

Commercial and Regulatory Aspects of Reverse Hybrid Mail

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Abstract

Driven by market opening and increased competition from electronic communication, postal operators have started extending their scope of business by offering hybrid mail services in addition to physical mail conveyance. This paper discusses commercial and regulatory aspects of reverse hybrid mail, i.e. the electronic delivery and archiving of physical mail messages. It argues that postal operators are well positioned to offer hybrid services due to their established brands and their reputation. The introduction of reverse hybrid mail is able to significantly reduce the cost of postal operations while at the same time fitting customers' needs better than traditional postal services. However, these effects rely on the assumption that a postal operator is actually allowed to introduce an electronic delivery system of letters to entire regions and to thereby partially substitute the physical delivery to the doorstep.

1. Introduction

Traditionally, postal operators' mail business could be described by four major characteristics:

- Mail conveyance was physical.
- The sender paid the postage.
- The business was protected by a legal monopoly.
- The scope of operations (including the frequency and area coverage of delivery) was very much determined by universal service obligations.

In the advent of market liberalization and with the availability of electronic substitutes to physical mail, these characteristics have started becoming blurred. The traditional postal business model is increasingly challenged. In recent years, postal mail volumes have been decreasing in most industrial countries due to competition by electronic substitutes for communication such as e-mail and text messaging. However, the decline in physical mail has so far been slower than once feared. E-mail is not replacing all letters and cards; partly, it's creating communication that might not have occurred otherwise. The Internet also has created new mailing opportunities from e-commerce sales, digital photo printing and DVD rentals. Most importantly, many people remain more comfortable with paper. Hence, traditional postal operators face the challenge to cope with increasingly diverse consumer needs and expectations concerning their preferred communication channels.

An additional commercial challenge is the two-sided market characteristic of the postal market: It is not only a mail sender business, but also mail receivers have preferences as to where, when, and how they want to receive their mail – and these preferences may lead to a willingness to pay on the receivers' side for choices and offerings which increase their convenience. The receivers' preferences in the postal market have been studied before, e.g. in Felisberto et al. (2006) and Friedli et al. (2006) who found that indeed receiving customers have

an considerable willingness to pay for value-added delivery services. Jaag and Trinkner (2008) have extended the analysis by discussing optimum pricing strategies in two-sided postal markets. Creating a digital platform in two-sided postal markets suffers from the well known chicken and egg problem: Senders benefit from many receivers being connected such that they can save on postage. Receivers profit from a one-stop-shop if all their mail arrives through one single channel.

One possible reaction to these challenges and to enter the digital markets is the introduction of a reverse hybrid mail system (RHM). In such a system, receiving customers have the choice of either letting their letter mail be opened and scanned by the postal operator, forward-ship it to another location, deliver it to their desk, deposit a check, recycle or shred the letter, securely archive the paper original and/or securely archive the scanned electronic version. Each of these choices may be priced individually. RHM may solve the chicken and egg problem by assuring backward compatibility with the non-digital established postal and electronic networks: The post as a trusted platform converts the modes of communication if needed. Postal operators in western and democratic societies created over decades a strong brand which consumers associate with trust in the privacy of the information which they deliver from a sender to a receiver. Such a brand association can help to solve the interconnection problem between the two poorly connected worlds of physical and electronic communication. For postal operators RHM creates opportunities at three margins (see Figure 1).

Cost saving	Reduce the cost of daily physical doorstep delivery
Revenue creation	Take advantage of the consumers' willingness to pay for value-added mail receiving services
Strategic positioning	Establish a reputation as trusted third party in verified electronic networks

Figure 1: Business opportunities associated with reverse hybrid mail.

Our contribution analyzes these opportunities. The paper draws heavily from Schwarzingger et al. (2011). The main focus is on potential cost savings in physical delivery. Both the revenue creating and strategic positioning aspects of RHM exploit network effects which are shortly discussed, too. We present a stylized model which illustrates the effects of the introduction of RHM to a domestic delivery market. RHM may partially substitute physical delivery to the receivers' doorstep by electronic delivery. Discussing the most important determining factors of delivery cost, we derive break-even-sales of delivered letters per household such that RHM is economically feasible.

This paper explores the commercial opportunity of RHM for postal operators. Its remainder is structured as follows: Section 2 introduces the concept of RHM and its potential target groups. Section 3 discusses the value proposition of RHM while Section 4 presents regulatory aspects of it. Section 5 concludes.

2. Reverse Hybrid Mail – The Case of Swiss Post Box

How Reverse Hybrid Mail Works

Swiss Post offers an international hybrid receiver solution as the first postal operator worldwide “Swiss Post Box”. All previously known electronic post boxes or electronic delivery systems in different countries are relatively closely related to the Danish “e-boks” solution.

The reason why the Swiss Post did not choose to follow the path of e-boks is the inherent risk that the market and specifically end users do not accept this way of receiving letters, because it would be an additional channel to be managed. As long as consumers only receive mailings which were sent electronically, but not mailings which originally were sent physically, they always have to manage two redundant systems: Their physical postbox as well as electronically received mail.

Customers, especially in the retail market, prefer fully integrated solutions where they can manage their entire communication process with just one device. The Swiss Post Box is a fully integrated solution with which the customer can either receive electronically or physically sent mailings. It works as follows:

1. The sender sends a physical letter mail item to the receiver.
2. Inside the Swiss Post’s sorting center the letter is sidelined due to an own zip code of Swiss Post Box receiving customers.
3. The envelope of the letter is electronically scanned and the picture is sent to the customer’s e-mail account.
4. The customer then has the choice of either letting the letter be opened and scanned by the Swiss Post, forward-ship it to another location, deliver it to his desk, deposit the check, recycle or shred the letter, securely archive the paper original or securely archive the scanned pdf.

Hence, in contrast to hybrid mail which involves digital data being transformed into physical mail items at distributed print centers located close to the final delivery addresses, RHM is physical mail which is scanned on the receiver’s request.

Target Groups for Reverse Hybrid Mail

There are potentially three strategic target groups for RHM services: Frequent travelers, which have so far been targeted by the Swiss Post Box, retail customers (mass market) and corporate customers (in-house post, mailrooms). The retail market may be further divided into three groups, which are clustered by the complexity, cost and efforts necessary to serve them with physical delivery services: City areas with a relatively high number of households located close to each other, suburb areas with a medium number of households relatively close to each other and rural areas with households separated from each other.

The initial target group of frequent travelers reacted very positively to the new service and showed a significant willingness-to-pay. However, currently this market is still a niche with an estimated two to five percent of the Swiss population. Because the Swiss Post Box was targeted at this group of customers, today it

is still meant to be and perceived as a niche product. The operation of the RHM process is still done manually to a large extent and therefore very costly. However, RHM offers a large potential for automation.

Because frequent travelers only account for approximately two to five percent of the total Swiss population, the according market is considered to be niche and therefore not interesting for a rollout strategy which sets out to achieve cost-advantages depending on economies of scale.

The focus of this paper lies on the examination of a possible opt-in scenario for the mass (retail) market for two interacting reasons: In order to quickly achieve economies of scale and therefore the full cost-saving potential of the electronic delivery of letters, a full RHM system requires the rapid build-up of a convenient network to achieve the critical mass of delivered letters. Such a network, however, requires the technological abilities to cope with large numbers of handled letters and therefore capable and modern machines and mechanisms.

3. The Value Proposition of Reverse Hybrid Mail

The commercial potential of RHM results from its two major economic characteristics: It creates network effects and it allows for considerable cost savings compared to physical delivery. These two aspects will be discussed in more detail in what follows.

Network Effects

One of the greatest opportunities of RHM, especially if it is offered for free, is that it very quickly could become a large network. The unique selling proposition of such a network in comparison to other social networks is that established postal operators can be positioned as trusted third parties with verified data about their users: In contrast to established social networks, where the verification of users' postal addresses lies totally on the users themselves, national postal operators can guarantee that the used postal addresses are the actual addresses of users and not made up or intentionally faked. The value of such a verified network is potentially huge. The specific advantages of the Swiss Post (and postal operators in general) in establishing such networks are:

- The Swiss Post is a strong brand with a huge popularity within the population and strong brand values like reliability, trustworthiness and security. According to Keller (2008), the "power of a brand lies in what customers have learned, felt, seen, and heard about the brand" (p. 48), i.e., the customer's mind-set. He develops a theory that identifies two key elements of mind-set equity (see also Aaker 1996 or Keller and Lehmann 2003): (1) awareness and familiarity, and (2) strong, favourable brand associations. The brand of the Swiss Post has not only a high awareness and benefits from familiarity in the Swiss society but is also related to strong favorable associations. Therefore consumers trust the Swiss Post to deliver letters and information with a maximum level of privacy – a much higher level of privacy as other digital information brokers such as Google or Facebook.

- Cross-border, the service Swiss Post Box is associated with Switzerland as a country and therefore with values like reliability, trustworthiness, high quality, security, neutrality and discretion (“Swissness”).
- Regarding the threat of new entrants into the post market in liberated market situations, a service like Swiss Post Box is very powerful in customer retention.

Additionally, a variety of potential additional services arises around the offering of an electronic delivery of letters: Print on demand services, bulk mailings or the selling of front end devices as a part of the RHM solution.

Finally and considering the mentioned trend of the ongoing digitalization, an electronic post box service as a part of the service portfolio of a national postal operator could help reducing correlation risk by differentiating the service portfolio and prepare the postal operator for future developments. Swiss Post therefore can act as a good example of what national postal operators should try to achieve: Carry-over their strong image and reputation as logistic companies to the digital world.

Cost Savings

This section discusses a simple and stylized base-model of physical delivery to receivers’ doorstep. Figure 2 illustrates a stylized delivery route. The base-model is based on the following assumptions:

- The mailman’s main route is neither dependent of the number of households to be served nor on the number of mail items to be delivered. Hence, it constitutes fixed cost.
- In addition to the main route, a mailman has to walk a household-specific route. It depends on the number of served households. These costs are assumed not to depend on the number of delivered letter items.
- In addition to fixed costs, there are marginal costs associated with the delivery of letter items.

There are therefore three possible ways in which the electronic delivery of letters relate to physical delivery to the doorstep:

1. RHM can substitute part of the physical delivery of single letters. In this case, customers receive scanned envelopes or letters by e-mail and then decide if they actually need these letters to be delivered within the next two or three days. This saves only marginal delivery cost.
2. RHM can substitute part of the physical delivery to single households. In this case, households receive scanned envelopes or letters of their entire mail by e-mail and then decide if they actually need those letters to be delivered within the next two or three days. This saves household-specific routes which are typically long in rural areas only, where the distances between clusters of households are bigger than in city or urban areas.
3. RHM can substitute parts of an entire route (incl. main route) by not delivering letters physically on a daily basis anymore. In this case, entire regions receive scanned envelopes or letters of their entire mail per e-mail

and then decide if they actually need those letters to be delivered within the next two or three days. This saves the entire cost of physical delivery.

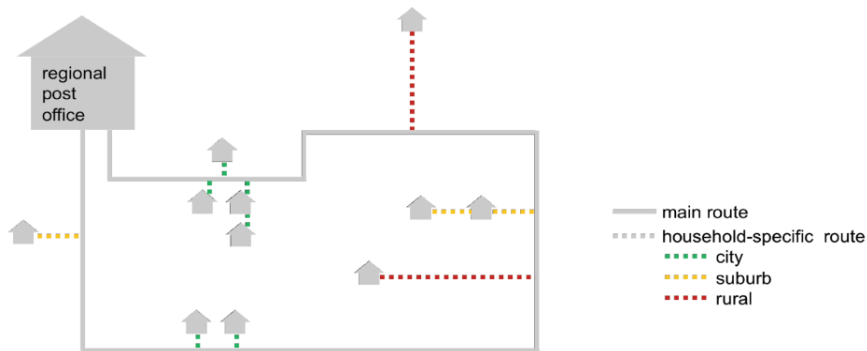


Figure 2: Stylized delivery network.

The consequences of the above assumptions are:

- The costs of (physically) delivering letters to households by walking/driving which originate from the main route of the mailman are fixed and independent of the number of letters and households.
- The costs of (physically) delivering letters to households which originate from walking/driving the household-specific route of the mailman are variable and dependent on the number of households and partly on the number of letters per household.
- The biggest and financially most important potential for cost savings lies in the replacement of entire routes – the fixed cost – by the introduction of RHM or by complementing it by delivering letters electronically on a daily basis and delivering physically only once or twice a week.

The biggest potential for cost savings in delivering letters to receiving customers lies in rural areas because of the typically longer distances between single households compared to suburb and city areas. The reason is that the costs for delivering letters to single households are low and mainly variable whereas the costs for permanent and planned tours are potentially very high and mainly fixed.

The introduction of RHM to a rural area within this very simple model therefore accounts for a positive (financial) impact if the following condition holds:

$$\textit{unit cost reduction of physical delivery} \geq \textit{unit cost of electronic delivery via RHM}$$

Calibrated with Swiss data, Figure 3 shows the delivery cost per mail item for the 1-, 2- and 3-quartiles of Swiss households with respect to incremental delivery cost (city area, suburb area, rural area).

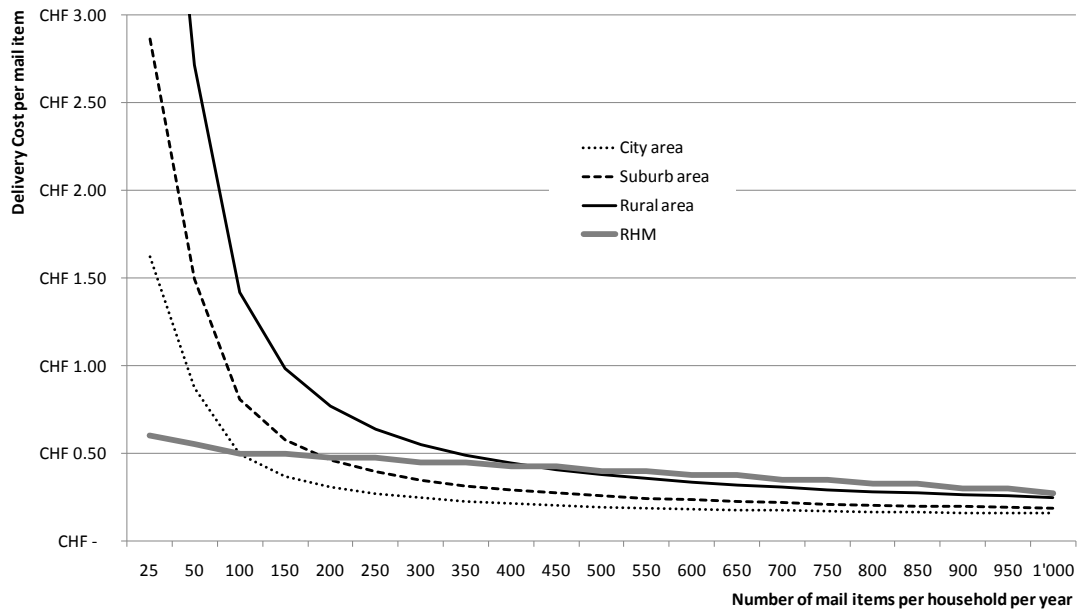


Figure 3: Unit cost of physical delivery and reverse hybrid mail.

It implies that the break-even number of mail items per household per year is about 130, 250 and 460 for the three quartiles, respectively. This implies that the higher delivery costs are, the more items are necessary to rationalize physical delivery to the doorstep. Therefore, the commercial feasibility of RHM strongly depends country-specific mail volumes (in addition to delivery cost).

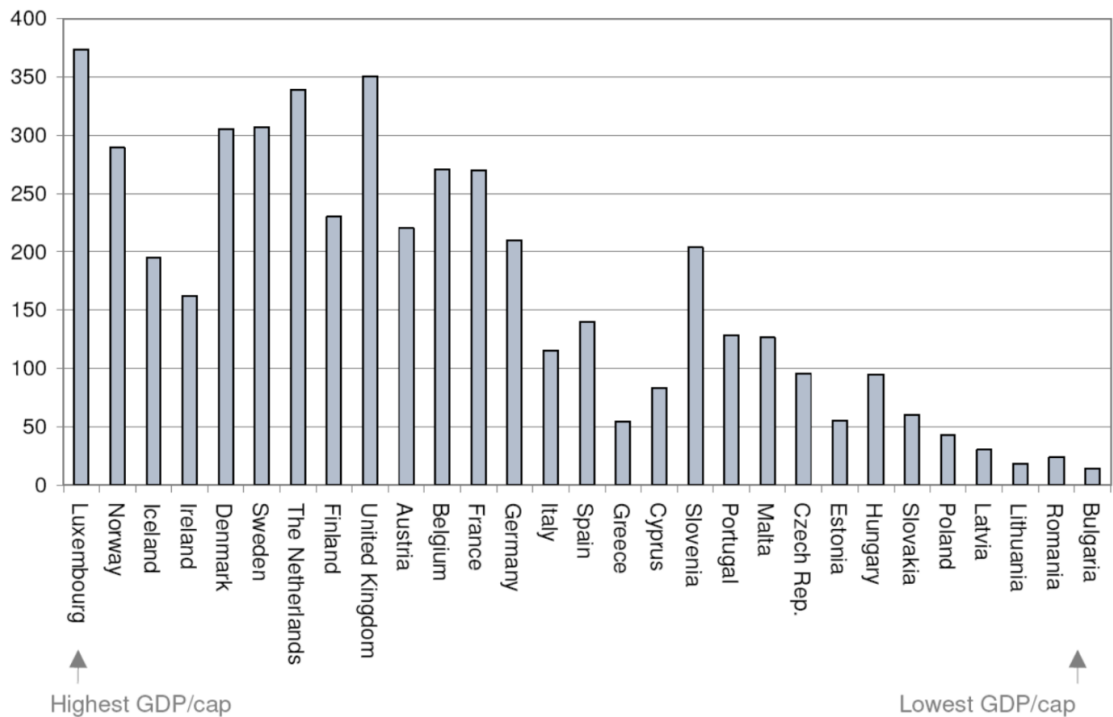


Figure 4: Addressed mail volumes per capita in the EU, Norway and Iceland 2006. Source: Ecorys (2008).

Figure 4 shows the number of addressed letters per capita in European Countries. Given that the break-even number of mail items as high as 460 for rural

areas (3-quartile) and the maximum number of items in Luxemburg amounting to 370, it becomes apparent that there is a huge potential for RHM services. This is especially true for countries with low mail volumes per capita.

While in urban and city areas, which are characterized by comparably short delivery times, the advantages of RHM are outperformed by the economies of scale of the home delivery system, in regions which are comparably expensive to physically serve (rural areas), electronic delivery is a valid option.

With an RHM solution, letters may be (electronically) delivered to households in hard-to reach areas on a daily basis. In addition, physical delivery only takes place on two or three days a week. A customer survey found that (see van Heel et al., 2011): “the current service level exceeds receivers’ requirements for delivery frequency, speed, quality, and predictability.” Specifically, the survey concludes that the majority of customers’ needs can be satisfied by only two free deliveries per week: “To better understand the receiver requirements, The Boston Consulting Group surveyed 5,600 mail receivers in 14 countries (...): Australia, Austria, Canada, France, Germany, Italy, the Netherlands, Norway, Russia, Spain, Sweden, Switzerland, the U.K., and the U.S. In each country, we surveyed 400 mail receivers aged 18 to 65 (...). The results of the receiver survey show that postal operators exceed receivers’ service requirements on all service parameters. (...) In fact, 32 percent of receivers said that they use their mail directly on the day of arrival. Only 7 percent indicated that daily delivery was a minimum requirement (...). Furthermore, when they were asked whether they would be willing to pay a small fee for continued daily delivery, 68% of receivers said that they would prefer two deliveries per week at no charge.”

Hence, the introduction of RHM is able to significantly reduce the cost of postal operations while at the same time fitting customers’ needs better than traditional postal services. However, these effects rely on the assumption that a postal operator is actually allowed to introduce an electronic delivery system of letters to entire regions and to thereby partially substitute the physical delivery to the doorstep.

4. Regulatory Aspects

As far as potential cost savings are concerned, the commercial viability of RHM services depends on the regulatory framework which may impose certain infrastructures and processes irrespective of actual demand. The most prominent example is the universal service obligation (USO). The USO in most countries includes a minimum range of products and services, together with constraints on accessibility to the postal infrastructure as well as quality and delivery frequency and ubiquity requirements. The latter prevent postal operators from developing new modes of delivery because the traditional delivery process cannot be abandoned.

Hence, the commercial success of RHM depends on a technologically neutral formulation of the USO. This means that the focus is on the satisfaction of consumer needs, not on the technology used to achieve it. For example, if the main

needs of recipients concerning postal services are physical and timely delivery, the technology used by the operator is of little interest. Being a secure electronic complement to the physical mailbox, RHM solutions improve physical delivery and save postal operators' costs at the same time.

If receivers are connected to a broadband network, they can receive the digitized letters via email instantly. The physical delivery with a combined bundle of items may complement electronic delivery two or three times a week. With such a combination of physical and electronic mail, the customer's need for physical and fast delivery is satisfied. For the special case of high value or emotional value mail as for example love letters, or for the case of very urgent mail, it is still possible to pick up letter mail items at the P.O. box or to order physical delivery with reduced frequency.

In light of the above considerations, a future-oriented postal USO with respect to letter mail delivery may be outlined as follows (see Jaag and Trinkner, 2011). The universal service provider is required to offer at least one letter service that ensures compliance with a set of obligations that are related to speed, reliability, affordability and uniformity. On the sender side, the regulation of collection is limited to the nationwide availability (ubiquity) and accessibility of the basic service. Thereby, no particular form of collection is presumed (e.g. post offices) to enable customer-friendly adaptations of the postal network over time including online solutions where this is feasible. On the receiver side, the standard mode of delivery remains home delivery for letter mail. However, daily physical delivery may not be required explicitly or receiving customers may be given the choice to opt out of being served physically every day. Such options may depend on the availability of electronic complements like a RHM service. Hence, postal service providers will be flexible enough to adapt their product range over time to the changing needs of consumers as long as the basic requirements are still met.

5. Conclusion

In the advent of market liberalization and with the availability of electronic substitutes to physical mail, the traditional characteristics of letter mail have started becoming blurred. Moreover, with the availability of new electronic means of communication, also consumer needs and preferences have changed. One possible reaction to these challenges and to enter and build up a digital postal market is the introduction of a reverse hybrid mail system. A backwards compatible RHM system ensures compatibility of the physical and electronic worlds of communication. For postal operators it creates opportunities due to network effects and potential cost savings compared to physical delivery.

The attractiveness of RHM is linked directly to the delivery cost structure and the number of delivered mail items: The higher the unit cost in a delivery area and the lower the amount of delivered letters to households within this area, the more attractive RHM becomes. We therefore find that RHM is economically most reasonable in rural areas. There, potential cost-savings may suffice to warrant the introduction of such a system – even without charging customers for it and neg-

lecting aspects of strategic positioning. A critical prerequisite is a definition of universal service obligations allowing customers to (partially) opt out of the physical delivery of their mail. This may necessitate regulatory reform towards a technologically neutral definition of the USO.

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