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*Is Internet Banking Profitable?  
A Study of Digital Insight's  
Offering*

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**TABLE OF CONTENTS**

*Is Internet Banking  
Profitable? A Study of Digital  
Insight's Offering*

EXECUTIVE SUMMARY .....	3
INTRODUCTION .....	5
A FINANCIAL MODEL FOR INTERNET BANKING .....	6
OVERALL ASSUMPTIONS .....	6
BENEFITS .....	8
NEW REVENUES FROM TRANSACTION AND USER FEES .....	8
COST SAVINGS .....	9
CROSS-SELLING .....	10
CUSTOMER RETENTION .....	11
OTHER BENEFITS .....	12
COSTS .....	15
ANALYSIS OF DRIVERS OF PROFITABILITY .....	18
INCREASING PENETRATION OF HOME BANKING USERS .....	18
BILL PAYMENT .....	19
SUMMARY OF BENEFITS .....	22
CONCLUSIONS .....	24
APPENDIX .....	26

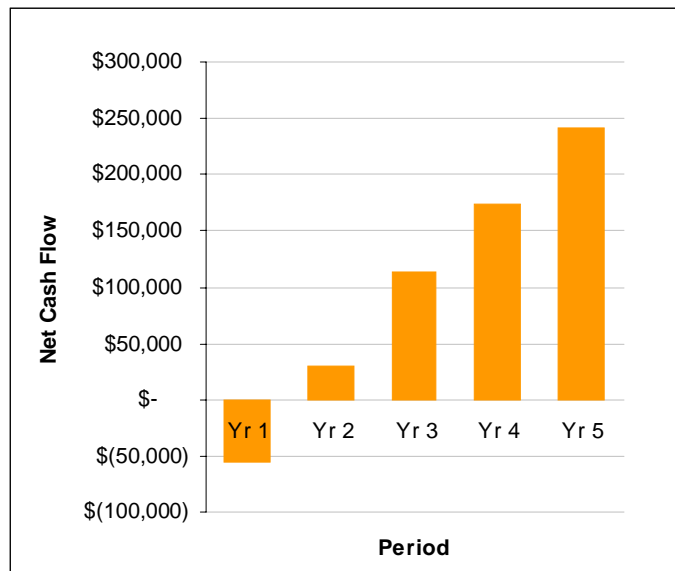
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## EXECUTIVE SUMMARY

Digital Insight (DI) has retained Celent to analyze the profitability of the Internet banking services it offers. Celent has created a financial model of DI's offerings and has applied this model from the perspective of a financial institution using DI's suite of services. This report outlines Celent's findings, assesses the overall profitability of the Internet banking services offered by DI, and analyzes the drivers of profitability.

**Figure 1: Net Cash Flows for Bank with 50,000 Customers offering Home Banking, Bill Payment, Cash Management, Cross Selling and e-Commerce Services**



Overall, Celent found that the Internet banking services offered by DI are typically profitable for financial institutions. The main sources of profitability include increased customer retention, reduced transaction costs, and improved cross selling opportunities. In the vast majority of cases, Internet banking did contribute positively to banks' bottom lines. It was only in the cases of extremely small banks (with fewer than about 10,000 customers), as well as in cases where the penetration of Internet banking amongst the bank's customer base remained unusually low, that negative returns were identified. **The typical bank using DI's service achieves a net present value of over \$5 per customer, representing a return on investment of over 60%.**

The findings of this report were validated using data culled from the over 1 million users of Internet banking services in DI's data center. The major areas of benefit of an Internet banking offering included:

- Additional revenues from transaction and user fees for on-line bill payment, lending, cash management and e-commerce portal offerings;
- Cost savings and improved operational efficiency;
- Opportunities for acquiring new customers and cross-selling new services to existing customers;
- Improved ability to retain customers.

**The costs of outsourced e-banking incurred by a financial institution include one-time implementation or set-up fees and on-going monthly fees.** Fees are set according to an institution's total asset size, total number of customers, and number of e-banking users. Institutions offset these costs by charging service and transaction fees back to its customers.

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## INTRODUCTION

No area in the banking industry has been showered with the attention that Internet banking has over the past few years. Early movers in Internet banking were lured by the promise of virtually cost-free transactions, as well as the prospect of reaching new geographies without having to create costly branch networks. This initial euphoria has given way to a far more tempered and skeptical view of the profitability and economic value of offering online banking services.

This report addresses the questions surrounding the profitability of Internet banking, and provides a financial model and a framework for analyzing the costs and benefits of Internet banking.

The ROI Calculator used in this report has been developed in conjunction with Digital Insight, one of the leading providers of hosted Internet banking solutions (See Celent, Communications report, *Ranking the US Vendors of Internet Banking Solutions*, January 2000). The data collected to drive the model is based in part on the experience of over one million consumers using Digital Insight's Internet banking services.

The model captures the costs and benefits to financial institutions of implementing e-banking channels for retail and commercial customers. The model calculates net present values of the costs and revenues generated when implementing different DI e-banking modules, either separately, or in combination.

The drivers of profitability for e-banking institutions, in order of significance, are increased revenues, operational and transactional cost savings, ability to generate cross-sales by encouraging traffic to the Web site, and the ability to retain customers through target marketing and maximizing the site's "stickiness value." Indeed, the expense of offering Internet banking is difficult to justify for smaller institutions on the basis of cost savings alone. Much depends on banks implementing lending, cash management and e-commerce applications on top of simple reporting and transaction capabilities.

Banks hoping to achieve significant profitability by simply providing customers with the ability to view their balances online are likely to simply break even on their investment. Achieving profitability in Internet banking requires banks to not only offer simple Internet banking services, such as reporting and bill payment, but to also use the time the customer spends on the bank's web site for cross selling and marketing.

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## A FINANCIAL MODEL FOR INTERNET BANKING

### OVERALL ASSUMPTIONS

This Internet banking model was developed jointly by Digital Insight (DI) and Celent Communications to forecast profitability for institutions implementing DI's Internet banking applications. DI provides financial institutions with an array of applications including home banking with electronic bill payment, check images, authenticated online applications, online statements modules, cash management, account aggregation, e-commerce financial services portal, and on-line lending applications for consumer loans.

The model calculates implementation and monthly operation costs, operational and transaction cost savings and new revenues attributed to e-banking activities. It also incorporates the value of customer retention, cross-sell revenue potential, and revenue sharing for banks implementing full e-commerce portal access to other financial services, including on-line brokerage, life and auto insurance, third party credit cards, Internet service providers and others. The model also calculates advertising revenue sharing on DI's account aggregation "dashboard" and e-commerce portal.

The model is designed to test profit sensitivity to such factors as the size of institution (in terms of both number of customers and assets), penetration of retail Internet banking customers that use bill payment, e-commerce or on-line lending services, and the percentage of commercial customers that use cash management. The model projects profitability measured in net present value and internal rate of return over a five year time horizon, considering anticipated migration of customers from traditional to on-line channels.

Certain default assumptions pertaining to start-up and ongoing implementation costs, transaction costs and expected cost savings associated with each online service have been built into the model. In most cases, users can either accept the default assumptions or substitute their own customized inputs. Variables include expected user penetration rates for home banking, bill pay, and cash management, and anticipated demand for an array of e-commerce portal financial services. The assumptions, such as penetration rates or customer retention, used for the model have been validated using data from a variety of banks. A summary of assumptions and default values used in the model are found in the Appendix to this report on page 26. The baseline scenario used throughout the report involves a small financial institution with 50,000 total customers at the start in 2000 (with about 500 commercial customers). Home banking is assumed to reach 20% penetration by 2005. Baseline services include home banking with bill payment, on-line lending and cash

management. The impact of adding account aggregation and e-commerce portal services was not reviewed in this study.

## BENEFITS

### NEW REVENUES FROM TRANSACTION AND USER FEES

The Internet enables institutions to realize new revenue streams through service and transaction fees charged to home banking users. These fees enable the institution to offset much of the expense incurred to provide the service. The types of fees charged by institutions using DI's Internet banking applications are detailed in Table 1 on page 7.

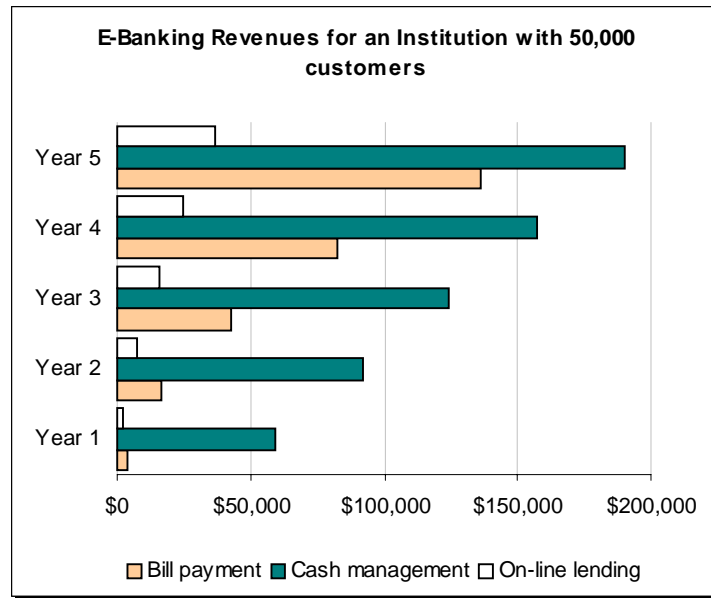
**Table 1: New revenues through user fees**

Module	Fees
HOME BANKING	Bill pay fee charged to end-user/bill paid
CASH MANAGEMENT	Monthly basic service fee Monthly report fee ACH transaction fee (per ACH) Monthly ACH fee Wire transfer fee (per wire transfer) Monthly wire fee
<i>Source: Digital Insight</i>	

Institutions can tap into an additional source of revenue streams by providing cash management services to wholesale/commercial customers. Once the Internet-based cash management system is in place, the institution has the ability to readily cross sell other value-added business services to business customers, (e.g., payroll, ACH direct deposit and bill payment, as well as other e-commerce offerings through the portal, such as brokerage, investment, insurance and credit services, retirement planning advice, and even 401(k) plan design and servicing). (See more discussion of the value of cross-selling on page 10.)

Five year cash flows from new transaction and user fees for bill payment, cash management, and on-line lending services for an institution with 50,000 customers are shown in Figure 2 on page 8. The net present value of transaction and fee revenues for the five-year period total \$596,261, or \$11.93 per customer. Fully 65% of these cash flows can be attributed to cash management transaction and fee revenues.

**Figure 2: Annual Cash Flows: E-banking transaction and fee revenues**



Source: Celent Analysis

## C O S T S A V I N G S

Institutions that have put services on-line have seen cost savings in back- and front-office operations -- from deposits, to statement processing, to loan application processing and customer service. The Internet helps an institution to streamline operations across the board. Cost savings is achieved primarily through less reliance on manual operations and call centers. Profitability is further enhanced by lower customer service costs realized through greater efficiencies in setting up new accounts, servicing consumer loan applications, handling balance and payment activity inquiries, answering requests for copies of checks, stop payments and address changes. The estimate savings realized for various transaction types and services are detailed in Table 2 on page 9.

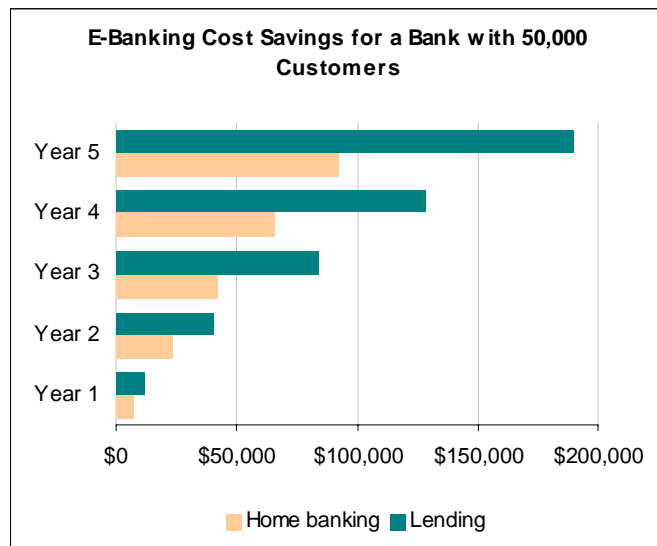
**Table 2: Transaction and Customer Service Cost Savings**

Module	Savings	Cost Savings
<b>Home Banking</b>	Savings per transfer	\$0.35
	Savings per electronic bill pay	\$0.03
	Savings per check image transaction	\$9.00
	Savings per stop payment transaction	\$5.00
	Savings per address change request	\$4.00
	Savings per online statement only request	\$1.50
Online Lending	Savings per Consumer loan application -- <b>from greater efficiency in processing</b>	\$8.00
	Savings per Consumer loan application -- <b>from reduced infrastructure costs</b>	\$18.00
	Savings per Mortgage Loan application -- <b>from greater efficiency in processing</b>	\$15.00
	Savings per Mortgage Loan application -- <b>from reduced infrastructure costs</b>	\$35.00

Source: Digital Insight and Celent

The ROI model calculates annual cash flows for an institution with 50,000 due to cost savings from home banking and on-line lending as shown in Figure 3 on page 9. The net present value of these savings over a five year period is \$399,235, or \$7.98 per customer.

**Figure 3: Annual Cash Flows: Cost Saving Benefits of Electronic Banking**



Source: Celent Analysis

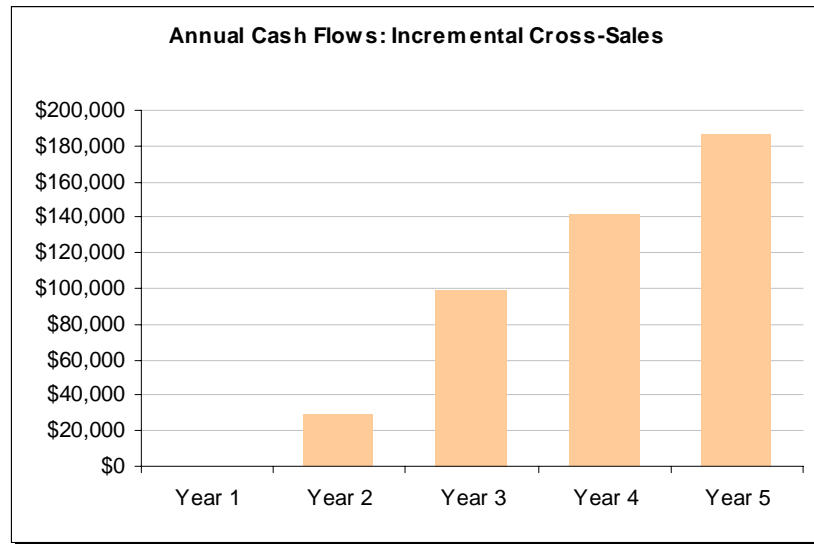
## **C R O S S - S E L L I N G**

Cross-selling is the most promising area for revenue growth for financial institutions. New customers are attracted to an institution through ease of use and the range of services they can get from one stop on the Web site. Based on empirical industry evidence, institutions see 10-15% more new proprietary account relationships with an online channel vs. offline channels.

For financial institutions that have already established an Internet banking service, on-line loan application and cash management modules can be added through an additional application delivered through the same Internet infrastructure. This easy add-on capability enables the institution to leverage more effectively its initial investment in setting up the Internet banking service.

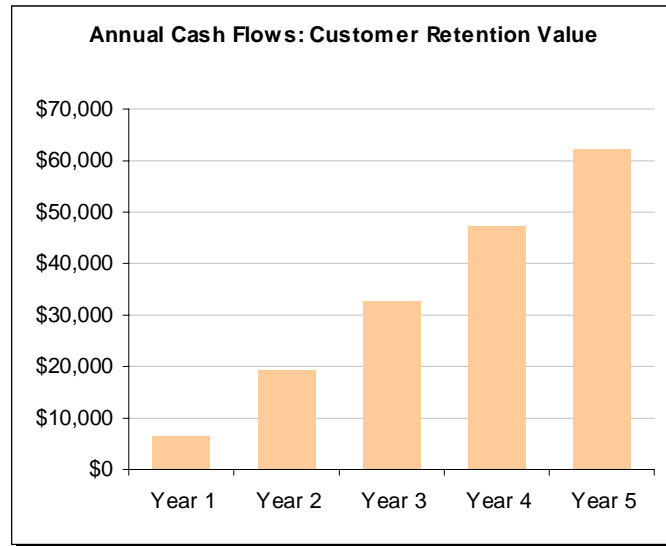
Retail customers may find on-line application for consumer and mortgage loans a more convenient alternative to off-line applications procedures. The financial institution benefits by streamlining operations and by being able to track and analyze usage by customers and broadcast marketing and service information to customers via messaging.

Celent's findings show that businesses can earn between \$15-\$50 for each customer who travels through a portal. Financial institutions could pay for Internet banking simply by bringing those customers through their portal. Additional revenues from cross-sell opportunities for an institution with 50,000 total customers are shown in Figure 4 on page 11. The net present value of these cash flows over 5 years is \$260,000, or \$5.21 per customer.

**Figure 4: Annual cash flows from incremental cross-sales***Celent Analysis*

## CUSTOMER RETENTION

As the full range of services is made accessible on the institution's Internet banking web site, existing customers will be more likely to stay with the institution and new customers will be enticed to join. On-line customers are more likely to become captive users of multiple services, as a result of the "stickiness value" of the institutions Internet banking Web site. Numbers collected from the banking industry show that a customer using Internet banking and, in particular, customers using electronic bill payment are far more likely to remain customers of their bank. The value of increased customer retention for an institution with 50,000 total customers is shown in Figure 5 on page 12. The net present value of customer retention over 5 years is \$99,962, or \$2.00 per customer.

**Figure 5: Annual customer retention value**

*Celent Analysis*

## OTHER BENEFITS

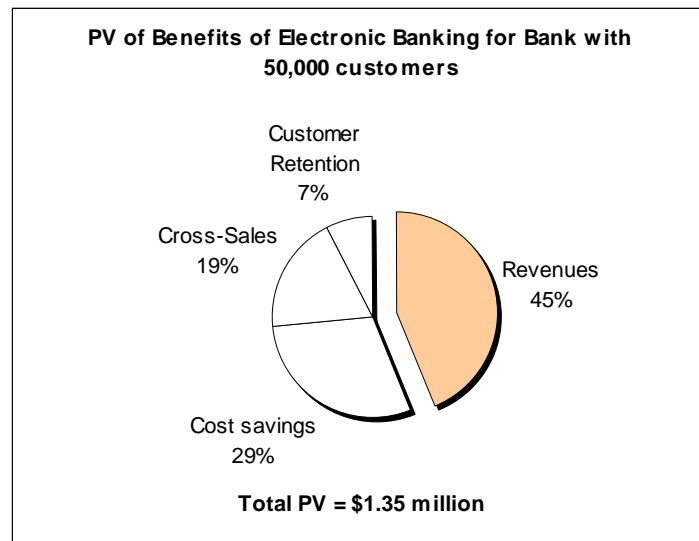
A number of additional benefits from Internet banking have been observed by institutions implementing electronic banking applications. Some of these are outlined briefly below:

- **On-line lending -- incremental volume generation.** On the consumer side, institutions that use on-line lending applications experience incremental increases in volume of applications from ease of use of over 7 percent. On the mortgage side, although not as dramatic, incremental increases of 2 percent are attributed to the greater “ease of use” of the on-line application process.
- **Higher customer balances.** Higher customer balances generate greater interest revenue as well as the potential for cross-selling additional services like cash management, investment advice, etc.
- **Lower marketing and customer acquisition expenses.** Financial institutions launching home banking and other online services can enjoy a substantial decline in marketing costs by using the Web site as an advertising medium to offer a one-stop shopping experience with easy, seamless access to additional financial services. DI’s Advanced Target Marketing application is designed to optimize the

potential for additional cross-sell activity by channeling traffic effectively through the Web site. Further, customer satisfaction surveys can be easily implemented online to give the institution a relatively easy and efficient way to measure its performance and to respond quickly and effectively with better tailored solutions to specific customer needs.

A summary snapshot of benefits to institutions of implementing Internet banking, broken out by service, is shown in Figure Figure 6 on page 13. For an institution with 50,000 customers in year 1, of the total net present value of these benefits, \$1.35 million over five years, 70% is derived from new transaction and fee revenue, the value of cross-sales and customer retention.

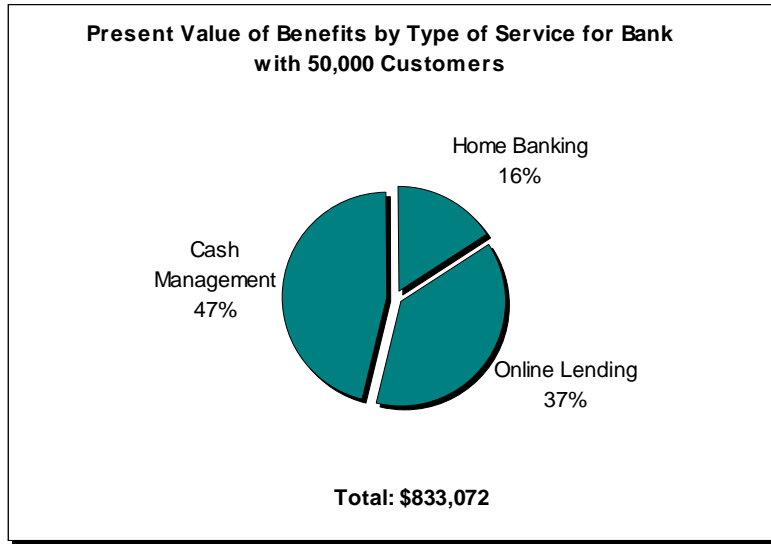
**Figure 6: Present Value by Type of Benefit**



*Celent Analysis*

Figure 7 on page 14 shows the benefits to financial institutions broken down by specific services. Of the total net present value provided by these services, \$833,072 (\$16.66 per customer), roughly half can be attributed to cash management and another 40% to online lending.

**Figure 7: Net Present Value by Type of Service**



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## COSTS

The costs incurred by financial institutions setting up Internet Banking run from the purchase of hardware and software, to Web site development, quality assurance testing, user interface development, web hosting services and ongoing operations expenses. Since DI offers its services on an outsourced basis, banks relying on DI face a one-time implementation fee, as well as recurring monthly fees, which vary based on usage. The various categories of cost to financial institutions are detailed in Table 3 on page 15.

**Table 3: Electronic Banking Costs to Financial Institution**

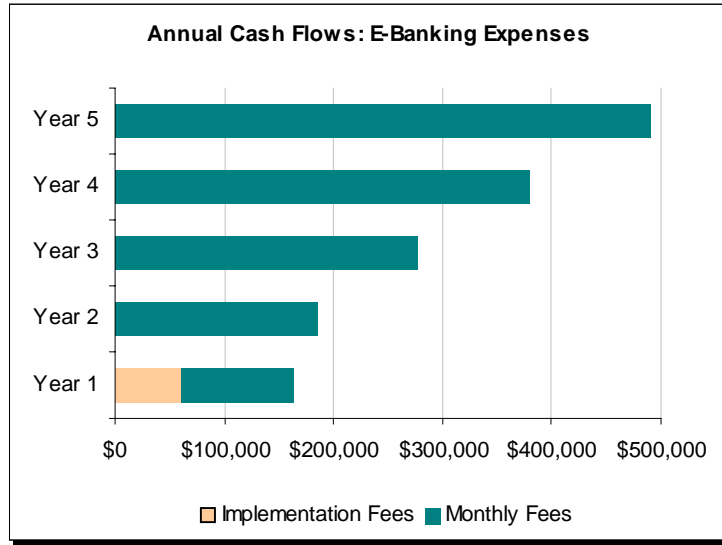
E-Banking Application	Cost components
Home Banking	One-time Web site development fee Monthly Web hosting fee Monthly fee per HB user
Bill Pay	Monthly fee per bill pay user
Cash Management	Basic service fee
On-Line Lending	One-time implementation fee Monthly fee
E-Commerce Portal	One-time implementation fee Monthly fee
Aggregation Service ("Dashboard")	Dashboard set-up fee Monthly fee Per user fee per month Data purchase fee per account

*Source: Digital Insight*

One-time set-up fees range from \$12,500 to \$65,000 and ongoing monthly fees from \$600 to \$5000. These fees cover all costs to the institution for designing, implementing and running the e-banking Web site. This compares favorably to the costs of building an in-house Web banking solution, which can be upwards of \$500,000 up front plus several months of development time and costs. Additional set-up and ongoing monthly fees are assessed for each additional service application. In many cases, these costs can be offset by institutions charging back to their customers for transactions, reports, etc.

Figure 8 on page 16 shows the annual cash flows for an institution with 50,000 account holders implementing home banking, bill pay, lending and cash management. The net present value of these expenses over five years is \$924,783, or \$18.50 per customer.

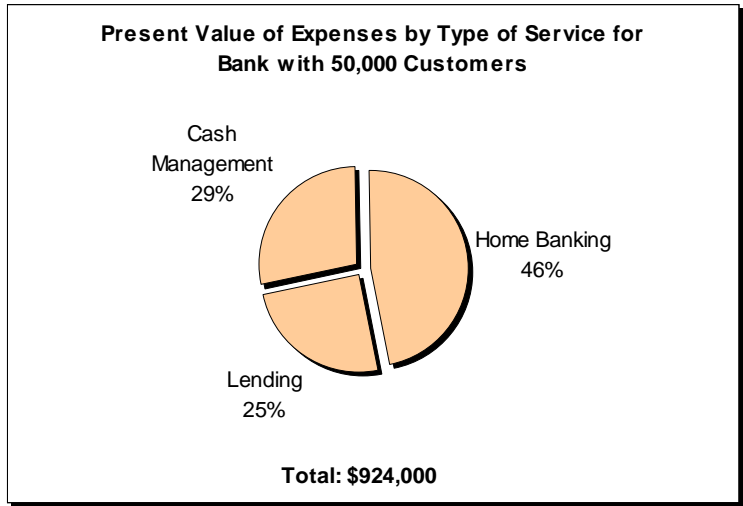
**Figure 8: Annual cash flows for an institution with 50,000 customers**



Source: Celent Analysis

The breakdown of net present value of the costs generated by individual services for an institution with 50,000 on- and off-line customers is shown in Figure 9 on page 17. The ongoing costs of running home banking comprise about half of all expenses incurred by an institution of this size.

**Figure 9: NPV of Electronic Banking Costs by Service**



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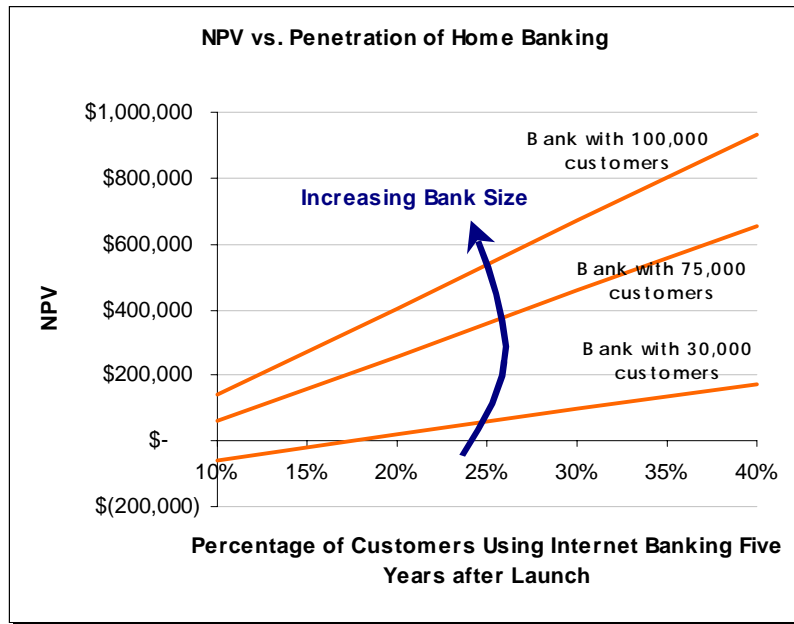
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## **ANALYSIS OF DRIVERS OF PROFITABILITY**

Several factors have been found to have an impact on an institution's profitability. While larger institutions reap economies of scale from operational cost savings more quickly, institutions of smaller size can enhance their profitability through e-banking and use the Web to level the playing field.

### **INCREASING PENETRATION OF HOME BANKING USERS**

Institutions that migrate more of their off-line customer base to e-banking see improvement in their bottom line. Figure 10 on page 19 demonstrates how the net present value of retail Internet banking varies with different levels of penetration. A bank with 75,000 using DI's services for home banking is able to achieve profitability even if significantly less than 10% of the bank's retail customer base start using electronic banking within the next five years. Unsurprisingly, smaller banks must achieve higher levels in penetration in order for home banking to pay off. A bank with 30,000 customer must reach a penetration of about 17% of its retail customers within five years. We believe that achieving a penetration of 17% by 2005 is readily achievable.

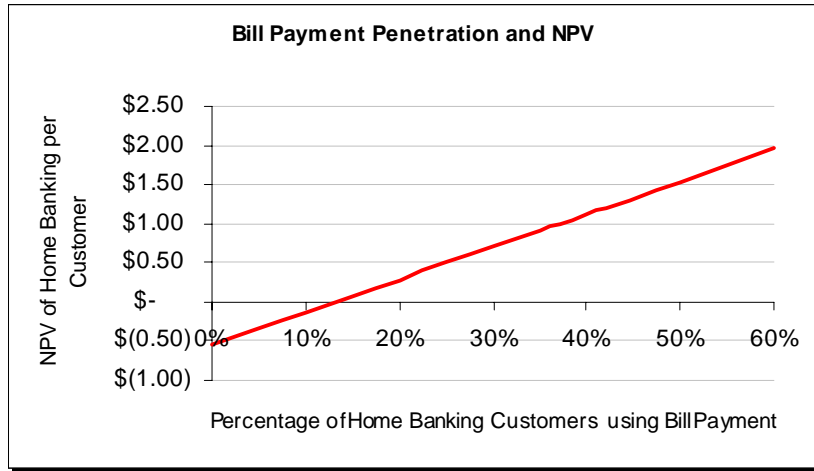
**Figure 10: Impact of Home Banking Penetration Rate on NPV**

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## BILL PAYMENT

One particular area where the model shows opportunities for improvement to an institution's bottom line, is the area of on-line bill payment. Clearly, the savings over paper-based manual processing is highlighted here. Figure 11 on page 20 shows how NPV per customer increases for an institution beginning with 50,000 total customers when electronic bill payment usage is increased. An institution can triple its NPV by increasing bill payment usage from 20% of home banking users to 30%

**Figure 11: Impact of e-bill payment penetration rate on NPV per customer**

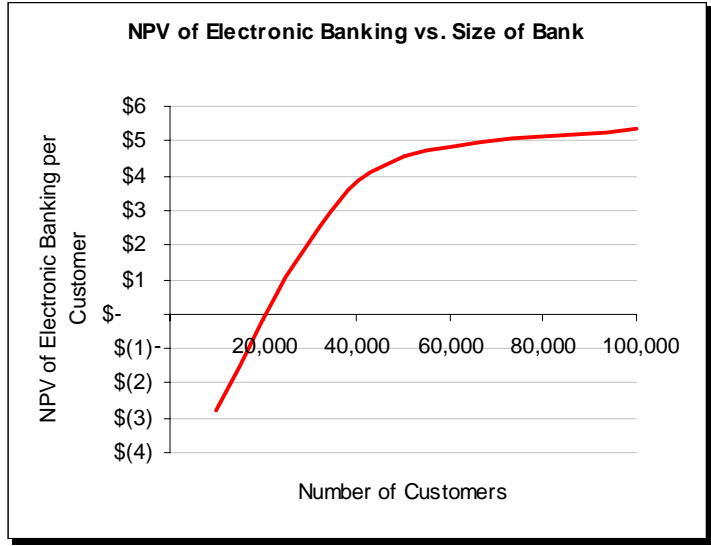


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In terms of net present value realized per account holder, for institutions implementing on-line banking for the first time without bill pay, the break-even point is about 45,000 customers, assuming 1% are commercial customers, a home banking penetration rate of 20% in 5 years and retail customer growth rate of 3% each year. NPV per customer ranges from \$0.12 for institutions with 50,000 customers up to \$1.24 for institutions with 100,000 customers.

When bill payment is added, the break-even point drops to 40,000 customers. And when potential to sell on-line cash management and on-line lending are added to the array of services, the break-even rate of customers, with the same assumptions drops to around 20,000 customers, with the range of NPV per customer across size of institution ranging from \$2.13 for institutions with 30,000 customers up to \$5.37 for institutions with 100,000. (See Figure 12 on page 21.)

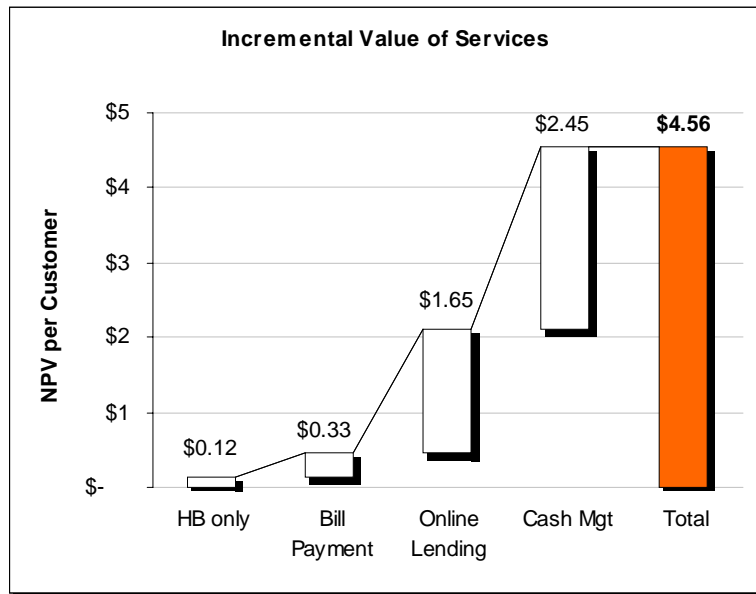
**Figure 12: NPV per customer with added services**



## SUMMARY OF BENEFITS

The incremental value added by each service for an institution with 50,000 customers is demonstrated in Figure 13 on page 22, showing the significant impact of adding on-line lending and cash management to the array of services.

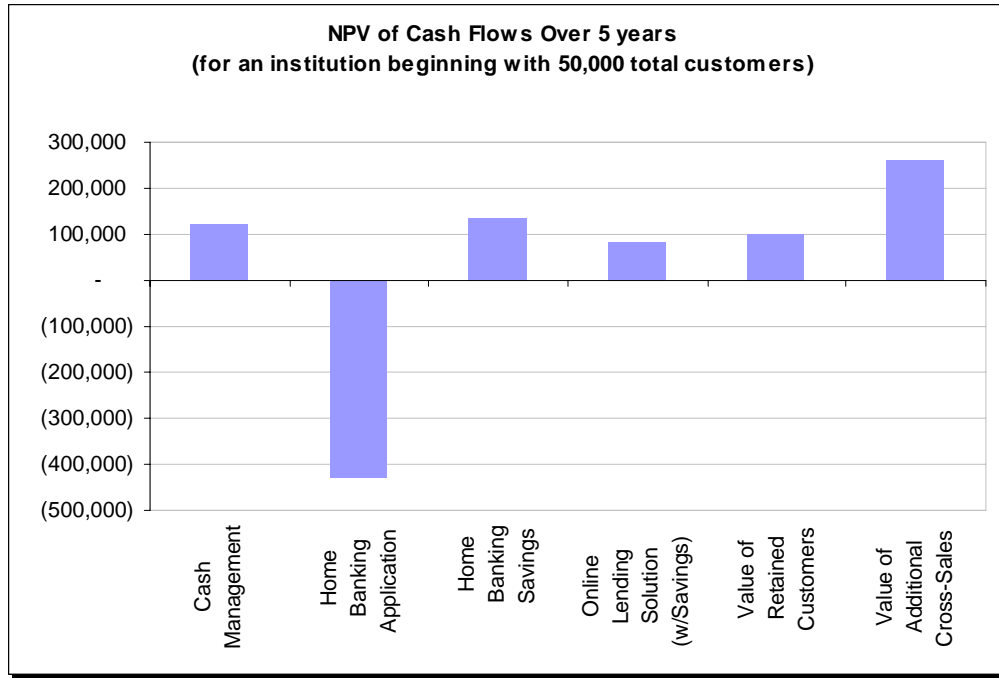
**Figure 13: Incremental Value of Services**



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Figure 14 on page 23 summarizes the net present value of cash flows for all e-banking services for an institution with 50,000 customers. The net present value of 5 years of cash flows is \$270,000, or \$5.38 per customer.

**Figure 14: NPV of Cash Flows**



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## CONCLUSIONS

The Internet facilitates cross-selling, cross-selling leverages the investment in Internet banking made by the institution, and that leverage increases profitability. New revenues from cross-selling services -- cash management, consumer and mortgage loans, e-commerce portal fees -- is the single most important factor impacting the profitability of an on-line bank, above and beyond the substantial savings realized from Internet-enabled back office, customer service, operations and infrastructure enhancements.

In conclusion, the key drivers to achieving profitability for an institution implementing electronic banking are:

- The ability to increase site traffic to increase cross-sales and transaction activity. This is influenced by the “site stickiness” value of an institution’s e-banking Web site and by the successful adoption of target marketing tools and data mining techniques.
- Migrating simple, but labor-intensive banking activities to the Web -- including funds transfer, account balance and rate inquiry, stop payment, check ordering, address change requests, etc.
- Increasing on-line bill payment penetration
- Streamlining the loan application and fulfillment process
- Utilizing a portal to provide pro-active services to Web users who tend to be an institution’s most profitable customers.
- Cost effective target marketing
- Lower customer acquisition costs
- Improving customer retention.

The question raised at the beginning of this report was whether or not Internet banking is profitable. Clearly, the answer to the question depends on a variety of factors, and it is not possible to blindly state that Internet banking is always profitable.

Very small institutions (with fewer than 15,000 customers) only offering a limited set of Internet banking services are not likely to achieve profitability unless they are able to persuade a very substantial portion of their customers to bank online. However, above this size, the indications for profitable Internet banking are good. With relatively conservative assumptions about customer uptake, increased customer retention and cross selling potential and savings through lower transactional costs, we have found that, in the majority of cases, Internet banking is profitable.

## APPENDIX

**Table 4: Model Assumptions**

Module	Description	Default Assumptions, if applicable
General Inputs	Institution's asset size	
	Number of customers or members	
	Annual percentage change in retail customer base	3%
	Total number of commercial customers, as a percentage of customer base	1%
	Estimated percentage of customers lost if Internet banking is not offered	5%
Home Banking Inputs	Current home banking penetration rate	0% if new customer
	Home banking penetration rate in 5 years	20%
	Average transfers per month per 100 customers	22
	Bill payment function users as percentage of HB users at end of year 1	5%
	Bill payment users as percentage of HB users at end of year 5	15%
	Average # bills paid per HB user per month	10
	Percentage of payments that are electronic (non-paper-based)	40%
	Check image requests per month per 100 customers	1.9
	Average stop payments per month per 100 customers	1
	Average address changes per month per 100 customers	3.5
	Percentage of HB users requesting O/L ONLY statements in year 1	5%
	Percentage of HB users requesting O/L ONLY statements in year 5	20%

Source: Celent Communications and Digital Insight

**Table 4: Model Assumptions**

Module	Description	Default Assumptions, if applicable
Cash Management Inputs	Total cash management commercial customer penetration percentage by year 5	30%
	Percentage ACH customers	70%
	Average # ACH transactions per month per customer	200
	Percentage wire customers	70%
	Average # wire transfers per month per customer	8
	Percentage of customers with reports	40%
E-commerce (Portal) Inputs	% HB user demand for full menu of e-Commerce (portal) services ranging from discount brokerage to 3rd party credit cards	
	% online users that utilize portal	
In-house On-line Lending Inputs	Average percentage Consumer Loans	70%
	Average percentage Mortgage Loans	30%
	Average Loan Amount Year 1: Consumer Average Loan Amount Year 1: Mortgage	\$12,000 \$145,000
	Average Loan Amount Year 5: Consumer Average Loan Amount Year 5: Mortgage	\$17,000 \$160,000
	Year 1: On-line lending application% per month (% of all loans, on-line users) Year 5: On-line lending application% per month (% of all loans, on-line users)	1.5% 3%
	Year 1: % migration from traditional channels to Internet-based channels Year 5: % migration from traditional channels to Internet-based channels	0% 12%
	Consumer Loan: conversion % (from app to closed loan) Mortgage: conversion % (from app to closed loan)	62% 39%
	Consumer Loan Origination fee% Mortgage Loan Origination fee%	0.25% 1.50%
Dashboard (Account Aggregation Service) Inputs	Dashboard penetration % at end of Year 1 (% of HB users)	10%
	Dashboard penetration % at end of Year 5 (% of HB users)	20%

Source: Celent Communications and Digital Insight

**Table 4: Model Assumptions**

Module	Description	Default Assumptions, if applicable
Cross-sell Value Inputs	Offline customer # of accounts/customer, beginning of years 1 - 5	1.5
	Internet Customer % increase in # of accounts, beginning of years 1-5	0%-10%
	Internet customer # of accounts/customer, beginning of years 1 - 5	1.5 - 1.7
	Average annual value per account relationship (assumes \$10 of net income/month)	\$120
	Incremental Value per online customer per year, beginning of years 1- 5	\$0 - \$18

Source: Celent Communications and Digital Insight