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Polymer bank notes: head to head



The advantages: Stane Štraus, co-author of World Polymer Banknotes, based in Kranj, Slovenia

Polymer bank notes would mean a longer life for notes in circulation (three to four times longer), improved security (reduction in the number of counterfeit notes), cleaner notes, improved processability (counting, sorting, verifying and dispensing) and improved recyclability (polymer notes are recycled, while paper notes are burned or landfilled). The benefits of polymer notes also result in reduced costs for central banks and, consequently, taxpayers.



Stane Štraus

Superior new technologies, such as polymer notes, need time to become accepted and dominant. The speed and ease of acceptance, as has been established by several research projects on this topic, often have less to do with the merits of the technology, and more to do with peculiarities of the market, for example, with who supports and adopts the new technology.

Since polymer notes last longer than paper notes, fewer polymer notes need to be printed. This is the main reason why bank note printers and manufacturers defend the status quo and oppose polymer notes, especially because bank note printers are faced with excess production capacity and fierce competition for orders. No company will support a competitor's technology if it results in a 25–75% reduction in orders and profits. Central banks and the taxpayers are therefore asked to shoulder the burden of an antiquated technology [paper notes].

Central banks are tasked with issuing bank notes. The trust of the people in those bank notes is the essence of monetary value. Those banks face genuine concerns regarding any new bank note technology, especially when that technology represents a major departure from the old system. These two factors – the opposition of the established industry and the cautiousness of the central banks – explain why the adoption of polymer notes has not been faster since 1988, when modern polymer notes first appeared in Australia.

With the latest developments, however – the Bank of Canada fully converting to polymer notes and the Bank of England announcing a likely conversion of £5 and £10 notes to polymer in 2016/17 – it seems that the technology has been given the final stamp of approval by two of the leading central banks in the world. The future of bank notes looks very polymer indeed.

The disadvantages: Thomas Hockenhull, Curator at the British Museum's Department of Coins and Medals, UK

Often, the inherent conservatism of the central banks is cited as the main reason for the continued survival of cotton substrates in note production. To a certain extent this is true, and banks are unwilling to invest in an expensive transition to polymer without being convinced of its advantages over cotton (Bank of England notes are manufactured from cotton fibre and linen rag). Yet polymer also has its disadvantages, namely with regard to recycling and durability.



Thomas Hockenhull

Notes made from a cotton substrate are biodegradable and can be shredded for agricultural compost. The Bank of England currently recycles its cotton notes in this way. Polymer notes can be recycled but their decommissioning is expensive and requires a more sophisticated process than cotton notes. It also requires a lot more energy, since the notes are not biodegradable and have to be heated to a high temperature to turn them back into a usable product.

Developed countries that issue polymer notes tightly regulate how their notes are recycled, but countries in the developing world that issue plastic notes might not be able to invest in the infrastructure required to recycle used notes. More problematic still is the prospect that, given the security requirements for disposing old notes, countries without a viable recycling infrastructure may resort to burning. Of course, cotton notes might also be burned, but burning polymer is arguably worse because it releases CO₂ and toxic gases into the atmosphere.

The durability of polymer is promoted as a key advantage over cotton. Early challenges such as enabling the ink to stick to a non-porous surface have been overcome, and it is true that polymer notes last much longer than paper notes and are much harder to tear. However, the design can still be worn away through use and, once cut, the notes do in fact tear more easily than paper. Furthermore, it is only the lowest denomination of notes (in any material) that wear out so quickly, because they circulate at a higher frequency. One might question whether it would be a significant advantage to make high denomination notes, such as the £50, more durable. After all, the design will be superseded within a decade anyway and the notes recalled, regardless of condition.

What do you think? Which of the two speakers convinced you most? Are there any other important issues that should be addressed? Email or tweet us your comments at materials.world@iom3.org or [@materialsworld](https://twitter.com/materialsworld) or comment below.