

Online Cash Register Project

Budapest Workshop Summary

1. Introduction

1. At the September 2017 Forum on Tax Administration (FTA) Plenary, Commissioners agreed to the proposal by the Federal Tax Service of Russia (FTS) that it should lead a project to study and accumulate the global experience in designing, implementing and operating online cash register (OCR) systems. This project is part of the Future Tax Administration pillar of the FTA Work programme.

2. The goal of the project is to identify the principal benefits and challenges of introducing systems of connected cash registers with remote data transfer capability, collect best practice examples from tax administrations around the world and produce practical guidance for those tax administrations that wish to adopt such systems.

3. The project began with drafting a project plan, identifying the scope and the final deliverables. This was completed by the project team at the FTS in late 2017. The next step featured developing a detailed survey questionnaire designed to initiate discussions and feed the future project report. The questionnaire was directed at both adopters of the OCR systems, as well as non-adopters. It was structured specifically to receive data on legal, technological, functional aspects of the cash register systems, as well as general statistical information about the retail sector in respondent countries.

4. The survey was distributed among active participants of the project. To date, the FTS team has received sixteen responses from Australia, Azerbaijan, Denmark, Finland, Germany, Greece, Hungary, Ireland, Italy, Norway, Portugal, Republic of Korea, Russia, Slovenia, Spain and the UK.

5. In order to proceed with exploring the leading experience and practices in terms of OCR systems the FTS together with the FTA Secretariat decided to hold a workshop that would serve as a knowledge sharing platform and would facilitate the creation of the project's deliverables. The workshop was organised by the FTS of Russia and kindly hosted by the National Tax and Customs Administration of Hungary on June 28-29, 2018 in Budapest, Hungary. This paper summarizes presentations, views, discussions and findings that were observed in the course of the workshop.

2. Key Findings from the Workshop

2.1. Overview

6. The Online Cash registers Project Workshop took place over the course of two days. It was attended by representatives of the FTA Secretariat as well as delegates from 30 tax administrations including:

FTA Members

Belgium	Luxembourg
Czech Republic	Mexico
Denmark	Norway
Estonia	Poland
Finland	Portugal
France	Republic of Korea
Greece	Russia
Hungary	Singapore
India	Slovak Republic
Indonesia	Slovenia
Italy	Sweden
Latvia	United Kingdom
Lithuania	

Non-FTA Members

Armenia	Belarus
Azerbaijan	Cambodia

7. The Workshop also featured a presentation delivered by representatives of IOTA and the business community. The first part of the event was dedicated to showcasing tax administrations' experience and knowledge in the area of designing, introducing and operating online cash register (OCR) systems. Representatives from 10 countries have presented their cases which was followed by extensive discussions and knowledge sharing.

8. A separate session was then held to present the preliminary results of the survey launched by the FTS of Russia and the FTA Secretariat in early 2018. The trends and patterns identified within questionnaire responses were of particular interest to workshop attendees. The project team and the FTA Secretariat encouraged a wider range of countries to fill in the survey questionnaire. It was agreed that having more statistics and country cases would help feed the final project report.

9. A large part of Day 2 of the workshop was devoted to having a wide-scale round table discussion for all delegates. The aim of the discussion was to help identify generic elements for consideration in the introductions of OCRs including potential ways of using data and data analytics to improve tax compliance while reducing administrative tax burden

on taxpayers. The outcomes of these discussions are an important input to the FTA report on OCRs, including an FTA “how to” guide for OCRs, that will be published in due course.

10. This paper summarizes the principal outcomes and ideas put forward by the workshop delegates. For ease of comprehension they are divided into three chapters signifying three stages of the OCR system implementation: design and development, introduction and operation.

2.2. Design and development

11. The first section of this summary paper deals with the first implementation stage, including initial planning and scoping, resourcing and budgeting, choosing a technical solution and consulting with stakeholders.

Setting objectives

12. Setting objectives is the most crucial first step for countries planning or intending to introduce OCR systems. In most cases tax administrations developed a clear understanding of the goals and benefits the system would help them achieve and how they aligned with the administration’s and government’s strategic priorities. This decision shaped the entire implementation process: from setting the functionality of the technical solution to measuring the system’s performance. In some cases determining the objectives of the system stemmed from the economic conditions in the country at the moment of the initial implementation phase, for example where there was evidence of large scale non-compliance

13. Countries that have already introduced OCR systems demonstrated the results they were able to achieve with the help of online tills. These illustrations can help those countries that are considering implementing OCR systems in identifying their domestic objectives. Most tax administrations have identified that the main objective for introducing the OCR system in their jurisdiction was addressing the issues of tax non-compliance and illicit financial flows in the retail sector. Russia reported a considerable improvement in VAT compliance rates by retailers. Likewise, in Hungary online cash registers contributed to a major decrease of the VAT gap from 20.9% in 2013 to 13.7% in 2015, leading to a 15% increase in VAT collections. In 2013, Sweden evaluated their system and calculated a permanent effect of at least USD 300 million annually in increased revenue from VAT and income tax.

14. Diminishing the impact of shadow economy by enforcing closer control over retail transactions and establishing a level playing field for doing business was also cited as an important area where OCR systems can be helpful. Compliant business operating in the legal field is receptive to governments’ efforts improving economic transparency and developing trust between businesses and tax administrations, although of course cost considerations are an important issue

15. Participating tax administrations acknowledged that use of OCR systems creates potential not only for enhancing tax administrations’ capacity to perform audits based on facilities provided by big data and use of advances analytics technologies but also for reviewing the very need for traditional compliance activities, including field audits and filing of tax returns. Portugal uses the data from OCRs to detect mismatches and identify fraud between VAT paid and invoices sent by taxpayer to the tax authority. As a result of these measures the calculated shadow economy decreased from 19 to 17.5%. In Korea, the

reform resulted in 96.5% of transactions becoming transparent by 2016 (i.e. validated by a cash receipt) as opposed to just 37.7% in 2004.

16. The workshop has also cited such objectives for introducing OCR systems as protecting customers' rights and getting access to online sources of real time economic data which were not previously available to policy makers.

Starting conditions for reform

17. While determining the objectives of the system tax administrations tended to look at the economic conditions in the country at the moment of the initial implementation phase. According to the project survey, countries were more willing to introduce OCR systems if the retail sector was taking up a significant part of the economy and there were identified compliance concerns. In such case the effect of the system as a compliance tool was likely to outweigh the associated costs and challenges.

18. Many respondents who adopted OCR systems have reported that over 20% of taxpayers are active in retail. In Slovenia, retail generates over 35% of overall tax revenue, making the OCR system extremely relevant. Countries also looked at the role of VAT/GST in their overall tax collections. In Belgium, the reform was part of a policy decision implying lowering the VAT rate in an effort to make the sector more transparent.

19. Another valuable indicator was the ratio of cash payments in the economy. In countries where non-cash payments prevail, most transactions are already visible to the government via the banking system. Meanwhile, countries indicated that a high share of cash transactions could signify higher risks of income being shifted to the shadow economy, which means that putting in place an effective monitoring and compliance tool might be a more pressing issue for these countries.

20. OCR systems turned out to be especially attractive for Countries where non-compliance in retail poses a significant problem. Some countries reported that with legacy cash register systems it was fairly easy for retail businesses to underreport sales and revenue using concealed or remote software or tampering with the devices. Coupled with low detection risk, it meant that tax avoidance levels might be extremely significant.

21. Workshop delegates discussed the proposition that with the right data, it might be a possible to construct a set of indicators as to when an OCR system could be of most value. This could be helpful to countries in mapping relevant conditions and considerations. To facilitate this, the project team and the FTA Secretariat urged more countries to complete the workshop survey.

Technological features of the future system

22. Tax administrations specified that choosing the right parameters for the underlying technological hardware and software solution of the OCR system could be a challenging process. In that phase most of them tried to take into account the set objectives and the scope of the system, as well as the opinion and views of the business community, including manufacturers of cash register equipment.

23. It was noted that in most countries the retail sector is currently undergoing wide-scale digitization and tax administrations need to keep up with this process in order to be more effective in their monitoring and compliance activities. The challenge in this regard is making the OCR solution scalable and adaptable to the exponential changes in technology.

24. Another important feature of the existing systems are simplicity and convenience. When planning the implementations, tax authorities envisioned that using new generation cash registers should not be more difficult than using smartphones. Tax administrations did their best to embed the cash register into taxpayers' natural environment, e.g. connecting them to taxpayers' internal accounting systems and ensuring availability of online real time connectivity to tax administrations.

25. System introduction, support and maintenance costs are critical for businesses that are mandated to use OCRs'. Upgrading existing cash registers and ERP systems to levels meeting requirements of OCR system is often considered by large retail chains as a way of avoiding higher costs of transition. Smaller businesses may be particularly vulnerable during OCR introduction phase. Attention should be given to those cash register manufacturers that offer competitive market software app solutions, including those consisting of a smartphone or a tablet, connected to a cash receipt printer.

26. For instance, in Slovakia, some enterprises have the opportunity to use virtual cash registers – a free web and mobile application requiring little to no expenditure be set up and featuring biometric user authentication. It automatically records sales, generates obligatory reports and assists in item management. Using it entails far fewer obligations and requirements than with normal cash register devices. In the near future the plan is to upgrade the system to a fully online client-server-based solution.

27. Issues of data security and impartialness are areas of critical importance. In many cases OCR adopters use some type of a fiscal storage unit which is installed inside cash register devices (or, in Sweden, an external certified control unit connected to the cash register). These units' functions are to securely record, store and transmit sales data with no possibility of amending, altering or deleting information. It also ensures transmission of data in authentic, protected and secure manner over the Internet, which may involve using encryption algorithms. The goal is to prevent tampering with sales data and ensure transparency of all transactions. In Hungary fiscal control units store cash receipt data, as well as technical information and reports on communication with the tax authority server.

Coverage and mandatory vs. voluntary

28. Universal coverage is one of the most important success factors of OCR system implementation. Effective performance of the OCR system is subject to general coverage of the whole retail sector sealing any opportunity for non-compliant taxpayers to engage in unfair competition. Nevertheless, many countries provide exemptions from using the system for certain taxpayer categories. In Sweden, online cash register rules apply for all retailers and service providers. There are exceptions for some business activities (e.g. taxi, vending machines) and those falling below a turnover threshold (approx. €15 000).

29. In some cases, the system does not have to be mandatory and enforced to work efficiently. In Italy, the use of online cash registers is voluntary with the exception of several types of business activity. However, the system features a number of economic and fiscal stimuli, aimed at attracting retailers into the system. By agreeing to participate, taxpayers in return receive exemption from certain obligations. They also enjoy simplified technical requirements for the approval of their cash register devices, and the device verification timetables is extended from 1 to 2 years.

2.3. Implementation

30. This section deals with implementation issues relevant to the introduction of the OCR system, from complete design to a fully operational product, including development and adjustment of internal systems, testing and piloting etc.

Testing and piloting

31. After the dedicated technological solution was created, tax administrations found it vital to thoroughly test it using a sandbox environment or by means of a pilot project. It was acknowledged that pilots proved to be a good way to test the OCR system and come up with effective legislation. Many countries, including Russia, see a successful pilot project as a major success factor for the overall OCR implementation process.

Certification of cash register devices

32. Most tax administrations agreed that the requirement to certify cash register devices is a fundamental OCR system compliance element. Many countries have found it to be an efficient tool to ensure that taxpayers only use verified devices which cannot be broken into or tampered with. Laws often require that every new make and model of the device has to be submitted by the manufacturer to the tax authority which certifies that it complies with the technical and functional requirements. This model is then included in a list of approved devices.

33. After purchasing an approved device, retailers typically have to follow certain steps including activating or registering it with the tax authorities as well as allowing regular technical audit of devices. In Italy, technicians certified by the tax administration handle the installation and activation. This process ends with the generation of a unique QR-code which is then placed on the casing of the device to signify its compliance with the requirements. In Slovakia, the new fully online cash register solution will allow the registration and authentication of devices by means of e-certificate. Failure to register in the system often leads to substantial penalties, as reported by a number of tax administrations.

Easing the burden on retailers

34. Most countries found that it was important to look at incentives which could ease the burden on retailers of switching to the new system. In Korea, the OCR system is integrated and interconnected with income tax deductions (for consumers) and with tax credits (for businesses).

35. In many cases, using the OCR system allows taxpayers to get rid of many burdensome requirements, such as some forms of reporting as well as other ways of lowering their administrative burden. In Chile, system users enjoy a number of advantages: there is no more need to use paper invoices, and VAT returns are now pre-filled by tax administrations using data received from online tills. Abolishing paper cash receipts is usually cited as the most common incentive for businesses, as is providing a remote electronic service channel for registration of cash register devices.

36. Apart from lifting the administrative burden, cost reducing mechanisms have been very popular in countries that adopted OCR systems. In many cases buying new or upgrading existing cash register devices can put taxpayers into financial jeopardy, especially in the case of small and medium enterprises. Many delegates reported that they

provided a least one kind of financial incentive for such taxpayers, the most common being making the costs of transition to OCRs tax deductible for retailers.

Transition periods

37. Another popular way to ease businesses into the new paradigm and fairly distribute the burden of implementation both for businesses and for tax authorities has been approaching the reform in phases. In some cases, this implied extending coverage to various taxpayer categories over time. This gave the most vulnerable taxpayers (usually small and medium enterprises, individual entrepreneurs, service establishments etc.) more time to prepare for the new requirements. In Russia, the legislation provided a three-year transition period for joining the system. While most taxpayers were required to join the system in phases 1 and 2, taxpayers in the service sector were given the longest extension. In Hungary, the transition also happened in the course of three years, with two major stages.

Exercising civil control

38. Delegates also agreed that OCR systems should feature some form of civil control. It was crucial for system adopters that the resulting solution would provide clear benefits for the retail consumers, such as protecting their lawful rights and combatting fraud and counterfeit goods. With OCR systems in place, retailers in most countries are obliged to produce a cash receipt, paper or electronic, which in most cases must be verifiable by the customer.

39. Many functional OCR systems provide the opportunity to verify cash receipts issued by the seller against the live online data streamed into the tax administration servers. According to a number of countries this has turned out to be a highly effective tool through which, in effect, customers carry out a real-time audit of the completeness and correctness of revenue reporting by retailers. Traditional compliance mechanisms and approaches could not allow such wide-scale monitoring of actual situations in the field.

40. Some countries have developed a dedicated mobile application to help retail customers exercise and protect their rights. The functionality of the app, however, may vary. In Russia, an in-house app was developed which makes it possible to scan a QR-code embedded into any cash receipt issued by an OCR. The app can then validate the receipt and automatically file a complaint if the data does not match. Upon authentication, the app also stores a history of the customer's purchases, including financial planning functionality. In Korea, the app functionality is integrated with electronic wallets and implies issuing a mobile card in the form of barcode which can then be presented to store clerks for storing and verifying cash receipts.

41. Cash receipt lotteries have also been known to be a useful stimulus tool to motivate consumers. In Portugal, the tax administration awards prizes to consumers who ask retailers for a fiscal invoice. The lottery is effected in weekly and semi-annual draws, with prizes amounting up to 50 000 euros.

Communicating the benefits

42. OCR systems tend to provide new exciting opportunities not just for the government, but also for businesses and consumers. However, tax administrations made a point to effectively communicate these benefits to all stakeholder categories. Many workshop participants reported organizing conferences and workshops with representatives of large enterprises and business associations, as well as exercising wide-scale awareness

campaigns for consumers. This also included organizing education campaigns within the tax administration so that tax officers would learn the possibilities and limitations of the new system.

43. This step turned out to be essential to the success of the implementation process, as taxpayers who are fully aware of the system parameters are easily motivated to effect the transition in a timely manner. In Russia, tax authorities used various communication channels to contact every taxpayer individually to inform them about the new legislation and about the need to upgrade their cash registers. A step-by-step guide was created to facilitate taxpayers' transition to the new system. The FTS had over 20 thousand events and engagements with the taxpayers on the issues of implementing the OCR system.

44. Trustworthy, compliant businesses tend to support the system introduction as it makes the market more even and transparent, minimising unfair competition. Some countries also found that OCRs provide a new excellent source of reliable data about their customers. It has also given them the opportunity to streamline such functions as procurement, analytics, security, IT and loyalty programs. The system provides small businesses with access to planning and analytics that is usually only available to large retail chains.

2.4. Operation

45. This section deals with challenges and issues arising in a fully operational system including enforcing the system, exercising data analysis, monitoring and evaluating its performance and collecting feedback.

Receiving and analysing data

46. Countries reported having different approaches to the periodicity of data transfer from OCRs to tax administration servers. In most cases, the OCR device has to stay connected to the communication network at all times. This however does not mean that the data exchange is constantly happening. For instance, while in Russia cash registers transfer transaction data on-the-go (after each transaction), in Hungary the communication with the server happens periodically, every 30 minutes and in Chile and Korea on a daily basis. Meanwhile, in Norway and Sweden cash registers still store transaction data securely but are not required to be online permanently.

47. An important element of the data collection system as indicated by several tax administrations is the intermediary. Countries like South Korea, Russia and others have placed an additional link in the data chain between online tills and tax administration servers. These intermediaries (often referred to as data operators) are tasked with maintaining a secure reliable channel for sales data, and in some cases – with other related functions such as installation and maintenance of cash register devices, primary validation of data etc.

48. In many countries a unified standard file format is defined to facilitate data transmission from connected OCR devices to tax administrations. In Norway, taxpayers are required to use the standard audit-file (SAF-T) which uses XML format and is secured via digital signature. Upon being received by the tax administration server, the sales data is then processed for further analysis. For instance, in Chile, data is downloaded into data warehouses and open source Big Data platforms and is made available for miners and analysts. In Italy, the data is also validated and verified automatically by the system with feedback provided to the cash register device that generated it.

Putting the data to good use

49. Workshop attendees agreed that OCR data could potentially become an extremely powerful analytical tool providing real-time insight into the national economy, making the consumption sector open and transparent. This was, though, a matter for national debate given concerns about data protection and use. Opportunities reported by delegates range from monitoring prices for essential goods to smart planning of urban infrastructure. Delegates showed great interest in the analytical system designed by Russia, which not only allows authorised persons to see live data from each of the 2 million online tills in Russia, but also provides unprecedented statistical analysis functions and automatically detects anomalous behaviour.

50. Most tax administrations have other systems in place that are based on data analysis. Delegates suggested an idea that these could be integrated and interconnected with OCR systems for a synergetic positive effect. Russia is implementing a system integrating data generated by Automatic VAT Control System, RFID-based goods tagging system with retail sales data from the OCR system to get a comprehensive view of movement of product and financial flows in the country. In Slovakia, tax authorities plan to use the data received via a new iteration of the OCR system to cross-check information with the taxpayers' tax returns.

51. Some OCR adopters (like Italy) also provide taxpayers with access to the sales data generated by their cash registers. This is usually effected by means of a personalized account at the tax administration web portal. This gives retailers a unique opportunity to self-assess their revenue using live, reliable data. It also assists them in preparing and filing their tax returns, as well as facilitates their KYC (know your customer) initiatives.

Audit activities

52. Although OCR systems are highly effective in terms of increasing compliance rates in retail businesses, tax administrations admitted they still cannot replace 100% of audit activities in that business sector. In fact, some delegates argued that OCRs require regular control and audit measures including test purchases and inventory checks. In Sweden, about 200-250 audits and about 20 000 unannounced visits are performed annually. In Belgium, in one instance, from the 3511 taxpayers covered by audit activities, violations were detected in 2459 cases, leading to 70% penalty rate.

53. Russian experience shows that the OCR system allows to completely re-think the approach to ensuring compliance: moving from burdensome field audits to automatic monitoring with complete coverage and automatic identification of violations with no human involvement. It also provides the opportunity to make comprehensive assessment of tax risks.

Measuring performance and collecting feedback

54. Evaluating performance and identifying measurable results seems to be one of the most challenging yet important tasks related to implementing the OCR system for all adopting countries.

55. Countries established that hearing and reacting to feedback from stakeholders by creating effective channels is a major part of being able to evaluate the effectiveness of the system. A good practice is in place in some countries which entails establishing joint working groups with business representatives to address issues arising from the introduction and use of OCR systems. Some OCR adopters have created specialized online

personal accounts for business owners where they can not only view their transaction history and file reports but are also able to contact tax officials with complaints, questions and requests for assistance or clarifications. Many countries also provide advice over the phone with the use of specialized call centres.

The importance of knowledge sharing

56. All workshop delegates were in agreement that it is vital for tax administrations to share their experience in expertise in designing, implementing and operations OCR systems. Many of those who have already adopted OCR systems had extensively used international experience of pioneers in this area, such as South Korea.

57. Workshop attendees have extended their support to continuing with similar international events on regular basis as well developing bilateral cooperation and knowledge sharing. There was also desire to continue knowledge and experience sharing in the area of OCR systems within the framework of other FTA initiatives.

3. Principal Findings

58. The following bullets set out the principal findings as reported by workshop attendees.

- Online cash register systems are a strong example of where new digital technologies and analytical tools can make system-wide improvements in serving the interests of the government, businesses and consumers. The system facilitates tax compliance as well as economic and fiscal transparency. It is also capable of offering additional protections for consumers.
- Setting clear objectives is the most important element of decision making when it comes to the adoption of OCR systems. These solutions can serve a number of fiscal, economic and other goals. Clarity on objectives is vital for planning of the multifaceted implementation steps.
- The positive effect from the transparency of retail can be multiplied if seen as a part of a larger mix of policy, compliance and service measures including education, taxpayer engagement, development of online services and cooperating with other agencies within a whole-of-government approach. For example, data generated by cash registers can be more useful when combined with tax data from other sources.
- OCR systems are dependent on the underlying technological infrastructure and software solutions which are implemented both at the side of the tax administration and at the side of taxpayer. Introducing OCR systems in tax administration can be more effective as part of a more general initiative involving digital transformation of tax administrations.
- Introduction of OCR systems is a significant reform process involving a wide range of stakeholders from different agencies of the government and legislators to business associations, businesses of different sizes and individuals. Their views and consultations with these communities should play a significant role in deciding on the parameters of the OCR system.
- Communication with stakeholders and internally at all stages of implementation is highly important for effective delivery of an OCR system. This includes engaging on the benefits of the system, how to reduce costs and on particular implementation issues. Joint working groups and awareness campaigns have proven efficient tools in this regard.
- While overall benefits for compliant businesses may be high, the OCR system inevitably leads to additional costs. Tax administrations should take this into account in design of the system, including where appropriate creating a market for OCRs, and may wish to consider incentive schemes, for example investment support to tax deductions. A staged approach to the introduction of OCRs should also be considered, for example providing a transition period before reaching full coverage.
- Online real time retail sales data received from online tills from all over the country can be an extremely valuable asset for the government and citizens, although the appropriate use of data is a subject for national debate. This information also has

the potential to become a reliable source of economic indicators for policy decision makers and regulators.

- Successfully implementing and operating the system is not the end of the journey. Many tax administrations find it challenging to create efficient tools to evaluate the performance of OCR systems. Such functionality is fundamental to ensure that the system continues to develop in the right direction. An integral part of measuring efficiency has been building reliable channels for collecting feedback from stakeholders.
- The workshop showed the importance of sharing knowledge and expertise between OCR system adopters and those looking to introduce systems in their countries. Many delegates cite international experience as one of the key factors in the success of their systems. There was overall sentiment in support of further and more intense cooperation in this area both within the Online Cash Registers project and in adjacent initiatives.