceiptHero, Nets.

For enhancing eReceipt deployment it would be good to establish direct contacts also with relevant service providers (e.g. POS, banks, operators), retailers, merchants, consumer organisations, trade chambers, accounting software providers, state treasuries, national parliaments, governments and agencies in different BSR countries as well as relevant EU agencies and institutions (parliament, DGs, etc.).

A number of activities and actions have been identified necessary for achieving the eReceipt service to be used widely:

1. Working groups and strong leads from public sector organisation in every EU or BSR country
2. Development of the implementation plan together with private and public sector entities in both national and EU level
3. Development of national and EU level rulebooks and guidelines for eReceipt service
4. Development of national legal framework in cooperation with other EU countries
5. Development of EU legal framework
6. Agreements on unified standards on national and/or EU level
7. Agreements on common infrastructure for exchanging eReceipts across borders, e.g. PEPPOL
8. Involvement of strong market players (e.g. merchants, retailers, service providers, banks, etc.)
9. Updating (and providing possible funding for updating) existing technical systems for users (POS systems, accounting software providers, payment service providers, etc.)
10. Piloting and testing of the service both nationally and internationally (could be funded by EU or national initiatives)
11. Scaling up the live cross-border eReceipt service and developing new services.

## Findings and Recommendations

Nordic-Baltic cooperation together with all BSR countries have the most mature capability to develop the potential of RTE solutions for the wellbeing of European economy and to become the trendsetter region in leading the way in the area. Current feasibility study has evaluated in more detail the cross-border eReceipt service as one basic enabler for the real-time economy based on different stakeholder's opinions and previous eReceipt vision documents. According to the information presented in the study, it is highly recommended to learn from the e-invoicing case and implement cross-border eReceipt service in large scale for better connectivity and interoperability as well as for more cost-effective and environmentally healthier community. The findings of this feasibility study show that eReceipt service will be highly beneficial for both private and public sector as well as for the citizens and has a high probability of success if public and private partnership

is actively working in cooperation and internationally. Following key findings and recommendations have been identified:

**Technological aspects**
Key findings:

- There is no nationally or internationally agreed eReceipt standard.
- Some Member States have created their own national standard(s).
- There is no standardised addressing logic or commonly used identification tools nationally or internationally for exchanging eReceipts.
- There is no commonly used infrastructure for exchanging eReceipts nationally or across borders.
- Due to lack of service providers eReceipts are exchanged using three-corner model.
- EReceipts are exchanged through point-to-point roaming channels.
- Most of the existing service providers do not have the capability to process eReceipts.

It is highly recommended to:

- agree on international eReceipt standard and semantic model;
- map existing eReceipt standards;
- create relevant language translations;
- agree on common addressing logic and identification tools;
- use already existing infrastructure for exchanging eReceipts nationally and internationally (e.g. PEPPOL);
- make sure that service providers compete using four-corner model;
- promote the update of existing service provider's system and software to process eReceipts.
- use eReceipts as communication channel for accompanying communication and documentation, e.g. warranties, manuals, service calls and recalls.

**Legal aspects**
Key findings:

- There is no national or EU law regulating the process or content/data of eReceipts.
- Some countries have made it possible to store the receipts digitally.
- The mind-set of many market players is old-fashioned regarding eReceipt service.

It is highly recommended to create:

- policies aimed at promoting the use of eReceipts by public and private agencies;
- policy strategies aimed at awareness creation on the need for eReceipts;
- policy strategies aimed at reducing the cost of producing one receipt for businesses;
- policies aimed at the facilitation of bottom up activities that will enable businesses to see the usefulness of eReceipt and adopt it;
- directives/laws on EU standards governing the presentation for eReceipt applications;
- directives/laws on EU standards on e-delivery infrastructure governing the nature of the data exchange infrastructure which will also cater for eReceipts delivery;
- directives/laws on the need to connect and adopt the eReceipt infrastructure by companies in the EU member state;
- directives/laws on the relevance of notified eIDAS eIDs as a tool for customer identification in the delivery of eReceipts;
- directives/laws stipulating the "rules of the game" on the service parameters for a harmonized cross-border eReceipt service delivery;
- create technology, data protection and movement principles;
- legal trust agencies or gateways;
- documentation on privacy issues;
- guidelines for data processing and reuse;
- national laws on the mandatory usage of eReceipts;

- national laws establishing relevant agencies or mandating existing agencies that will govern the delivery of eReceipts.

**Financial aspects**
Key findings:

- There are very few businesses providing the transfer and processing of eReceipts in the BSR countries.
- There is no funding or other kind of support provided for businesses from the national or international level.

It is highly recommended to:

- support businesses with funding opportunities to update their existing systems for eReceipts;
- support new businesses with funding opportunities to increase the eReceipt data usage in different services;
- promote the eReceipt service for businesses to be interested in building their new business model for the service.

## Summary

The RTE-eReceipt service model Canvas (Fig. 3) summarises the big picture of the RTE-eReceipt showcase.

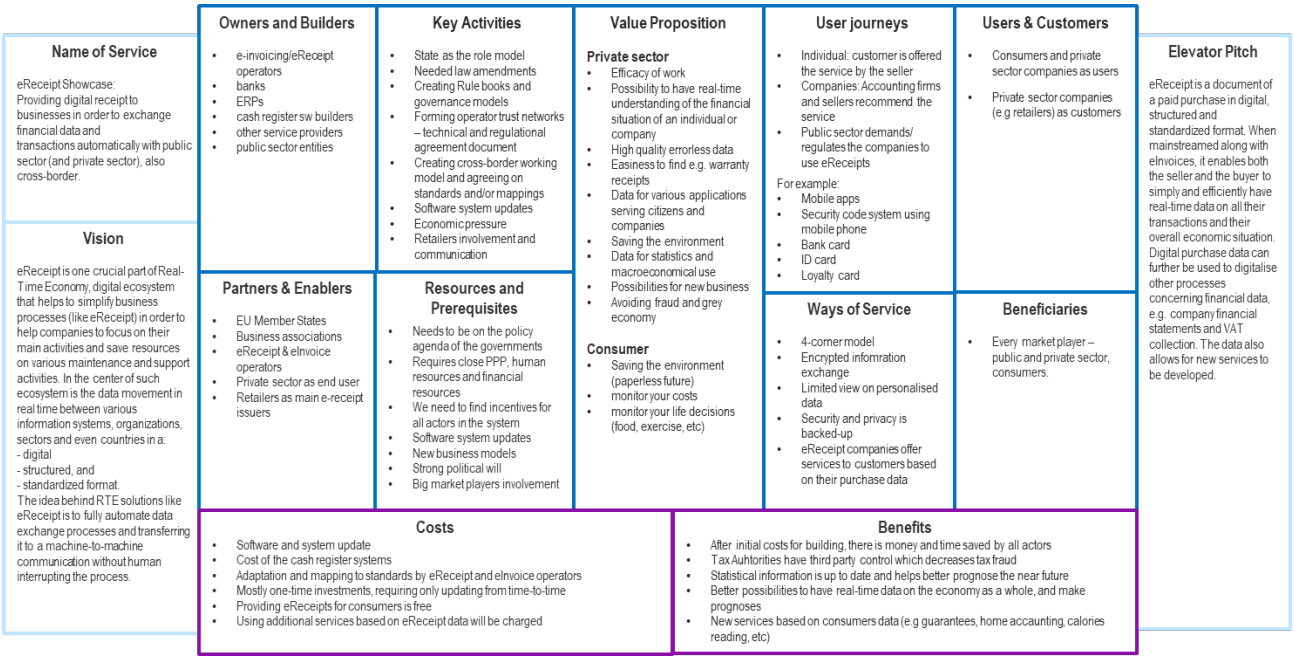


*Fig. 3. RTE-eReceipt service model Canvas*