Attractive banknotes
... a question of design management

by Hans de Heij

When creating a banknote, designers face the challenge of combining effective security features with the right look and feel. Research conducted by the Dutch Central Bank (DNB) has shown that the right design will help consumers to remember security features. In other words, when it comes to the look and feel of banknotes, public opinion matters.

Although a growing number of central banks are interested in public awareness of, for example, security features, the perceived attractiveness of banknotes plays an increasingly important role [1, 2]. To give some indication of how the public perceives the appearance of USD, CAD and EUR banknotes, Table 1 includes the first ever comparison of results from public surveys conducted in Austria, the Netherlands, Canada and the US. The comparison shows that all respondents had a clear preference for their domestic currency, awarding it a generous score of 7. The table also highlights some interesting discrepancies. Why, for example, did the Dutch award the guilder a rating of 80% in 1999, while assigning the euro a rating of only 65% in 2003? For that matter, what was it about the NLG 250 banknote (see Figure 1) that caused it to be awarded an unparalleled rating of 91%(!) in 1997? Research has shown that the quality of (i) the design philosophy, (ii) the graphic designer and (iii) the project management function play an important role in explaining the above discrepancies. As these disciplines all have a bearing on the overall design management function, this article reviews each in some detail.

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Figure 1
The most popular banknote to be issued in the Netherlands: 91% of the Dutch respondents considered this banknote 'attractive' in 1999.

Figure 2
Management objective: quality and innovation. The AUD 10 polymer banknote issued by the Reserve Bank of Australia in 1988 – a completely new banknote concept.
Design philosophy

The aim of every issuing authority is to develop and implement a security design that is generally recognised as being first class. To realise this objective, senior management must emphasise the need for a quality product. This need can subsequently be translated into a series of requirements and expectations. In turn, these can be specified in a design policy or design philosophy, on which the eventual (product) design is based. As highlighted by the introduction of the first polymer banknote (see Figure 2), the involvement of senior management can be of overriding importance.

Design philosophy – EUR banknotes

The design philosophy developed by the ECB [6] in relation to the first series of EUR banknotes stipulated that all notes should:
• be easy to recognise;
• offer protection against counterfeiting;
• be visually attractive;
• be clearly identifiable as European;
• embody a cultural and political message acceptable to all Europeans.

The above list was recently expanded to include the following requirements:
• the euro should be at least as secure as the currencies it replaces;
• the specifications formulated in relation to the euro should not preclude the use of domestic suppliers.

In other words, each country shall be free to select its own printers, paper suppliers and ink manufacturer, for example.

Speaking at a press conference held at the opening of the Euro design exhibition in September 2003, former ECB President Wil Duisenberg indicated that, in retrospect, the right banknote design had been selected. Moreover, he made it clear that the design themes ‘openness to others’ and ‘bridges linking people’ were fully endorsed by the ECB Board.

Mr. Lamfalussy, also a former ECB President, had previously indicated that most Europeans would probably have rejected a more striking design. Recent market research has shown that the bridges theme on the back of the note has had a greater impact than the openness theme on the face of the note (windows and doors).

Design philosophy – NLG banknotes

At first glance, there do not appear to be significant differences between the design philosophy of the ECB and that of the Dutch Central Bank (DNB) [6]. Both have stipulated the following requirements:
• denominations should be easy to recognise;
• the authenticity of the note should be easy to verify;
• the banknotes should have a long useful life;
• the notes should reflect contemporary cultures;
• the notes should exude a sense of happiness and/or joy.

Despite these common objectives, a closer examination reveals that DNB has adopted a more product and user-oriented approach. Indeed, DNB primarily perceives banknotes as everyday objects that change hands several times a day (and are closely guarded between exchanges). Just like any organisation with a market-oriented mindset, DNB is very interested in the composition of its customer base. It was the first central bank to (i) distinguish different user groups and (ii) specify specific design requirements for each group. The following groups were differentiated:
• the general public (the man in the street);
• cashiers (in retailers, supermarkets, gas stations, etc.);
• operators of vending machines/cash dispenser (machines that accept/dispense banknotes, including ATMs and vending machines);
• detectors (staff operating central bank sorting machines);
• counterfeiters (crooks armed with copiers, scanners, etc.);
• experts (forensic specialists).

Market research

In 1983, DNB was also the first to introduce structured opinion polls (surveys), which it conducted at regular intervals. The feedback thus obtained enabled DNB to establish the popularity of specific notes (and the reasons underlying this popularity). As shown in Figure 3, consumer research not only enabled DNB to gauge public opinion of, for example, a specific foil design, it also allowed the bank to test and assess communication symbols. One of the most striking conclusions that DNB was able to reach on the basis of these polls was that a direct correlation existed between (i) the number of security features that the general public was able to remember and (ii) the
perceived attractiveness of the banknote harbouring the said features. For completeness’ sake, it should be noted that public knowledge of security features is generally poor. Surveys conducted in Austria and the Netherlands have highlighted that the average man in the street is only able to remember two security features. This is one of the reasons why a broad-based communication campaign should never look to publicise more than four features.

Also surprising was the number of people that were unable to come up with a single security feature. A survey held in the US showed that some 35% of the population was unable to recall a single security feature [2]. At 18% (2003) and 26% [2] respectively, these figures were even higher for the Netherlands and Canada.

**Graphic designer**

It is up to the graphic designer to implement the design philosophy (which, as indicated, reflects feedback from the public). Designers are active in a diversity of industry sectors, including television and advertising. As far as the design of banknotes is concerned, an understanding of security features is useful, but not necessary. After all, the designer’s main task is to reach the general public. Experience has shown that established and reputable designers are often more suited to the tasks at hand than designers who are excessively trend sensitive (or true artists, such as painters). It is also advisable to contract the designer for a single banknote design only. Luckily Europe has no shortage of excellent designers, including Jörg Zintzmeyer, Roger Pfund (see KID 2), Ootje Oxenaar, Jaap Drupsteen (KID 3) and Robert Kalina (KID 6).

Experience has also shown that independent designers are often better able to create a design that appeals to the public than in-house designers in the employ of security printers.

Anyone who has ever worked with a graphic designer will know that different designers use different working methods. Ootje Oxenaar, for example, used to sketch banknote designs in pencil (Figure 4) and take them to every meeting with the printers to make sure that they would be reproduced as accurately as possible. In contrast, Jaap Drupsteen was primarily interested in the interaction between the craftsmen of origination and his initial design. Although his designs were in many ways unpredictable, they reflected the ideas and skills of all involved (Figure 5). Figure 6 shows a euro banknote created by the third and final Dutch designer to submit a design proposal to the ECB: Inge Madlär.

**Theme selection**

Research conducted in the Netherlands has shown that the public associates security products – and banknotes in particular – with human beings, animals and plants (in other words, all life forms). It has
additionally shown that the average man in the street is not averse to a design that includes humorous elements.

Another important design parameter is the brightness of the colours [1, 2]. The comparative paleness of the first series of EUR banknotes was certainly noticed by the Dutch public, which had become accustomed to brightly coloured notes. In a similar vein, a survey conducted in Canada showed that the most noticeable change to the design of the new Canadian Journey series had been the use of brighter colours (34%). To conclude, surveys conducted in the Netherlands and elsewhere have shown that the public is less keen on repeated patterns (as included on foil stripes).

The DNB has, in the past, assigned responsibility for selecting a banknote theme to a designer. One example is the NLG 100 banknote introduced in the early 1980s. To gauge public opinion of the note, the DNB commissioned its first ever public survey. As the NLG 100 note was the first in decades to exclude a portrait, the DNB decided to gauge the public’s response after the note had been introduced – if it had asked the public in advance whether the inclusion of a bird (as opposed to a portrait) would be acceptable, it might well have received a negative response. Faced with a final design as opposed to a choice, 83% of respondents indicated that they considered the note ‘beautiful’. In the end, a capable designer is able to transform even slightly dull subjects into a lively representation. As most people tend to experience difficulties envisaging the end result, asking the general public to propose a banknote theme is not without risk. In the absence of a final product, they may well be inclined to revert to a familiar theme. However, as the Bank of Canada has recently shown, it is perfectly possible for a theme to be selected by the public – the themes used in the new Canadian Journey series were decided on the basis of market research. Admittedly, only the back of the banknote is used to reflect the public’s preferences (Figure 7). The ECB likewise solicited public opinion when evaluating the 44 designs put forward for the euro (the jury pre-selected ten designs, which were evaluated by the public in 1996).

Keep the designer involved
As a graphic designer can make important contributions during the origination, proofreading and production stages, his or her involvement should not cease once the final draft has been approved. To make sure that the design is not changed by third parties, the designer should also be involved in the final decisions.

Include the design in the tender?
Not all issuing institutions are aware that the design of a security product (a passport or banknote, for example) can be included in the (obligatory) public procurement procedure. What’s more, the issuing institution can insist on the involvement of a specific designer (as was the case for the development of the most recent Dutch passport, designed by Jaap Drupsteen[10]).

Project management
The phrase ‘rubbish in, rubbish out’ also applies to security products such as passports and banknotes. In addition to a clear design philosophy and an external graphic designer, a first class product calls for a quality project management discipline. After all, if an organisation is unable to manage the design process, the final product could prove a disappointment.

Project planning
As illustrated by the early NASA projects conducted in the 1960s, project management is an important management tool. Many authors have, over the years, described the basic principles of project management. In most instances, project management starts with a project plan consisting of five sub-plans: organisation, quality, costs, time and information.

Programme of Requirements
The Programme of Requirements (POR), which forms part of the Quality Plan, is of critical importance to a successful product design. Ambiguous or missing requirements will cause the design proposal to be incomplete. A POR should be defined for each of the
following development stages: design, print proofing and mass production. Drawing up a POR requires the utmost precision (it helps to approach the POR as a ‘translation’ – in words and drawings – of the actual product). In essence, a POR comprises all requirements that the issuing authority wishes to include in the design (these should ideally be expressed as problems, rather than solutions). To avoid ambiguities or disappointments, it is advisable to discuss the POR with the contractors (paper suppliers, printers, designer, etc.).

A POR should not be confused with a list of technical specifications; whereas the former may be described as a request that has not yet been realised, the latter is a description of the (mass) produced product. Although PORs are considered by many to be bureaucratic, they are clearly preferable to short, incomplete design briefs. If the issuing authority is unable to specify a comprehensive list of requirements, it can hardly expect the designer or printer to have a thorough understanding of the deliverables. Drawing up a comprehensive POR also creates a reference framework that can be used during subsequent stages of the design cycle. In the end, time invested in a POR is time well spent.

**Leave the introduction of changes to the designer**
As indicated, the graphic designer should be granted full and sole authority over the design. In addition, the designer should be the only person to change the design. This does not, of course, preclude the issuing authority from changing the POR at its discretion. Although the above clearly affords the designer considerable freedom, a competent designer will solicit input and guidance from the project manager and other experts, particularly in relation to product durability, security features and attributes for the visually impaired.

**Work with a small project or design team**
Depending on the application, it makes sense to work in small teams, comprising a select group of specialists. The teams deployed by DNB in the past have included:
- A project manager – an expert/engineer in the employ of the issuing authority;
- A freelance graphic designer (not employed by the printer);
- A representative of the printer;
- A representative of the paper manufacturer.

Large teams and/or design organisations suffer from communication and mandate-related problems. The design preparations for the euro involved more than 60 people, who were assigned to different task forces, project teams and working groups. The involvement of so many people and organisational units risks undermining the quality of the product, not least because responsibility appears to reside with everybody and nobody.

**Prioritise the product (banknote)**
The banknote proper should always come first – it takes precedence over the design procedure, cooperation with others (consensus) and any political considerations. Within this context, it is always useful to ask yourself: ‘what is best for the banknote as a product?’

**Take small steps**
The banknote design process should be organised with a view to minimising the risk of failure. It is better to arrive at a new design gradually than it is to take one or two big leaps. It is also worthwhile to remember that even though a project may look good on paper, the practical implementation of technical innovations is nearly always more difficult than it appears. In short, never change a winning banknote (too radically)!

**Only introduce tried-and-tested design elements**
If your intention is to add novel elements to the design, make sure that they have been thoroughly tested, preferably within the context of design studies conducted prior to the final design. Always execute these design studies by way of a (draft) note that resembles the final design (as much as possible). All designs should be presented on a 1:1 scale. The design study shown in Figure 8 – known as the 01-note – relates to an ‘anti-soil’ design.

**Avoid revised designs**
A redesign of an existing banknote can be confusing. Having the existing note circulate alongside the new, slightly revised note may confound the public (the ‘new’ note could even be viewed as a counterfeit). As a new banknote can be produced in two years or less, there is often no need for a redesign (which, at any rate, only saves a couple of months). A new design allows new features to be integrated properly while avoiding a cut-and-paste look. The ECB has
already announced that the second generation of euro banknotes – known as ES2 – will be based on a redesign of ES1. However, although the dimensions, primary colours and theme ("Ages and Styles") will be retained, ES2 will include several new security features. Even though Europe has a tradition of designing completely new banknotes, the euro looks set to follow in the footsteps of the US dollar. The ECB considered it too early to come with a new design. In the end, it felt that the European public should have more time to get used to ES1. However, based on the findings of DNB, a new contemporary design for ES2 might well have resulted in a higher appreciation score.

Present only the best design

Once the final design has been selected, present it (and only it) to senior management. If management is shown different alternatives, it will probably ask for the face of one design to be combined with the back of another. If the design is not accepted, ask the designer to come up with a new design (should the worst come to the worst, consider enlisting the services of another designer). The DNB's Governing Board, which has traditionally invited the designer to attend the board meeting convened to discuss his or her final design, has been known to approve designs without any hesitation or caveats.

To conclude...

- The creation of a banknote that is popular with the public calls for (i) the right design philosophy, (ii) adequate consumer feedback, (iii) a competent graphic designer and (iv) the right design team.
- Feedback, including regular consumer research, contributes to the design process and improves public knowledge of security features.
- The theme of a banknote can be decided by the public. It is up to the designer to create a design that appeals to the public imagination (the public may have to be presented with several options for a winner to emerge).

References

[4] "On the record" interview with Alex Jarvis, Currency News Vol 2 No. 4, April 2004

Footnotes

1 NLG = Netherlands Guilders, USD = United States Dollar, CAD = Canadian Dollar, EUR = euro banknotes.
2 With the exception of the former NLG banknote, which was assigned a higher score.
3 This rating is not included in table 1.
4 The AUD 10 polymer banknote was introduced in 1988.
5 1982.
6 Some euro-countries have even reported levels as high as 50%.
7 Deenaar designed a large number of NLG banknotes before they were taken out of circulation.
8 And other European countries.
9 In 1981.
10 The overall passport design process, including designer, formed an integral part of the tender submitted to three different security printers.

The opinions set out in this article are those of the author. They do not represent the official position of either De Nederlandsche Bank (DNB) or the European Central Bank.