White Paper

THE VALUE OF SELF-SERVICE V2.0
OPEX REDUCTION AND NEW REVENUE STREAMS

Glossary of Terms

Term	Description
RTSS	Real Time Self Service
ARPU	Average Revenue per User
OPEX	Operating Expense
MNOs	Mobile Network Operator
Self Service v1.0	Mobile Smart Phone App custom developed to MNO's OPEX reduction specification
Self Service v2.0	Mobile Smart Phone App designed, built and supported as a Standard product for OPEX reduction and Revenue upsell
COTS	Commercial off the shelf – a description of Standard product software
TMF	Tele Management Forum- An industry lobby & standards body
BSS	Business Support System
PCRF	Policy Control Function
LTE	Long Term Evolution, the mobile broadband standard known as 4G
IVR	Interactive Voice Response
SMS	Short Message Server
OOTB	Out of the Box – term to describe standard Software Application that requires no customization for deployment

Contents

Credits

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1 Executive Summary

In 2016 Northstream Telecom Consultants conducted a research study - the purpose of which was to determine the potential gains Western European Operators could realize through the deployment of what it calls Real-time Self-Service (RTSS). That is the ability for customers to have a superior customer experience by interacting via an App on their smartphones with a digitally mature service provider in near real time.

Northstream's conclusion was that business benefits of **€4.7 Billion** could be realized per year across Western European operators through advanced Real Time Self Service applications.

The operational benefits come from two areas;

1. **Increased usage of data services and low cost sales of new offers resulting in higher data ARPU,**

2. **OPEX savings from reduced customer care costs.**

The study highlighted that Mobile Network Operators (MNOs) focus almost exclusively on OPEX savings when judging investments in Self Service. This is because OPEX savings are tangible, measurable and in comparison, to revenue generation, easier to forecast. Furthermore, the traditional self-service applications (Self Service v1.0) were custom developed to MNO's OPEX reduction specifications and lack the revenue generation capabilities of the latest standard 'commercial off the shelf' products now available on the market as well as their support for standard, simplified customer journeys (Self-service v2.0).

The study identified that a dedication to reducing OPEX is preventing MNOs from realizing the true revenue potential: at €541m, OPEX savings are significant but represent *only 11%* of total potential gains for Western European MNOs. The true scope of what can be realized can be attributed to revenue gains from the extensive opportunities for digital innovation that are enabled by Self Service v2.0.

These opportunities stem largely from an underserved prepaid and converged Pre and Post paid data market: The potential revenue gain from the prepaid and the convergent pre and post paid segment is, in relative terms, **3 times** the size of the already significant postpaid segment. Following the introduction of smartphones to the postpaid market, the majority of Western European operators have focused on providing data products to this segment – resulting in comparatively fewer data plans made available to the prepaid market. Northstream states that RTSS will enable Western European operators to be innovative and widen their portfolio of data products for this segment. Moreover, akin to existing deployment examples in Asia and North America, RTSS web interfaces/apps will work as a channel for end-customers to discover, explore and subscribe to new services.

2 The Potential of Self Service v2.0

Self-service has been available in the telecom industry for a long while, materializing in many forms including: IVR, SMS, web-platform, and even operator's simple proprietary mobile apps. The primary objective of these self-service tools has been to reduce operational expenses by reducing the number of customer enquiry calls to operators' contact centers. That purpose was served well to some extent.

However, recent innovation in standardized commercial off the shelf applications (COTS) is presenting the industry with Self-Service v2.0. This new generation of Self-service Apps, where available to customers, are very popular due to the rich interface enabled by smartphone app delivery. Crucially, self- service is now a lot more dynamic and powered by near real-time capabilities for high context awareness and strong performance delivered from the cloud.

Self-Service v2.0 grants end-users a high level of control over their pre/postpaid service. In its simplest form, it enables end-users to independently perform self-care operations, such as checking an account to view up-to-the-minute balances, or buying of new packages. However, its full potential allows end-users to take call minutes, SMS messages, data MB's or even customer loyalty points and to transform between them for a small transaction fee based upon a 'exchange rate' set by the operator to speed up consumption and allow rapid revenue recognition for the MNO. These resources could also be gifted between customers to further increase consumption and provide a real feeling of control and flexibility in the hands of the consumer thus engendering loyalty. By integrating with the networks policy control (PCRF) the flexibility to offer and control temporary increases in network access speed either generally or for specific apps can be enabled, or paid for by advertisers wishing to promote for example the latest block buster film preview directly to the consumer's device in high definition – truly revolutionizing the customer experience currently observed in Western Europe. This full potential is in part based upon the Apps ability to expose in a simple way the capability of the existing back end services usually hidden from end customers in most operators BSS.

The business value of self-service v2.0 transcends even the ability to enhance the customer experience. In a time when MNOs are concerned over declining revenues from traditional services, self-service v2.0 provides an opportunity for operators to generate new revenue streams in addition to the discernible benefits of increased customer retention and an invaluable competitive advantage.

Now Self-service v2.0 capabilities are now being realized via smartphone apps, it can act as a tool through which customers can discover and explore new services, thus enabling operators to introduce innovative new data products and pricing models which drive growth in data ARPU.

A new revenue stream could materialize as a service whereby the MNO simply charges a fee for small transactions, for example: a postpaid subscriber wishes to make a call but via the Self-service app she has discovered that her voice credits are almost depleted. Instead of choosing not to make the call-in order to avoid unpredictable overage charges, she simply transforms or converts unused resource credits (e.g. text messages or data allowance) to boost her available minutes – a convenient, effortless act for the customer and a monetized service for the operator.

Furthermore, revenue can derive from self-service v2.0 solutions specifically targeted at cost-conscious customers, including the provision of real-time consumption monitoring and micro-payments for apps by the hour/day. As discussed below, such services have been proven to introduce otherwise 'priced-out' customers to the mobile internet and consequently generate significant increases in data ARPU.

Less tangibly, but highly intuitive, providing customers with more control over their services and spend gives them confidence to spend more. The industry witnessed this with the introduction of prepaid mobile services, which encouraged millions of people to start using mobile phones. Self-service v2.0 provides a new level of control, especially for data services spend which still causes confusion and concern for many mobile phone users.

3   Research Background & Methodology

Northstream telecom consultants conducted a study on the potential gains Western European operators could realize through the deployment of Real-time Self-Service (RTSS). The common notion is that the revolutionary level of control and flexibility enabled by RTSS holds the potential for OPEX savings and new revenue streams, but there is a lack of empirical evidence to support this theory. Moreover, there is a lack of evidence to prove the value of these savings/revenue streams and whether they are achievable in both prepaid and postpaid segments. This research was undertaken in order to provide verification of these points.

The initial stages of this research were to ascertain the impact Self Service capabilities have had on OPEX and revenues for selected Asian and North American operators. These regions were selected due to the advanced nature of the Self service v2.0-like capabilities in-use. Moreover, the disparate contexts of these regions (North America predominantly postpaid; Asia predominantly prepaid) was deemed an interesting element for exploration.

Northstream conducted in-depth analysis of the selected operators' financial reports to estimate the financial benefits which could be attributed to the introduction of RTSS. Numerous interviews with senior operator personnel and industry experts were used to validate the conclusions drawn from the research. This knowledge then acted as a foundation on which an initial set of Business Benefit theories were calculated. This approach extrapolates trends from markets that have launched RTSS mechanisms and applies them to markets (in Western Europe) which have not been as innovative in this regard.

In order to test this approach in detail, Northstream sought to estimate the financial benefits operators from two European countries with disparate contexts could have realized if they had launched advanced Self Service capabilities in 2012 as an example year. Italy was selected because it is a predominantly prepaid market with minimal LTE penetration at the time, and Sweden was selected as it presented a contrast to Italy in being a predominantly postpaid market with a high degree of 4G penetration. To model take up of Self Service capabilities two adoption scenarios were considered.

In order to validate these, initial estimations, Northstream conducted a further round of interviews with industry experts. The refined Business Benefit Models for Italy and Sweden were then applied to Western Europe as a whole in order to generate a formula which reflected the mix of contrasting end-user markets within this region. The final result is a powerful analysis of the potential impact of RTSS-like capabilities via key operating metrics: service revenues, data revenues, data ARPU, and OPEX.

4 Existing Self Service Deployment Examples

Whilst analyzing the impact of Advanced Self Service v2.0 on selected Asian and North American operators, it quickly became evident that, by comparison, West European data products are in their infancy, lacking the innovation seen elsewhere. In the US, the recent adoption of novel shared data plans, the real-time mechanisms for end-users to self-care/monitor such plans, and replacement of all-you-can-eat data offers with easy to buy data packets are being seen as key drivers for increases in data ARPU.

The launch of shared data plans was made possible by large investments in network modernization (LTE), smartphone subsidies, innovatively packaged data offering, related marketing campaigns, and investments in Self-service as a key enabler. Moreover, the web interfaces/mobile apps on which Self-service-like capabilities are delivered have allowed operators to promptly introduce new services to customers. Within a year of deploying their shared (limited) plans, the two operators studied saw data revenues rise 9% and 17%, respectively, overcompensating the declines witnessed in voice revenues.

Innovations in Asia have been predominantly focused at the cost-conscious prepaid markets and materialized as micro-payment products and services (e.g. payment for an hour's access to Facebook or Twitter) and methods to allow near-real-time monitoring of data consumption. These functions have been made possible through near real time self-service and have contributed to substantial data ARPU increases over the last year. These pay-as-you-go (like) mechanisms have enabled cost-conscious customers to explore new data services. Bharti Airtel in India increased data revenues by 90% YoY, and Digi Malaysia increased prepaid data revenues by 23%.

The deployment examples discussed above provide evidence that Self Service v2.0-like capabilities do enable operators to launch innovative new services that generate additional revenue, the business value of which is substantial. The analysis also proves that the benefits can be realized in both prepaid and postpaid markets. Typical North American and Asian end-customers are diverse, but the operators working in these regions have employed Self Service v2.0-like capabilities to suit the unique requirements of their domestic audience.

The fact that data services in Western Europe are comparatively underdeveloped is not a point for dismay, on the contrary, analysis shows that advanced RTSS deployments provide an opportunity for operators to realize **€4.7 billion** in just 12 months, through enabling innovative new data services and pricing models, as well as reducing customer care costs.

5   The Benefits

5.1   Sweden & Italy

Northstream's Business Benefits Model estimates that in one year, operators in Sweden can realize **€120 million.** Mobile networks in Sweden are technically advanced, with LTE accounting for around 5% of subscribers in 2012 (the year of early adoption of 4G chosen for the modeling exercise). Consequently, data consumption tripled during 2010-2012. However, Sweden has not been able to fully monetize mobile data growth as service revenues and postpaid data ARPU remained flat YoY in 2012.
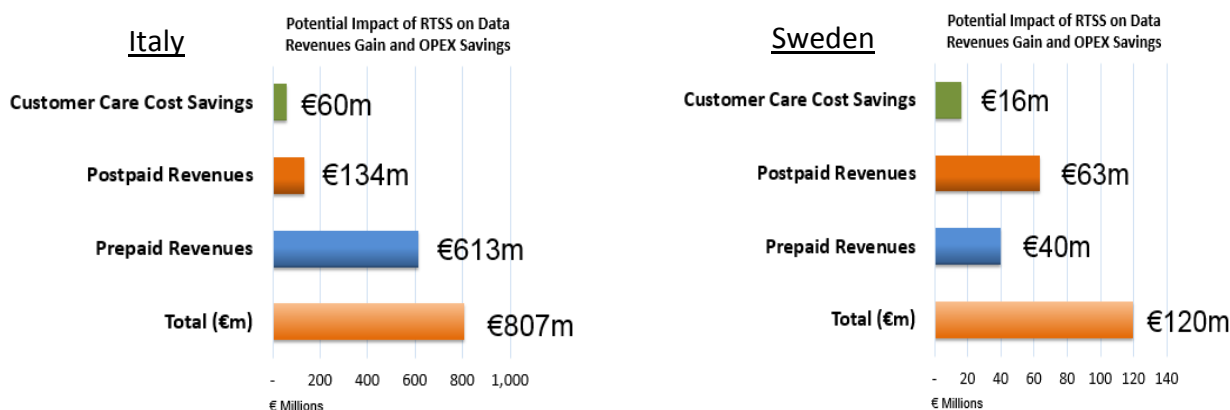

Figure 1: Potential impact of RTSS on data revenue gains and OPEX savings in Italy and Sweden

Northstream supposes that the simultaneous discontinuation of unlimited plans and the introduction of shared (limited) plans could be an opportunity for operators to monetize data services. As proven in North America (which has a similar context to Sweden), *Self Service is fundamental to the success of shared data plans: the ability to control and monitor subscriptions independently, in near real-time, is critical when multiple devices are sharing the same quota. Northstream estimates that operators could boost postpaid revenues by €63 million thanks predominantly to the implementation of such plans.*

An incorrect assumption for the research of the Swedish market is that the prepaid segment is of little importance, deemed a low priority due to a perceived lack of smartphone penetration and interest in data services. However, of the 31% prepaid subscribers, only 10% are observed as having low data usage. Northstream believes that the prepaid segment represents an untapped opportunity for Swedish operators worth **€40 million**. As proven in Asia, self-service can unlock mobile data for prepaid customers and act as a tool for service discovery.

In contrast to Sweden, Italy's mobile data penetration is less advanced, with only 0.1% LTE penetration (2012). Regardless, demand for data is strong, having doubled from 2010-2012. However, since 2010

both service revenues and postpaid data ARPU have declined -19%, respectively. Akin to Sweden, it seems that Italy is also failing to monetize mobile data growth.

The Italian market is predominantly prepaid, but whilst this implies low smartphone penetration, Northstream believes it provides operators with opportunities to increase their data customer base and monetize the mobile internet. At present, all Italian operators have mobile self-service v1.0 applications but web and SMS remain the predominant self-care channels and adoption is relatively low due to the poor customer experience of the first-generation apps.

Despite offering a variety of complex subscriptions (which are available to all subscribers irrespective of whether they are prepaid or postpaid) to suit cost-conscious Italians, they are all focused-on voice and SMS. Italian operators are failing to explore the possibility of data-centric tariffs which encompass the micro-payment methodologies seen in Asia.

Northstream believes that such data oriented products combined with a simple Self Service discovery channel could significantly increase the number of data subscribers as only 57% of smartphone owners currently have a data plan. Self Service represents an opportunity to drive personalized offers and enable prepaid subscribers to try new services in an affordable manner. According to the model, in just one year, Italian operators could realize **€613 million** from the prepaid segment alone.

Italy has recently witnessed a surge in postpaid subscriptions, with a 25% YoY rise in 2012 driven by increasing demand for smartphones. As in Sweden, shared data plans represent an opportunity for Italian operators to increase the adoption of postpaid data services. Northstream estimates that Italian operators could realize **€134 million** chiefly as a consequence of adopting shared (limited) plans.

In adopting the recommended Self Service v2.0-like capabilities, Sweden and Italy could realize substantial OPEX savings of €16m (14% of total) and €60m (7% of total), respectively.[2] As discussed in greater detail below, this can be attributed to reduced calls to customer services as a result of providing customers with enhanced self-care platforms.

As illustrated in *Figure 1*, the total financial benefit operators in Italy could realize through the adoption of Self Service v2.0-like capabilities is **€807 million**. This equates to 5% of annual service revenues, compared to 3% in Sweden. The higher percentage can be attributed to the greater opportunities available for data- centric tariffs given the comparatively low percentage of subscribers currently possessing a data plan and the relatively high percentage of prepaid subscribers

Despite the contrasting contexts of these countries, the recommendations of Self Service v2.0 implementation are similar due to the common issues of operators failing to monetize data services and to recognize the potential for data users within the prepaid segment.

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[2] The comparatively higher percentage attributed to OPEX savings in Sweden is primarily due to the higher proportion of postpaid subscribers and the lower penetration of Self Service applications among smartphone users.

5.2 **Western Europe**

Northstream's analysis found that if Western European operators deployed advanced Self Service v2.0 capabilities, they could realize, in just one year, benefits amounting to around **€4.7 billion.**
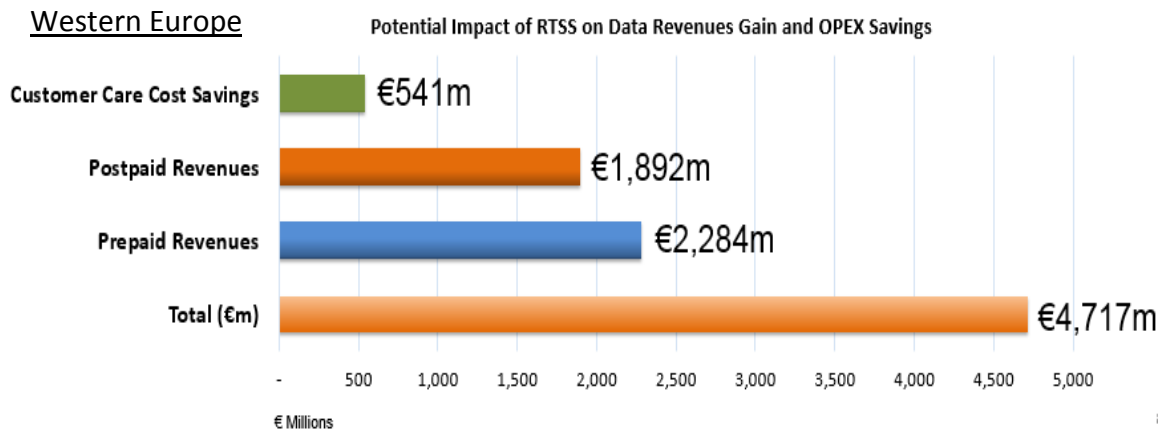

Figure 2: Potential impact of RTSS in Western Europe

According to Northstream, the operational benefits of Self Service v2.0 are twofold. As can be seen in Figure 3 below, the benefits can be realized via service revenues through increased data users and higher data ARPU, and via OPEX savings due to reduced customer care costs.
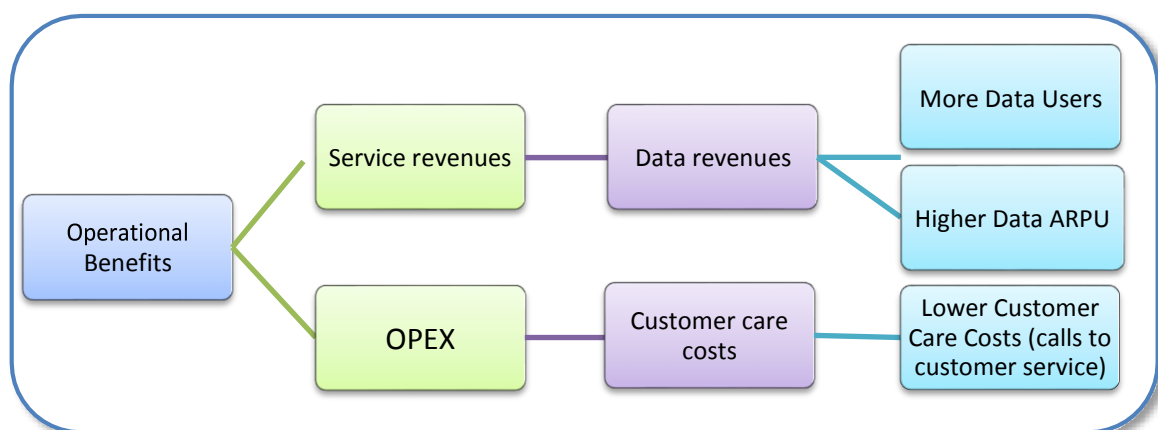

Figure 3: Model for calculating the benefits of RTSS

5.3 OPEX Reduction

Self Service is not just a client interface solution; it requires advanced backend billing, charging, and policy control capabilities which operate in near real-time. The price of deploying Self Service is often justified only in terms of OPEX savings rather than potential revenues gains. This is perhaps because OPEX savings are tangible, measurable and in comparison, to revenue generation, easier to forecast. Moreover, the fragmented nature of existing legacy systems has prohibited some operators from even considering the revenue opportunities believing that inherent complexity precludes effective upsell. However, Self-service can be a tool for radical simplification and provide a single user interface to front multiple back end billing system and business processes.

Western European operators are expected to realize around **€541 million** from OPEX savings (11% of total potential gains). As illustrated in Figure 3 above, the savings can be attributed to lower customer care costs as a result of fewer calls to customer service centers. Northstream's research found that despite the challenges associated with deploying self-care solutions, there is strong subscriber demand. The majority of this demand derives from younger generations who tend to dislike customer call centers, and prefer to use mobile applications as their primary care channel.

5.4 Increased Service Revenues

Northstream expects Western European operators to see around **€4.7 billion in revenue gains through deploying Self Service v2.0.** Despite MNOs focusing almost exclusively on OPEX savings when considering the deployment of a Self-Service solution, it represents *only 11%* of total potential gains. The enormity of what can be realized can be attributed to the extensive opportunities for innovation enabled by commercial off the shelf self-service v2.0 applications.

5.4.1 The Revenues Opportunity in Western Europe Stems Largely from an Underserved Prepaid Data Market

The potential data revenues gain from the prepaid segment is, in relative terms, **3 times** the size of the postpaid segment (i.e. on a per user basis). In just one year, operators can realize about **€2.3 billion** from the prepaid segment alone.

Since the introduction of smartphones to the postpaid market, the majority of Western European operators have focused on providing data products to this segment. This has resulted in a higher share of postpaid subscribers and fewer data plans available to the prepaid segment. Northstream believes that RTSS will enable operators to widen their portfolio of data products for the prepaid segment. Moreover, deployment of an RTSS mobile app will enable prepaid subscribers to discover/buy new data services, thus generating additional revenue.

In adopting self-service v2.0 capabilities, Western European operators can offer innovative data services targeted at the prepaid market similar to those seen in Asia. In doing so, Western European

operators can begin to build data plan penetration among smartphone users and fully monetize such data services for all subscribers, both prepaid and postpaid.

6 Conclusion

Self Service v2.0 or RTSS has the power to revolutionize a mobile operator's service offerings, with substantial monetary gains. Northstream's research has established that the benefits of RTSS extend beyond improving customer experience and are centered on enabling innovations in data products and pricing for both prepaid and postpaid subscribers. A win-win for both the operator and the end customer.

The backend billing/policy control mechanisms necessary for RTSS capabilities to be realized may require investment mainly to expose services in a service orientated architecture. Self-service v2.0 can best deliver on its potential if enabled by back end systems including real-time charging and policy controls, and complemented with other key initiatives including: network upgrades, device subsidies, innovative data-centric pricing and relevant promotional as well as educational marketing.

However, Customer self-service v2.0 solutions such as AwareX enable the end consumer to experience integrated pre-and post-paid accounts, simple intuitive business processes and a common operator brand experience. This enables apparent simplification of the IT environment for the consumer, driving enhanced customer experience and increasing propensity to explore and buy new products and services at a reduced cost to serve. Such technological innovation in BSS can enable operators who have previously dismissed Self-service v2.0 / RTSS due to the constraints of their convoluted legacy BSS to now fully embrace it and realize the wealth of customer and financial benefits on offer.