TECHNOLOGY INNOVATION

<BILLING/TELECOM>

Automating
Telephone Bills

Benefits: Highly efficient with excellent quality whilst eliminating manual processes and specifically assigned staff

INSIDE

Case Study: Telecom corporation

- ▶ End to end processing control with a single dashboard
- ▶ Managing the entire document lifecycle from billing data to archiving
- ▶ Quick implementation of bill layouts for new service offerings

Gaining a Competitive Edge

Powerful new bill design tools fulfill time-to-market requirements for new service offerings of a telecom corporation.
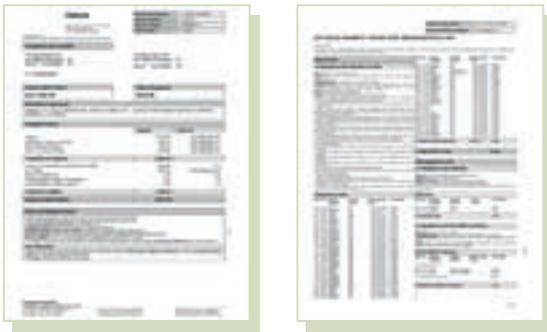
One of the leading telecom service providers in Italy with a customer base of over 24 million and a revenue of 8.159 Billon EURO offers a wide range of services. It employs approximately 10,000 employees and has eight Call Centers distributed over the Italian territory with more than 2,000 points of sale. The GSM network covers 97% of the territory that corresponds to 99.4% of the Italian population; the same is true for the GPRS network.

PAPYRUS PRODUCTS *in use*

Papyrus Designer on Windows
WYSIWYG dynamic document design

Papyrus DocEXEC on SUN Solaris
High speed document formatting engine

Papyrus Postprocessing/PrintPool on SUN Solaris
Bundling, sorting and reprinting of bills

Papyrus WebArchive on SUN Solaris
PDF presentation in the Web Browser

Papyrus WebControl/Repository on SUN Solaris
Controls automation of the print process

■ Before Papyrus

The mandatory presence of specifically assigned staff was necessary due to the requirement of a highly manual process which greatly impacted quality and efficiency. This process when new service offerings needed to be shown in the bill was lengthy and did not fulfill time to market requirements. AFP/PDF and other files were exchanged by express courier between the telecom company and the document composing software PreS from Printsoft. The generated AFP and PDF files had to be returned for archiving in DMS and for e-billing. All this manual interaction created inflexibility and resulted in time and quality loss.

Single bills can have more than 15000 pages!

■ Key requirements for the new bill

- The bill process and bill generation had to be automated. Manual steps, interactions and specifically assigned staff had to be reduced.
- Corporate image had to be improved
- A better design of the bill
- Delivery of bill on paper in PDF and XML
- With new services continuously offered they had to be inserted into the bill in the quickest possible time to fulfill time to market requirements.

■ Why Papyrus?

Management of the entire document lifecycle including document process control was a main factor. Other reasons were the powerful graphical document design interface and an achievable automation rate by implementing a single, centralized point of control. The incoming data from the billing system CCBS was directly used by the Papyrus formatting engine. There was no need to run pre-processing steps and there was no requirement to modify the output format of the bill data. The flexibility to outsource to major print shops and interface with the company's existing Filenet archive were other reasons that Papyrus was chosen.

■ The implementation
ISIS was contracted to develop a prototype within a four week period.

Billing data with all relevant variables were directly read by Papyrus Designer.

The flexibility of the graphical user interface in Papyrus Designer allowed ISIS to quickly react to the telecom company's need for new bill layouts with additional customer details and specific market information. The document application logic was defined simply using drag and drop functions from a logic tree. The billing data was then directly read into the design window with all relevant variables for the bill.

Additional functions used:
- Definition of grouping rules such as cost center and SIM number within a cost center
- Traffic path (incoming, outgoing and or local/roaming)
- Traffic type (Voice/Data/SMS/MMS…)
- Output type: AFP, PDF, XML, ASCII, XLS…
- report files for the print shop and for accounting
- Management of the resources (fonts, forms, logos etc.)

■ High speed formatting on SUN Solaris
Papyrus DocEXEC was installed on a SUN Solaris Server for high speed formatting whilst directly reading the input bill data.

Manual steps, interactions and specifically assigned staff had to be reduced. It was critical that the billing process and bill generation be automated.

■ Bundling, sorting and reprinting by Index
Papyrus Postprocessing/PrintPool, an extension to Papyrus DocEXEC, was installed and configured to fulfill bundling and sorting requirements based on user defined indexes for optimized print and mail. Reprinting copies from originals is also executed using its postprocessing capabilities.

■ Fast retrieval and viewing of bills in PDF
Papyrus WebArchive keeps two bill cycles in AFP format for fast retrieval and immediate viewing in a browser. All bills are converted into PDF for e-mailing and archiving. Papyrus WebArchive also provides an open interface to Filenet for document index information.

■ Central point of control automates the billing process completely
Papyrus WebControl maps the business process into the document workflow. This allows complete process automation from the receipt of incoming data to the delivery of AFP files to the print shop. Furthermore, there is an automated process for generating XML/XLS documents and PDFs for e-mail delivery and Filenet archiving. All this is based on a central point of control and a graphical, user friendly Desktop interface that allows for the tracking and monitoring of every step in the process.

MOTIVATIONS *for* INNOVATIONS

Motivation:	Eliminating manual steps through process automation
Innovation:	A centralized single point of control managing the entire end-to-end production process
Solution:	Papyrus document life cycle management from the data to the archive

■ The Bill generation process
Each produced dataset is associated with an XML file and its characteristics (i.e. Set Number, Type and number of contained documents, …). Verification and certification of the data's consistency along with 1000 configurable controls are performed using a script developed by Papyrus Designer.

Data files can be of unlimited size (>150MB per single document).

With only one processing step of the given data file, Papyrus produces AFP documents in Black&White, Front&Back, Color, PDF and XML for viewing using Excel.
Personalized Marketing Messages are placed conditionally into the bill at time of formatting and the presentation of the invoiced amounts is completely personalized.

■ One step process – showing last page first
The first page of the bill is summarizing all items and costs. It is formatted at the very end of the bill after all summary and detail pages are produced. The summary page is then re-sorted to become the first page in a one step process.

■ Monitoring
The entire process is continuously monitored by an application developed within Papyrus Designer that analyzes the logs produced by each process. It queries a database and verifies if at the end of the bill cycle all calculated figures correspond to the real ones in order to activate the production of fiscal reports.

■ Highlights
- Bundling multiple documents of configurable size and characteristics
- Generation of PDF documents applying a specific naming convention as required by the third party archiving system for long term archiving
- Generation of PDF documents and XML/XLS(CTE) documents for e-billing
- Bundling of documents in various formats (PDF, XLS, ASCII) to produce a CDROM
- Production of Fiscal Reports in ASCII format and PDF.
- Production of reports for statistical purposes.

A comprehensive and scalable solution for centralized management of document applications, print and output operations that span web, client/server and host environments.
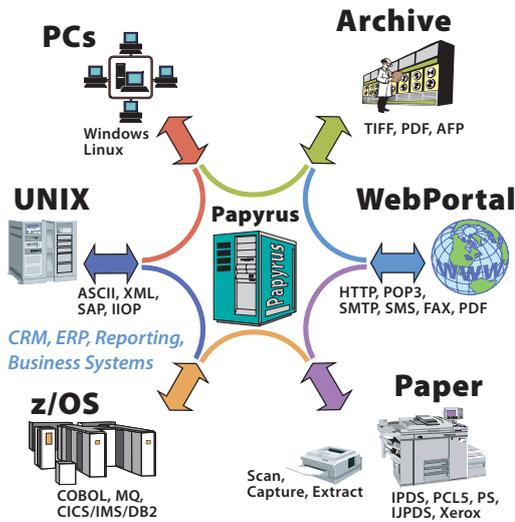
Papyrus Document Frameworks

- Automated Document Factory
- Enterprise Application Integration
- Enterprise Output Management
- Enterprise Content Management
- Business Process Management
- Portal and Web Applications
- Change Management
- Correspondence
- Campaign Management
- Print Management
- Capture/Classify/Extract
- E-mail, Fax

Organizations can **define, measure, and manage** output management across complex heterogeneous environments from centralized control points.
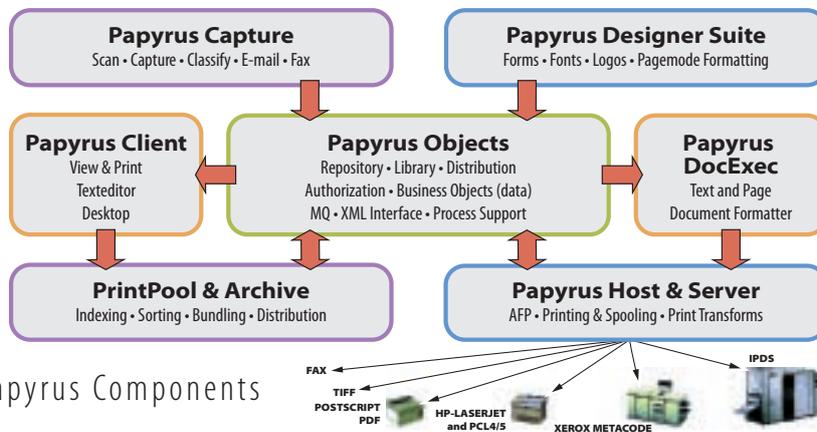
Papyrus Components

Billing with Papyrus

Advanced Info Service Public Co. Ltd **Thailand** • AMS American Management System **USA** • Belgacom/Belgacom Mobile **Belgium** • Bell South **USA** • BEZEK **Israel** • British Telecom **United Kingdom** • CAT **Thailand** • Connext **USA** • debitel **Germany** • DeTe Mobil **Germany** • Edisontel **Italy** • Far Eas Tone **Taiwan** • Gas Natural **Spain** • GPU **USA** • Israeli Electric Company **Israel** • Jazz Telecom **Spain** • Keyspan **USA** • Mannesmann Arcor **Germany** • Maxis **Malaysia** • MCI Worldcom **United Kingdom** • Neckermann **Germany** • Northern Telephone **Canada** • Orange **United Kingdom** • PMS **Italy** • Polcomtel **Poland** • Postens Mailburo **Denmark** • Quelle AG **Germany** • Samart Corporation **Thailand** • Singapore Telecom **Singapore** • Smart Communications **Philippines** • Stadtwerke Kiel **Germany** • Stadtwerke Wuppertal **Germany** • Swisscom **Switzerland** • Telecomasia **Thailand** • Telekom Austria **Austria** • Telephonica del Peru **Peru** • Thai Telephone & Telecommunications **Thailand** • Total Access Communication **Thailand** • Vodafone **Germany, Italy**