Digital Receipt Study
Drivers and Barriers
to Adoption of Digital Receipts

A look into the future of digital receipts in Switzerland.

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ABOUT THE AUTO-ID LABS ETH/HSG

The Auto-ID Lab based at ETH Zurich and at the University of St. Gallen conducts research in the field of next generation Internet of Things (IoT) technologies that will enable interfaces between users and objects, will revolutionize global commerce and provide previously unrealizable consumer benefits. Our current research topics include: AI Support for Health & Nutrition, Consumer IoT, Home Commerce, Industrial IoT. Learn more about our research activities in Switzerland: www.autoidlabs.ch

The Auto-ID Labs are an independent network of currently six academic research labs that research and develop new technologies for revolutionizing global commerce and providing previously un-realizable consumer benefits. The global Auto-ID research alliance includes ETH Zurich & University of St. Gallen, MIT, Cambridge University, Keio University, Fudan University and KAIST University. The Labs are run by the Auto-ID Labs Board of Directors which assembles the Labs research directors. Currently the board is co-chaired by Prof. Sanjay Sarma and Prof. Elgar Fleisch. The GS1/ EPCglobal Board of Governors serves as primary advisor. Learn more about our global research activities: www.autoidlabs.org

Executive Summary

In this study, we present our findings on current drivers and barriers towards the adoption of digital receipts that were collected via a user survey of 239 Swiss consumers, interviews with 12 (international) domain experts, an interactive focus group workshop and a lot of desk research. We understand digital receipts (also referred to as eReceipts or electronic receipts) as machine-readable, electronic substitutes for their contemporary paper-based printed counterparts. A digital receipt can for example be received after a payment e.g. by credit card or mobile payment, or also after a cash payment and subsequently identification of a consumer (e.g. via loyalty card).

We confirm that digital receipts offer increased transparency for consumers that can allow for new services, such as personalized recommendations, immediate notification for product re-calls if a consumer is affected. In that sense, digital receipts can even empower consumers, for example with improved access to digital guarantees or automatic expense tracking. Further, digital receipts offer a much lower environmental footprint when compared to paper-based receipts, with the potential to save tens of thousands of trees each year in Switzerland alone. In addition, the chemical exposure of bisphenol included in paper-receipts could be mitigated via digital receipts. Therefore, an increasing number of politicians (e.g. in EU, Sweden, California, but also Switzerland) and petitions ('Skiptheslip' in the US, 'Beatthereceipt' in the UK) are now calling for a transition away from paper- to digital receipts (flux, 2019; Green America, 2019). In order to mitigate tax evasion, several countries including Germany, Poland and Croatia are introducing digital receipts for synchronization of revenues with fiscal authorities, leading to an upgraded point of sale infrastructure that might eventually also be used for B2C receipts as well. Finally, also retailers are expected to profit from digital receipts, as they allow for faster checkouts and reduced labour cost, amounting to potential savings of over 1 billion CHF per year (given similar dimensions to the Finish case-study).

In contrast, the most relevant barriers in the adoption of digital receipts are retailer resistance, lack of standardization and infrastructure, data privacy and the fact that a lot of consumers still prefer the physical receipt over a digital one. It can be expected that retailers will mass-adopt the distribution of digital receipts, once they are required by regulation or when they become a de facto standard for cashless payments. Before that, most likely, only stakeholders using a three-corner distribution model (e.g. loyalty card based) and selected retailers wanting to support digital receipts could introduce them as optional alternative to paper-receipts. It is clear that there is the need of a multi-country digital receipt standard, which should be focused on by the ecosystem partners. Further, digital receipt stakeholders should implement data privacy compliance and security measures into their infrastructure, as it remains a high priority and barrier towards adoption. Finally, with not every consumer having a preference for digital receipts, it should be clear for which retailers a consumer receives a paper- and for which a digital receipt will be sent. The digital receipt introduction should therefore follow an opt-in process at first, before digital receipts become an opt-out standard. This could be achieved by asking consumers to actively connect loyalty cards to payment means, or by having them to opt into digital receipt distribution per retailer, similar to selecting eRechnung (eBill) providers to be connected to a bank account today in Switzerland.

Many service providers are emerging aiming to substitute paper-based receipts with digital alternatives. Especially, in more tech-savy regions that are closer towards a 'cashless' society, like Sweden, Australia, United Kingdom, or the United States, solution providers offer several approaches towards introducing digital receipts, ranging from email-based solutions, loyalty card based identification, towards full integrations of digital receipts within the four-corner credit card payment model. While the trend towards digital receipts seems clear, a dominant channel to distribute digital receipts has not been established just yet. Still, banks seem to play an important role in the digital receipt development, as the examples of Flux (UK) and Slyp (AUS) indicate. KPMG mentioned in an article that banks could generate new revenue streams by providing services to the retail and dining checkout industry (Davidsen, 2016). Banks could leverage their position of having already existing relationship with customers and retailers to establish new services and to offer start-ups or retailers to integrate digital receipts into their banking applications. Such a service could even be paid by merchants and guarantees added post-purchase value to customers. The example of the Kivra (SE) mobile app from Sweden that distributes over 1 billion digital receipts per year for Sweden's largest retailer ICA to consumers indicates that digital receipts will be shared via three-corner models first (e.g. via loyalty identifier), before four-corner models become adopted (e.g. via credit card).

With the introduction of the European General Data Protection Regulation (GDPR) which allows users to retrieve their own transaction records via data portability, the first building block on the road towards digital receipts seems to have been paved, as GDPR enables third parties to integrate digital receipts via the three-corner model and consumer opt-in. A working group within the European parliament is currently drafting a proposal for a consumer right towards a digital guarantee, based on the right to a digital receipt. Still, there remains uncertainty to when a 'right for a digital receipt' law which is demanded by some politicians or petitions, or even a ban for paper-receipts can be expected. Based on our expert interviews and research, there is no region that currently yet actively mandates digital receipts for single transactions. Therefore, it seems unrealistic to expect such a digital receipt regulation within the next two years, despite the fact that there are many current drivers that accelerate the adoption of digital receipts.

In Sweden, an alliance of retailers, point of sale operators and solution providers are proposing the Swedish Digital Receipt Standard (SDRS). The SDRS is an XML objects that follows the ARTS-DR-SE standard. An international, cross-border standardization of digital receipts is crucial to their success, as the digital receipt landscape is an internationally fragmented eco-system, as retailers, acquirers, issuers, solution providers need to cooperate to generate, send, transmit and process digital receipts automatically. The electronic invoice (also called e-invoice) which is inherently similar to digital receipts, has experienced strong adoption growth over recent years after successful standardisation and is already quite established in the Swiss B2B and B2G sector. Therefore, the e-invoice standards like ZUGFeRD and Factur-X are likely to be adaptable towards digital receipts and could be used a future standard, resulting in an easier adoption, as most retailers understand them already. Still, there remain uncertainties regarding digital receipts standards due to the number of cross border transaction, high fragmentation of the point of sale industry and low incentives side for retailers to support multiple standards. Nevertheless, the Scandinavian countries are way ahead in establishing a digital receipt standard (SDRS in Sweden, Finland) and are actively working on cross-border distribution of digital receipts.

Through our (non-representative) online survey of 239 Swiss consumers and an interactive focus group workshop, we shed light on the expected intention to use digital receipts and potential value-adding use-cases that will be enabled by digital receipts. The survey's results are congruent with the literature of digital receipts and indicate a high intention to use, with 98% being willing to use digital receipts in the future. Additionally, 36% of the participants already use digital receipts regularly (e.g. within the Migros mobile application). As expected, potential users are not willing to pay for future services (warranty management, budget tracking, etc.), but are definitely considering the

potential added services when choosing their bank or payment provider. Participants in the survey and workshop both rated digital guarantees as the most interesting benefit of digital receipts. Next, they values sustainability, budget tracking, being able to re-order products or spare parts for previously ordered products. Using digital receipts for reclaiming expenses or accounting was interesting to freelancers and employees that frequently have to report expenses. Mitigating tax evasion and tracking of nutrients from purchased groceries were the least favoured use-cases. On the other hand, participants are afraid of loose data protection and potential misuse of data or even data theft. Only few participants mentioned that the advantages of digital receipts are too small to use them.

Finally, we come to the conclusion that a lot of prerequisites are in place in order to expect digital receipts in the next years. Latest, when the first region (for example Sweden) decides to introduce the 'right for a digital receipt', we expect mass adoption of digital receipts. But even before, three-corner models and four-corner digital receipt models can be implemented, if retailers proactively decide to support digital receipts. This hypothesis is supported by the investments that go into digital receipt start-ups like Flux, Slyp, Kivra in order to participate in the digital receipt ecosystem and their respective track records — e.g. Kivra distributing one billion digital receipts in Sweden per year. All of the twelve domain experts interviewed in this study were asked for an estimate to predict when the adoption of 10% of all B2C retail transaction in Switzerland would contain digital receipts instead of paper receipts. Their average estimate is two years, which seems too optimistic for the authors, as we expect that such a large adoption of digital receipts is still a bit further away than just two years, i.e. rather five years due to the fragmented Swiss point of sale landscape, missing standardization and remaining resistance from retailers. Still, ecosystem participants like Worldline are preparing their terminal infrastructure to become able to attribute digital receipts to credit card transactions, indicating that the pre-conditions of digital receipts are further improving in Switzerland.