

FISCAL LAW CHALLENGES IN THE MODERN RETAIL ENVIRONMENT AND HOW TO OVERCOME THEM

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A stylized graphic of a globe with glowing blue lines representing a global network or data flow, set against a dark blue background with star-like specks.

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Document History

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About the document

This document aims to create a fundament for understanding the biggest challenges in the fiscal environment.

We will start by providing an overview of what fiscal law is and what is the philosophy behind it.

After getting a clear picture of what it is and why the governments have them, we will explain the different technical implementations you can see around the world today.

Understanding and then implementing all those fiscal regulations is certainly not an easy task. Under the pressure of globalization, the whole process is becoming even more complex and multi-dimensional.

To show the level of complexity we are at, we will go through the challenges that retailers, manufacturers, and software vendors have, and we will explain each one of them from their perspective.

As this problem is evolving and growing fast it is not a surprise that very interesting solution approaches, as well as different strategies, exist for their implementation.

This paper will teach you:

- What fiscalization is and why governments introduce it,
- What are the different technical implementations that exist today,
- What are the challenges retailers, manufactures, and software vendors have,
- What is the possible solution approach,
- And what implementation strategies exist.

Introduction to fiscal regulations

What is the fiscal regulation?

To reduce tax-related fraud and to minimize the grey economy some governments have been introducing special laws, which regulate how retailers should operate and work.

These laws are known as fiscal laws, and usually, each one of them has a country-related specific name.

They mostly cover:

- How the electronic cash register should work (their functions),
- How the related retail processes should be designed,
- Which data should be saved, where it should be saved, and how,
- Which reports for the authorities should be created,
- How and when should reporting be done, etc.

In addition, fiscal laws are very often linked to some other laws. Those laws are usually related to accounting, taxation, consumer protection, data protection, and privacy.

The early beginnings of fiscal laws go back to Italy in 1983, and since then more than 40 countries have introduced such kinds of laws. Within the last few years, it can almost be seen as a trend. More and more countries around the world are introducing fiscal regulations and specifications.



Overview of the fiscal countries

The experiences countries have after the introduction of fiscal law have been very positive in all countries so far and the benefits of fiscal authority are visible and significant.

On the other side, if we analyze the general picture of financial regulations around the world, we can see that the taxation and banking systems are getting more transparent and more connected. The space for “gray”, or even “black” economy is becoming smaller.

Based on these facts it can be expected that the fiscalization trend will continue in other countries too and that will even accelerate in the years to come.

The basic philosophy of the fiscal law

In the case of fiscal laws every government is following the same philosophy:

- The tax (mostly VAT) related data of each transaction should be stored safely, in a way that data manipulation is not possible after the transaction is closed
- The reporting to the authority about stored tax-related data should be possible at any time and without any data manipulation

Based on these principles, different governments are defining different regulations that must be implemented in the different areas of the retailers' environment.

For example, fiscal law in Portugal is specifying that VAT-related data must be sent to the authority on a regular basis. Based on the data sets the most implementations are done in the ERP system of the retailer (in the Back Office/Accounting).

On the other side, countries like Romania have fiscal law which forces the usage of the fiscal printer. The fiscal printer is saving the VAT-related data which can be read in case of a fiscal audit. This kind of fiscalization is mostly implemented on the POS application.

In some other countries, fiscal laws require implementation in the back-office part (mostly ERP) and front office part (POS application) of the retailers' technical environment.

An example of a country with such fiscal requirements is Austria. The transaction data in Austria has to be signed by the special signature device and they have to be saved in the special journal database.

Technical approaches of the fiscal laws

The technical implementation of the fiscal law is always following one or more of following technical aspects:

- Hardware-based fiscal implementation
- Software-based fiscal implementation
- Special fiscal requirements with different implementations

The technical implementation itself is also prescribed by the fiscal law. For example, in some countries that require hardware-based fiscal implementation, the retailers are forced to use just certain fiscal devices e.g. fiscal printers that are certificated by the authorities.

Hardware-based fiscal implementations

Some fiscal laws are defining the use of special hardware devices.

Usually, those are:

- Fiscal printers - receipt printers with special fiscal memory where fiscal data is stored
- Fiscal communication modules – devices that are used to send fiscal data to the fiscal authority
- Fiscal memory boards – they can be included in or connected with POS, ECR, or printer
- Signature devices – they are producing digital signature which is used to secure the fiscal transaction

The most fiscal countries in the world today are following the path of hardware-based implementation. Within this group of countries, most of them are using the fiscal printer.

Software-based fiscal implementation

This kind of fiscal implementation can be seen as a more modern way of fiscal law implementation.

The background is that the law is defining how something must be done but not which device has to be used. This model is more liberal, and it can be expected that soon more countries will follow this approach.

As of today, there are several different scenarios:

- To send each transaction to the fiscal authority in real-time, to get a digital signature from the authority, and to include it in the transaction
- To store every transaction in the database where every entry has a sequence number and digital signature
- To save data in a special format and a special fiscal journal (database)
- To sign digitally every transaction by a special algorithm

Examples of fiscal countries with such regulations are Croatia and France. In Croatia, you must send every transaction in real-time to the fiscal authority, and in France, you must save transaction data in the special database.

Special fiscal requirements with different implementations

In some cases, and mostly in addition to the technical implementations as mentioned above, some countries have some additional technical requirements.

Those are mostly related to:

- Data security and protection
- Archiving
- Reporting
- Special business processes (mostly in specialized retailing e.g. petrol stations etc.)

Challenges of modern retailing from the fiscal perspective

Challenges for Retailers

The implementation of fiscal law in a particular country is already a complex issue by itself.

If we put it in the context of modern retailing, then it becomes an even more demanding and challenging topic.

As of today, modern retailing means that:

- *Retail concepts are mixed*

One retailer has several different store formats. Every format has some or even many different retail processes and every retail process can be influenced by fiscal law.

- *Many different payment methods are used*

Payment methods like cash, cards, vouchers, different currencies, etc. are usually treated differently by fiscal law. Most of the time, cash is in focus, but there is a trend coming where other payment types are also included within the fiscal law.

- *Multichannel retailing is all around*

Transactions can be created anytime, anywhere, and mostly with different systems. With online shops, those could be POS, Apps, SCO, etc. This means that the retailers must implement one fiscal law in one country several times in a different way.

- *Marketing campaigns are very complex*

To attract customers, retailers are getting very creative. They are creating complex promotions with complex discounts. In many cases, these are strongly influenced by fiscal law.

- *Retailers are getting more international*

On one side, retailers are forced to expand into the new market. On the other side, retailers are trying to unify the processes and use the technology they have. In the context of fiscal regulations, the unification of solutions and technologies can be an issue as fiscal laws tend to make the use of special technologies and products mandatory

- *The certification process is becoming more popular in fiscal countries*

In many countries, certain parts, or even complete solutions have to be certificated for retailers to be able to run them in the store. The certification process is usually an additional dimension of complexity to the whole fiscal topic. The certification is mostly not transparent enough, it takes a long time, and it is related to huge costs.

- *Systems retailers use require maintenance*

After implementing different fiscal laws in many different countries, and then additionally in one country many different channels, retailers have many different fiscal solutions that require maintenance. Even if maintenance of used solutions ends up being mostly on the side of the solution provider, retailers have huge efforts to keep track of it, to manage it, deploy, always maintain the latest version, etc.

Challenges for hardware manufacturers and software vendors

The modern, international manufacturers of electronic cash registers, Point of Sale applications, or retail applications are facing huge challenges to follow the international trend of fiscalization.

Some of those challenges are:

- It is very difficult to get complete information about fiscal and other related laws since this information is mostly in the local language and not online.
- The laws are always written in a legal language, so they need to be “translated” to technical and (retail) processes language.
- The local environment is mostly unknown by the manufacturer and vendors, and sometimes it is challenging to understand the local mentality and the ways things are done in the country.
- Speed of law changes is often a challenge, especially at the beginnings of establishing new fiscal law - thus to be informed on time is often a huge issue.
- Unknown local certification/homologation processes are a huge challenge since many fiscal laws define certain procedures that must be followed and define the use of certain equipment or software products.
- Due to the limitations of some fiscal laws, implementation of solutions for modern retail concepts e.g. mobile, cloud, SCO, etc. can be very challenging.
- Hardware and software companies usually have limited resources regarding experience and knowledge of fiscal topics
- Maintenance of the implemented solutions is a complex and problematic issue

- The diversity of many different fiscal laws and their technical implementations is also a challenge

Not to forget, hardware manufacturers and software vendors are profit-driven companies. The implementation of the fiscal law is not seen as an add-on that is increasing the value of the products (and by that the profit) but as a legally forced element that is very complex to implement and maintain.

Unfortunately, the biggest challenge with fiscalization is the fact everybody must have it, but nobody likes it.

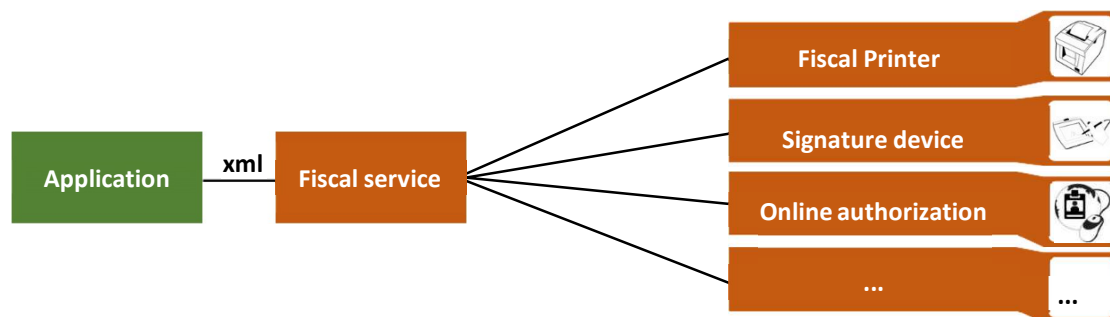
How to overcome the challenges

Solution approach

One solution which would solve most of the problems related to the implementation of the fiscal requirements would be to have one unified interface to all different fiscal implementations. The same interface specification should cover hardware, software, or any other fiscal implementation no matter the country.

The related service or application would have to be implemented by the manufacturer as part of the hardware, as an application, or as a stand-alone service.

Web service-related technology would make this implementation even more interesting and easier to use all around the network.



An overview of the possible architecture to reduce the challenges of the implementation of the fiscal requirements

The advantages of this approach are obvious:

- One integration for all fiscal countries,
- Separation of the business-related functionalities and fiscal requirements (Possible up to 80%),
- Same fiscalization concept and even integration for every retail channel,
- Real multichannel retailing is possible even in the fiscal environments,
- Dramatical reduction of maintenance costs.

Implementation as middleware

The approach mentioned above is already recognized by several companies and organizations.

The companies that recognized the benefits of this concept are mostly software vendors which are producing their middleware software. This middleware software is acting like a fiscal service.

It has three main functionalities:

1. It provides a unique interface to the POS or other business applications. This interface is the same for all fiscal laws in all fiscal countries. That one integration is opening the possibilities to use the same integration in other countries too.
2. It provides fiscal functions required by the law. The idea is to keep all business applications unchanged and to implement all fiscal requirements in a separate application. This is unfortunately not possible for 100% of fiscal requirements but a big part of it.
3. It is integrating and encapsulating many different fiscal hardware devices, fiscal software and services, and many other requirements defined by the fiscal authorities and that exist in certain countries. With that, retailers can suddenly choose between providers of fiscal solutions without changing the existing implementation.

The benefits of this approach are easily visible and that is the main reason why many software providers are focusing on this kind of solution.

Implementation as a service

The other idea to implement the approach defined in this paper is to define the interface and to let the software vendors and hardware manufacturers implement that same interface in all of their products.

This means communication with web services in the Czech Republic should be the same, with the same interface, like communication with a fiscal printer in Romania for example.

This concept would be more difficult to implement as each solution provider and fiscal authorities would have to be convinced to use it.

The definition of this unique interface is an important base for further implementations.

Establish worldwide standards

Object Management Group (OMG) recognized this problem and started an initiative to improve the situation by suggesting a possible solution.

An author and maintainer of the worldwide UPOS standard OMG group created a Fiscal Service working group.

The goal of this group is to create a unified interface to fiscal implementations as a future standard for fiscal requirements.

The group has already analyzed many fiscal countries with different fiscal requirements and created the first draft of interface specifications common to all of them. In the coming years, we can expect this international interface to be finished. After that, the implementation of vendors and manufactures will follow.



Final thoughts

Based on our projects and experiences in the past 20 years we have seen that the combination of the three concepts we described above is the best.

Imagine the fiscal service hosted somewhere in the cloud that is implementing all fiscal requirements and at the same time, it is the one you can access through international standards that are defined with OMG.

We are sure that you would agree that this would dramatically reduce the complexity of the infrastructure in the stores as well as the costs.

At the same time, the government would have a big benefit – only one place to audit and monitor.

This would be a win-win situation for all.

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