taxtimbre
part of the finext network

KEEP IT PURE AND SIMPLE

HOW DOES A DIGITAL SIGNATURE WORK WITH BLOCKCHAIN?

There is something pure and comforting about a vinyl sound. Something we value as real. "Authenticity" is all about being real.

TPThings is a transfer pricing document management solution which eases your life when putting together your transfer pricing documentation. TPThings makes use of the newest technology. For example, there is a choice to use Blockchain technology to create an indisputable audit trail for the signing of intercompany agreements or approval of a Master File or a Local file.

Let's look at digital approval or signing: it goes without saying that even a traditional digital signature guarantees a higher degree of reliability compared to a handwritten signature. Blockchain elevates that guarantee to "undisputable". So how does a traditional digital signature and a digital signature (represented by a hash) with Blockchain work? Let's dive into this.

Traditional digital signature

The technology behind a traditional "qualified signature" consists of an uneven pair of keys: the "public key" and the "private key". These two codes are always linked and are unique per certificate. This certificate is to prove that it is a qualified digital signature. The certificate is made with a "secure means" (for example a smart card) that ensures that the signature cannot be copied.

- The private key: is personal and ensures that the digital signature is different for each person;
- The public key: is accessible to everyone. This key is used for verification of the signature.

So how does this digital signature work in practice?

STEP 1 – SIGNING OR APPROVAL

Let's assume you have prepared your Master File in the TPThings environment and you have it ready for approval, or, if you like, "signed". As soon as a Master File is approved within the online environment of TPThings, a unique code is generated. This is the so-called hash. In essence, a hash is a very short code of random letters and numbers e.g. "a0680c04c4eb53884be77b4e10677f2b", which represents the digital signature of the relevant approved Master File. The actual content of Master File is only accessible to the person(s) who may have received user rights to them.

STEP 2 - CAPTURE ON THE BLOCKCHAIN

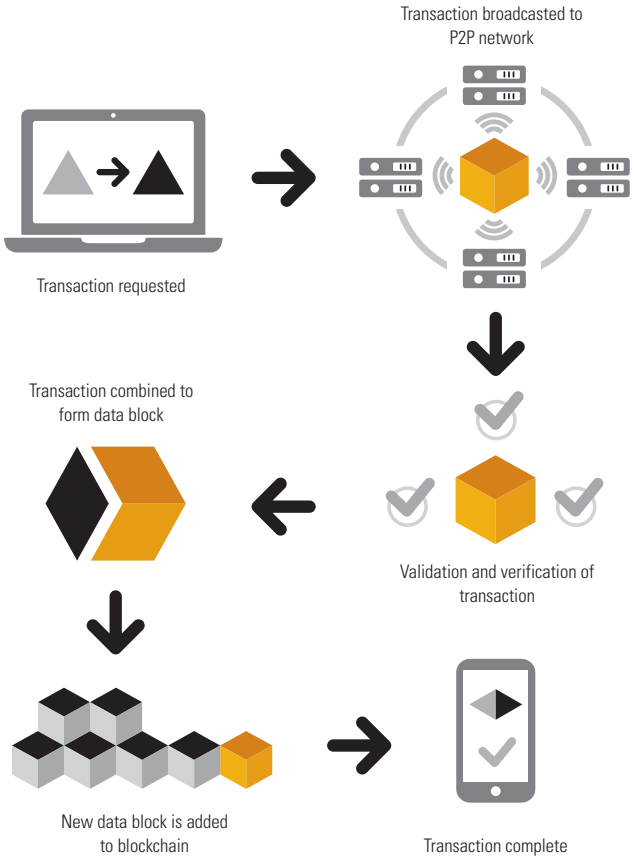
This hash is then offered to the blockchain, after which a transaction key is generated. This transaction key is communicated back to the online environment where the Master File is approved. If you open the relevant Master File, you will see the transaction key. Whenever a single letter, space or pixel is adjusted in the relevant document, the hash changes. From this, it can be traced back to everyone that adjustments have been made in the document.

STEP 3 - CONTROLLABLE FOR EVERYONE

Validating whether the relevant Master File is the actual approved document (presented to internal or external stakeholders) becomes a matter of comparing the transaction key included within the relevant Master File to the one on the blockchain. Therefore, no person or user can tamper with the audit trail of, for example, the Master File. The hash key guarantees the "real" final version of the Master File.

Just take a minute to think about that. This means that no intermediary is required to verify that the person approving the document is really that person", nor is it necessary to retrieve the final version of that document. The fact that matters can be recorded and controlled via Blockchain will inevitably have a significant impact on the role of any other trusted third party. This potentially means that a large part of the function of a government, bank, advisor or notary could be automated and controlled via the internet.

The following image is an example of what it looks like in software:



Blockchain technology is revolutionary in terms of record keeping, and can track and document every change in a record or transaction. It is changing significantly the way we look at:

- **contract management**
- **supply chain**
- **payment processing and currency**
- **asset management**

Please feel welcome to give us a call to discuss any of the above matters.

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