New Technology Briefing

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New Technology Strategy

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The Post Office, technology and innovation

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Abstract

A great part of the wealth of an organisation lies in its own potential for innovative new ideas. Encouraging the development of such initiatives can be essential to success in future business. Stimulating technology-based innovation is one of the goals of the Post Office Research Group, and its pioneering approach in this area is beginning to attract attention from the outside world.

This paper sets out to describe the special conjunction of initiatives that make up an innovative framework in the Post Office and provides some brief examples of customer-focused innovations that are already benefiting the organisation.

The strategic Harnessing Technology programme

The Post Office's Harnessing Technology strategic programme was originally conceived in 1996 as one of a number of board-sponsored initiatives designed to prepare the Post Office for the 21st century. It challenged the organisation to identify opportunities to exploit technology, reduce operating costs and bring new products to market. It included specific financial targets and an education and awareness programme designed to increase awareness within the Post Office of the potential of new technology, and to improve its external image as an aggressive user of technology. Finally, it aimed to find new mechanisms to foster technology-focused innovation and to facilitate technology transfer from research into implementation.

Technology transfer

The first stage was to benchmark what other organisations were doing, and the Post Office spent some time with 3M who were widely recognised as leaders in the field of research-led innovation. Lockheed Martin's skunk works also made a great impression. This allowed groups of bright engineers to pursue innovative initiatives, such as the celebrated stealth bomber, free of the constraints normally imposed by the corporate hierarchy. The Post Office considered at how they might do something similar.

The Innovation Fund

One result of these deliberations was the Innovation Fund, which was originally conceived to overcome some of the difficulties that were often experienced in obtaining funding for trials and pilots of new technologies

identified by the Post Office's Research Group. The business planning and budgeting processes operated on a fixed annual cycle, and favoured investments with a predictable return which could be justified by rigorous financial analysis. A key element of planning and control was 'the business case', usually identified through financial processes such as net present value and then prioritised against the list of 'must haves' for the organisation. As experiments with new technologies, or in emerging markets, generally involved technical and business uncertainties, this made it unlikely that a formal financial evaluation would be favourable, and growing pressure to meet 'business as usual' targets combined with a culture not strongly focused on technological innovation were also inhibiting factors.

In November 1996, the Post Office Executive Committee sponsored a £3m Innovation Fund, with the aim of providing a mechanism which would overcome these difficulties while performing a much broader role of stimulating innovation and technology transfer within the strategic Harnessing Technology programme.

The Fund embodies a 'venture capital' concept, with contributions from the main Post Office businesses and Group Centre, to provide seed funding for new initiatives.

The initiative is not a 'suggestions scheme'. Proposals must have a business sponsor empowered to carry the project through if funding is granted. Neither is it a means of reinstating 'business as usual' initiatives that have been 'prioritised out' in the business plan process. Ideas should involve technology new to the Post Office, or at least a very innovative area of application, and a significant level of technical or business uncertainty.

The types of ideas envisaged included technology trials, application pilots, business or process improvements and new products.

How does it work?

A five-stage process is used to control the flow of ideas and assess them for funding. Funding is granted for only one stage at a time, and the aim is that it should be comparatively easy to get initial approval, but a progressively more rigorous evaluation will be required at the later stages, which tend to involve higher levels of funding.

Stage 1 is 'Enrolment'. At this stage an initial idea outline is tested against criteria like commercial or strategic fit, and assessed for its potential to deliver business benefits. A determination is made as to whether the idea is high risk or whether it should be brought in as business as usual, whether there is a senior business sponsor, and finally whether the idea has the potential for substantial technology acquisition.

The second stage is the 'Concept' stage. This stage further clarifies the outline of the project plan, the opportunities, the issues, and the financial aspects.

Stage 3 is 'Concept Development'. This is the final stage of majority innovation funding, and the key output is a comprehensive project plan for the delivery of the demonstrator and pilot stages.

Innovation Fund

The 'Demonstrator' stage, stage 4, proves, where appropriate, that the idea will work, but it does not involve users and customers. It is an opportunity to test and reconsider business rules and challenge the project's capability to deliver the benefits.

'Pilot', the final stage, is an iterative process, at the end of which a successful project should be ready to be driven into business as usual, in the knowledge that users and/or customers have perfected the product or service offering.

These last two stages normally require the business units concerned to contribute some funding and resources, depending upon the residual level of risk involved, to ensure that there is real commercial commitment to proceed.

Innovation Fund projects

Since the inception of the Innovation Fund in April 1997 there have been over a hundred projects that qualify for serious consideration. The Fund has covered a wide variety of business areas, and the following is a small selection of some of the more customer-oriented projects that it has made possible.

Technology Engineered Speech to Sign Avatar

Due to its many locations, the Post Office has very strong links with local communities and plays an important part in the national life of every business and individual. This project focuses on support for disabled people and the use of technology to enhance the quality of their lives.

Technology Engineered Speech to Sign Avatar is a technology developed to meet the needs of customers who are deaf or hard of hearing. The system uses commercially available speech-to-text software, combined with a series of specifically developed applications to translate text to British Sign Language, and delivers this via an image of a moving person (an Avatar) on a monitor.

The system has been developed by the Post Office in partnership with the Independent Television Corporation, Televirtual and the University of East Anglia; the Post Office joined the project to enable Post Office staff to speak to deaf customers over the counter. This supports the Post Office's compliance with the Disability Discrimination Act 1995 and the aim of making post offices equally available to all customers. The Post Office is also working with the Royal National Institute for Deaf People (RNID) on wider applications of the programme, for example on the Internet, in kiosks, medical centres and shops. This technology is also being developed to translate statements into a range of languages, such as Punjabi and French, in order to aid customer service in parts of the country where there is a particularly high specific ethnic population.

Typical Innovation Fund Projects

Trusted third party

The growth in electronic communications and commercial transactions over insecure networks, primarily the Internet, has created the need for establishing trust and security, especially in global trading, where trading

and corresponding parties might not have met. One way of establishing trust is to use a third party whom the other parties believe is impartial and trustworthy, known as a trusted third party (TTP).

A TTP needs to establish criteria against which an organisation or individual can be vetted for authenticity of identity. Some examples for an individual or business might be that they have a valid physical address, or they have presented themselves at a post office with evidential documents like a birth certificate, or they might have been credit checked by a suitable organisation. Once this has been done an electronic identity and signature for use on the Internet can be issued and, for an annual subscription, the electronic identity is maintained on a public register by the TTP.

Electronic identification is based on public key infrastructure, a standards-based technology which uses encryption to identify individuals or groups uniquely. It is an electronic certificate that can be held on any computer or smartcard, and acts rather like a passport to the Internet. In this case, Innovation Fund money was used to support the development of this crucial area, and enabled the pilot using Entrust encryption PKI software.

Business-as-usual funding is now in place, bringing the project spend to £14m at the point of commercial launch. Estimates of the market size for the year 2000 range from £40bn to £90bn of worldwide trade being conducted through this channel. Financial services analogues would indicate 1–5 per cent of market value to produce TTP-related revenue of \$1.6bn to \$4.5bn per annum worldwide.

Closed user group

The closed user group (CUG) concept uses the same technology platform as trusted third party. It is all about proving identity on the World Wide Web and has been around for a long time now. The most widely used Web security currently uses 'digital certificates', the electronic equivalent of driver's licences, passports or membership cards, to identify or 'authenticate' Internet servers so that you can be sure the server is genuine. The Post Office has taken this technology further to issue digital certificates to the person using the Web browser as well, so the server can also be sure who is using it.

The ability to identify who is using a website has opened up the potential for customised Web pages to be built around either a name or an account number. Because you know exactly who is accessing the website you can gather information on things like previous purchases, areas of interest or preferred delivery method and tailor your site specifically to suit these requirements. This information can also be used to draw customer attention to special offers and create special menus which will direct them to parts of the website they have not visited before.

The first Post Office system to go live was an external one called Open for Business East Anglia (OBEA). This is part of the government's drive towards 'better government' which has a target that 25 per cent of its transactions with citizens should be handled electronically by 2002. OBEA is a small beginning; it allows people who wish to register as self-employed to submit their forms electronically,

rather than communicate separately with the Inland Revenue, HM Customs or the DSS.

In April 1997, ParcelForce Worldwide submitted an application for Innovation Fund assistance to develop the idea of closed user groups. The aim was to provide secure communication between ParcelForce, the Royal Mail, Post Office Counters, customers and suppliers. The ParcelForce CUG service would allow customers of ParcelForce businesses to communicate securely and provide them with direct online access to selected ParcelForce systems. For instance, key customers would be able to undertake parcel tracking in a secure environment.

The ParcelForce CUG is the first of many services to exploit a 'generic' closed user group architecture and infrastructure which has been designed to be capable of providing a consistent and secure front end to a range of Post Office applications. Applications suitable for CUG services are those needing to operate in a segmented area of the Internet requiring controlled access by specific, authorised group users. The CUG service itself does not alter the functionality of the underlying Web application, it merely enables access to it to be appropriately and consistently controlled.

Physical to electronic

The Royal Mail Electronic Services Business Unit develops and markets new products and services which anticipate and respond to needs arising out of the growing use of electronic communications. Their Hybrid Mail solution already converts and distributes electronic documents as physical mail.

This Innovation Fund project arose out of a strategic study which identified potential opportunities in the conversion of physical mail items into electronic mail. Designed for key customers with large incoming mail volumes, the service will open mail and then scan, format and transmit the information electronically to the customer, so that employees can then process it immediately on their systems.

In effect, mail is diverted from the Royal Mail pipeline using a non-geographic postcode, or by direct delivery to a Physical to Electronic centre in Doncaster. Once there, opening, sorting and batching for the scanning operators follow mailroom procedures. After scanning the mail, items are either temporarily stored and then destroyed, or sent in bulk to the customer or a nominated storage company.

The benefits for the customer are reduced overheads in manual mail handling, optimised workflow and improved overall service.

The success of the pilot has led to the fast-track development of this market opportunity, including Royal Mail's Executive Committee agreeing a further investment of £740,000 to set up a second scanning site in Leicester which gained a major contract with the Bank of Scotland. This service is now being developed into a core service offer.

Re-Engineering the Mailer-Post Interface (REMPI)

REMPI is an electronic commerce project aimed at revolutionising the customer interface with the Post Office. It will result in a totally new

form of access to, and payment for, postal services and will provide the foundation for the development of new customer-oriented services such as proof of acceptance, day-certain delivery and the tracking and tracing of normal mail.

REMPI is an alliance which includes the Royal Mail, Deutsche Post, Neopost and Pitney Bowes (both mail-finishing companies) and International Post Corporation, an umbrella company representing 21 postal authorities, 15 of which are in the EU.

Its objective is to develop and evaluate practically a new electronic interface to postal services in four key areas:

- customer-applied item identifiers
- data capture, exchange and use
- electronic payment and payment evidencing
- proof of posting and customer information access.

By standardising the interface between business customers and all the postal suppliers of Europe, postal organisations will be able to compete across all the EU countries. Costs to both customers and the post could be reduced and there is the potential for adding value to the products supplied. Support from the Innovation Fund has enabled the Royal Mail to be involved in the initial design and pilot of the scheme, and this should provide commercial advantage for the future.

The Innovation Lab

The Innovation Lab opened exactly 12 months after the launch of the Innovation Fund, but logically its role starts earlier in the innovation process. Although still itself a pilot, it has already made an impact on the way problems are tackled and new concepts realised.

The Post Office has always invested substantially in information technology and is a world leader in the use of process technology in its mailing operations. Until the mid-1990s the focus of technology investment was on support for the back office and the 'engine room'. However, the importance of developments like the Internet and the convergence of IT and automation technologies was already being flagged by the Post Office Research Group. It was becoming clear that the impact of technology was soon going to explode into commercial operations, and that concepts like mass customisation were going to be a reality — although quite how they would be achieved was less certain.

As a result of initiatives like the Innovation Fund, the Post Office had started to reap the benefits of 'quick win' programmes with rapid piloting of technology-assisted innovation in products and services. But the gulf between the visions of the futurists and the managers who needed to understand why they should begin to absorb lessons being learnt in the USA was too wide for comfort. Knowledge diffusion in any large organisation tends to be uneven. In the Post Office, both its size (180,000 employees and 4,000 senior managers and professionals) and its commitment to highly intensive operations (70 million letters per

A Laboratory for innovation

day delivered to 25 million addresses) increased the challenge. The Research Group was looking for new ways of sharing understanding when the idea of an 'Innovation Lab' was born in a management team workshop.

The idea might have died, like so many interesting possibilities, but for a fortunate combination of circumstances. The Group Technology Director, Duncan Hine, was already looking for ways of improving technology transfer into the Post Office and immediately saw the possibilities and agreed to sponsor a formal proposal. Then the Training and Development Group offered the temporary use of a large portakabin, now surplus to requirements at its Management Training Centre near Rugby. Finally, a number of companies, including Compaq, IBM, Microsoft and Fujitsu, agreed to contribute advanced technologies for use and for display.

The vision for the Lab was for managers to understand the implications of transforming technologies in the context of their own knowledge and experience. If this could be achieved, the transfer of useful information was likely to be both faster and more effective. The Lab development team came up with a number of ideas and concepts, mostly based up improving on facilities they had seen elsewhere.

The Lab design was built around two primary areas — the Experience Zone and the Creativity Zone. The first was planned to give a hands-on window upon electronic commerce and new technologies in business operations, using the Internet to display leading-edge sites, and with as many advanced devices as possible for people to touch and use. The second was an entirely different concept — a space for up to 12 people with whiteboard walls and technology brainstorming and creativity tools. The physical design of the Lab was specifically awarded to a design company with a background in exhibition and theatrical design to create a place completely removed from the normal working environment.

The two zones were designed to work together. The Experience Zone was to be used to set the scene and stimulate visiting teams, and facilitate creativity and innovation sessions in the Creativity Zone to help them shape new ideas and plans.

The Lab is supported by a team made up of creative designers and technologists who produce displays, exhibitions and working models to refresh the Lab and develop particular themes.

All of these were accommodated in a remarkably small space. The benefits of this were both the surprise factor (the Tardis effect) and the pressure it put on the team to be constantly creative in the use of space. The drawback was that size was a real constraint on the technology that could be got into the Lab (postal technologies tend to be big) and the limitation on the 'sets' that could be built. Ideally it would have had a lower technology density set in simulated real-life environments.

Finally, the Lab was created in little more than six months, from the point where it was formally agreed to its launch in April 1998. It arrived as an exciting idea made tangible — no one, in fact, knew quite what it could deliver.

It turned out to be an immediate success, but not quite as its builders had anticipated. The star service from the start was the facilitated sessions in the Creativity Zone, to the extent that the initial handful of competent facilitators were swamped until more could be trained. Groups of all kinds came — executive teams, project teams and professional groups.

Various factors came together to make the impact. It is a space that was built for thinking and scribbling on walls. From the start it was paper-free, with groupware technology that could capture and structure ideas without the need for a scribe or reams of flip-chart paper.

Fast-moving and intensive working on ideas is interspersed with play, and it is utterly different from a normal working environment. The service has developed and extended ever since, and shows no signs of declining in popularity with a return rate now of over 40 per cent — a healthy mixture of new and retained customers.

The Experience Zone made an immediate impact, but then declined a little in customer ratings as people got used to the standing displays, even though these were constantly refreshed. This spurred the next major development, a series of themed exhibitions using the whole Lab, based on the research themes of the Post Office Research Group.

After the launch, publicity was essentially low key. Word of mouth was most effective, supported by targeted mailings for specific events and feature articles in internal publications. But essentially, the Lab sold itself through customer recommendation.

The Lab has consistently met or beaten its targets for level of use and customer satisfaction. Perhaps more importantly, customer feedback and a continuing flow of ideas in the Lab development team has driven new uses and new content. The numbers of external visitors grows steadily, again by word of mouth or through key account managers, and the team is advising other organisations on how to develop such facilities.

Perhaps the most tangible measure is the fact that the Post Office has decided to invest in a much larger permanent facility, to be called the Innovation Complex (I*COM). The challenge is now to create a further step change in facilities to foster strategic innovation in the Post Office. It will open in September 2000.

Conclusion

You might have thought that the Post Office was stuck in the past, but actually it is committed to using technology to develop and enhance its services. To do this it has invested in the strategic Harnessing Technology programme, through major investment in the Innovation Fund, and more recently the commitment for an Innovation Lab as permanent infrastructure. Technology is recognised as a key enabler for the future success of the Post Office, and it is vital that existing and new technologies are harnessed to the needs of the organisation and its customers. Fostering innovation across the organisation is proving to be one effective way to achieve this goal.

Lessons learned