



Transforming Potential Into Ability

Немного о TiS
Top Image Systems

Top Image Systems

- Создана в 1991
- Системы ввода и распознавания данных
- С 1996 на NASDAQ (TISA)
- С 2006 на TASE (TISA)
- 2 приобретения в 2007
- ~250 работников

Филиалы в :

Europe

United Kingdom, Germany,
Italy, Spain, France, Benelux

Asia

Japan, Singapore, Hong Kong, Shanghai,
Guangzhou (R&D) and Australia

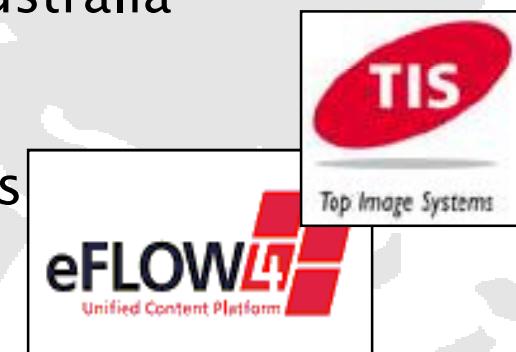
USA

North & Latin America

Israel

R&D Headquarters

- Представительства в 40 странах
- Партнёрская сеть по всему миру
- Около 800 установленных по всему миру систем



TIS's Experience in Census Projects



- Turkey Census 1997, 2000
 - India Census 2001
 - Brazil Census 2000
 - South Africa Census 2001
 - Ireland Census 2001
 - Germany (DP) 1999
 - Cyprus Census 2002
 - Kenya Census 2001
 - Slovak Republic Census 2001
 - Hong Kong Census 2001
 - Italy Census 2002
 - Slovak Republic Census 2006
 - South Africa Pilot 2007
 - Ireland Census 2006
- Recently Won:
 - Scottish Census 2011
 - Belarus Census 2009

Некоторые из наших клиентов



- Финансы

- American Express
- Deutsche Bank
- Federation of Banks of Brazil
- Garanti Bank
- SEB Bank
- Swiss PostFinance
- Unicre Bank

- Почтовые услуги

- Czech Post
- Deutsche Post
- Slovak Post
- Swiss Post Finance

- Транспорт и логистика

- Jet Airways
- FedEx
- Schneider National
- AIMS Logistics

- Страхование и здравоохранение

- Guardian
- Discovery
- Old Mutual Insurance
- Sanlam Insurance
- Sumitomo Insurance
- BKK Germany

И ещё....



- Гос. проекты

- Australian Department of Defense
- Brazilian Department of Statistics
- Chilean Social Security Office
- US Social Security Administration
- Turkish Ministry of Finance
- Argentinean National Institute of Statistics

- Переписи населения:

- India, Italy, South Africa, Brazil, Ireland ,Kenya,...

- Другие сегменты

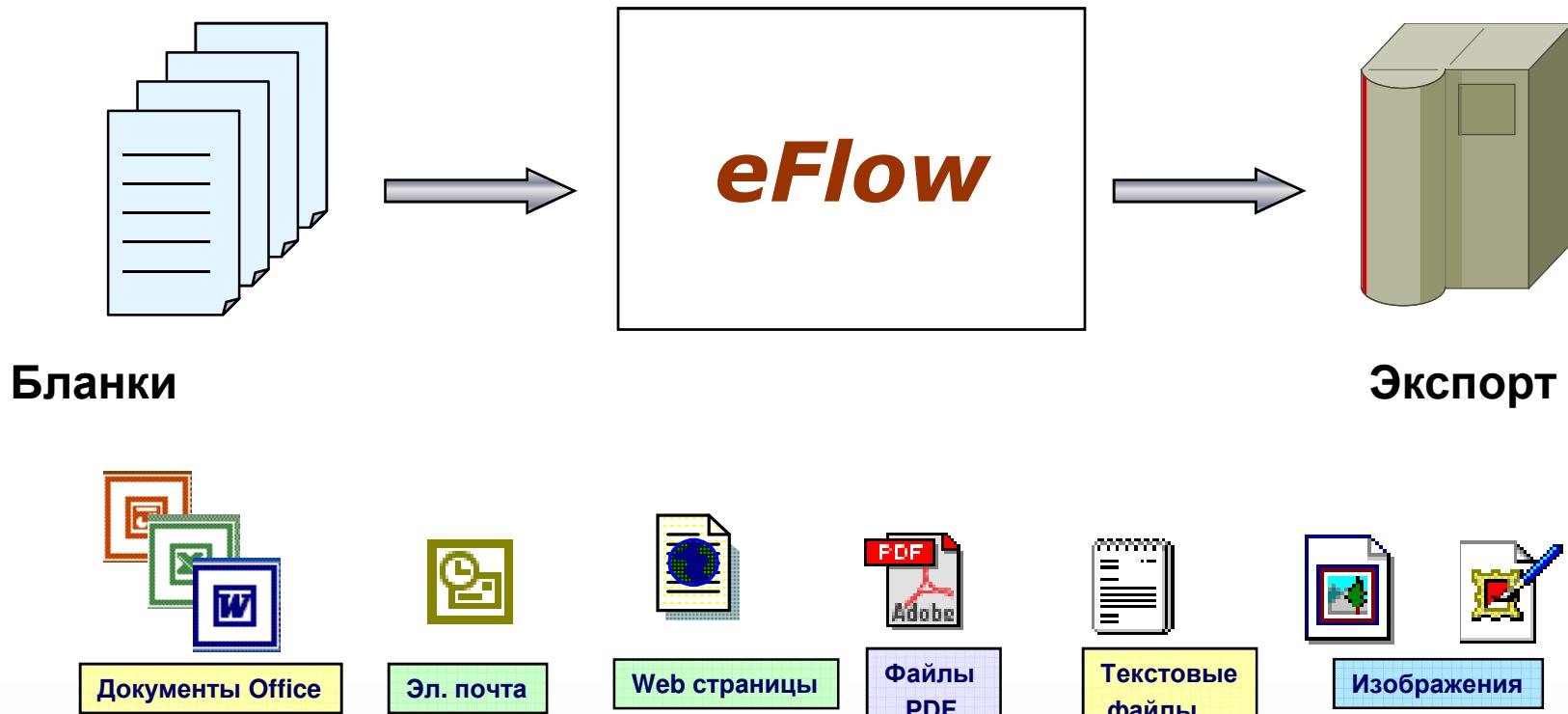
- IBM
- T-Mobile
- BP-British Petroleum
- 3M Europe
- AQA Examination Board U.K
- Comicrom Service Bureau
- BCBG Vermont
- BKK



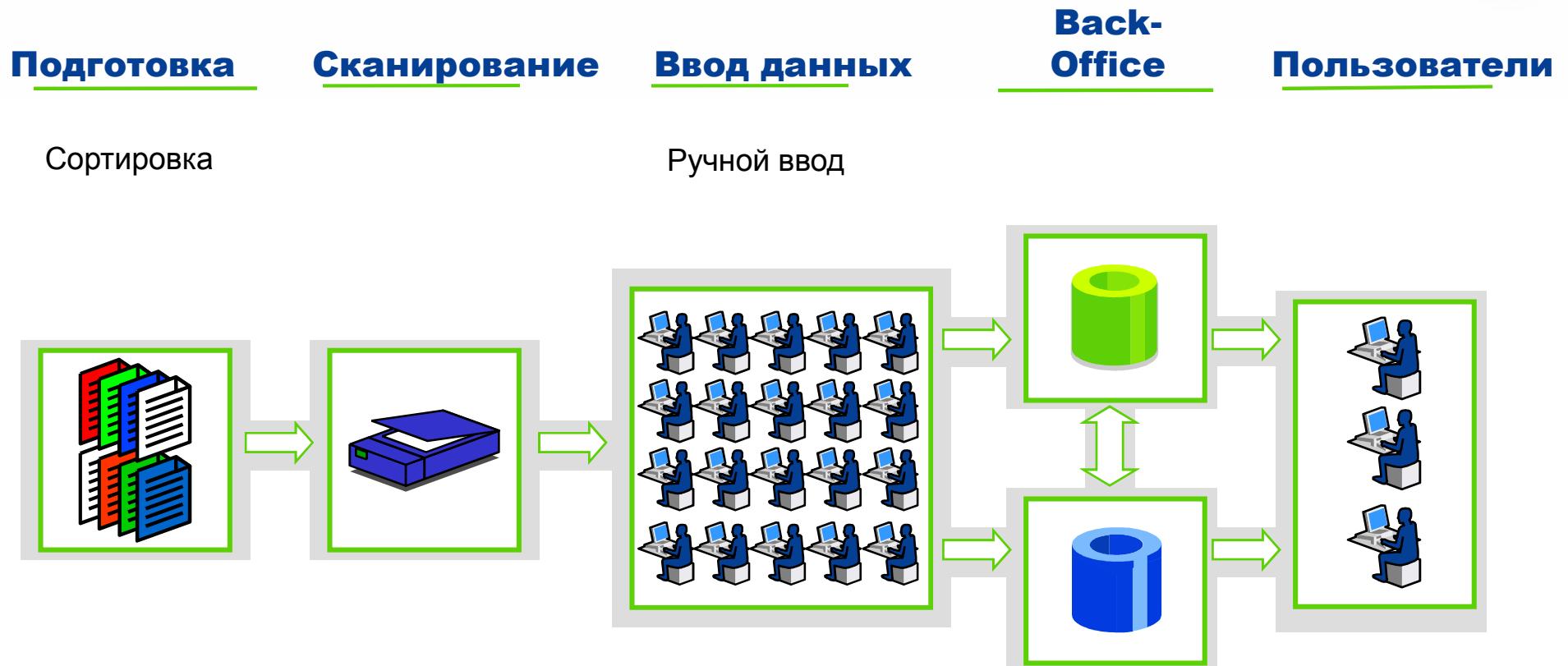
Transforming Potential Into Ability

Платформа eFLOW

Краткое обозрение eFLOW



Традиционные системы

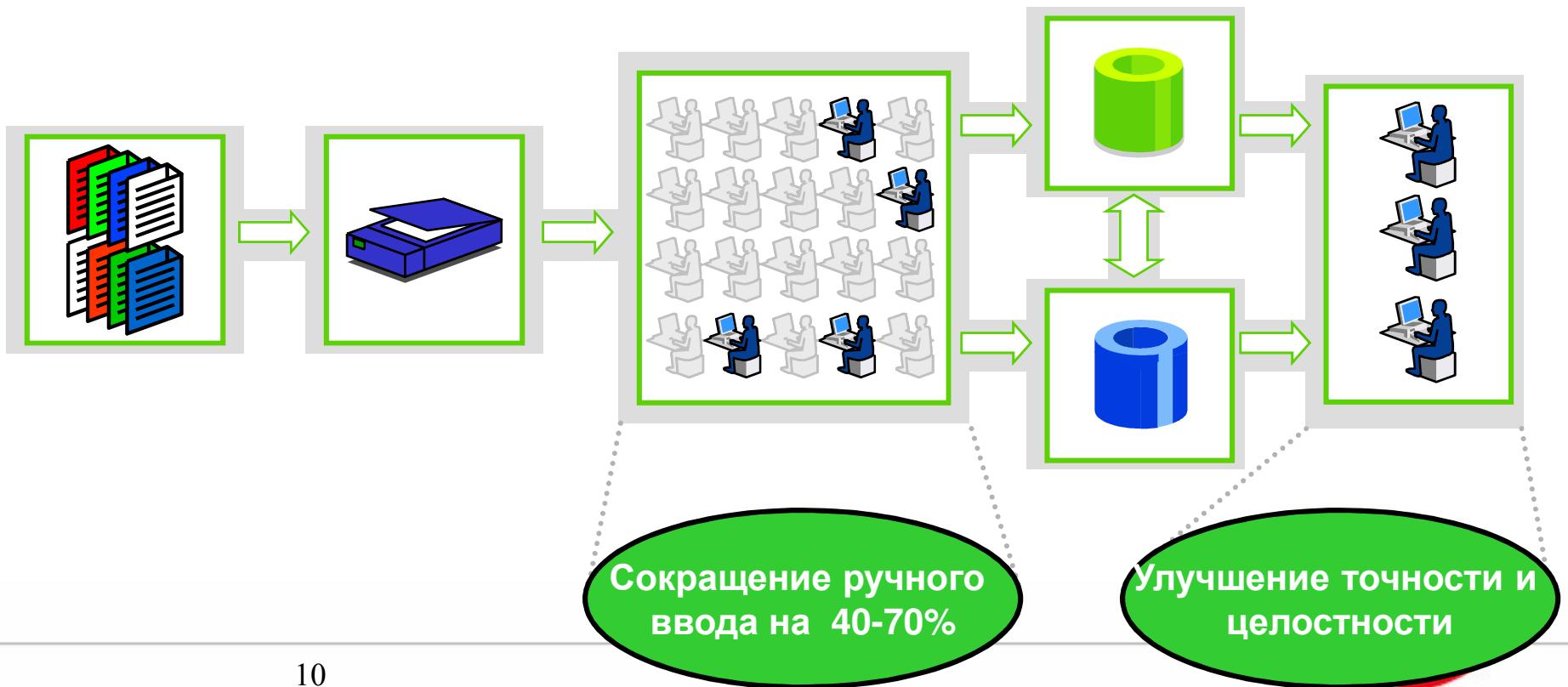


“Умные” системы

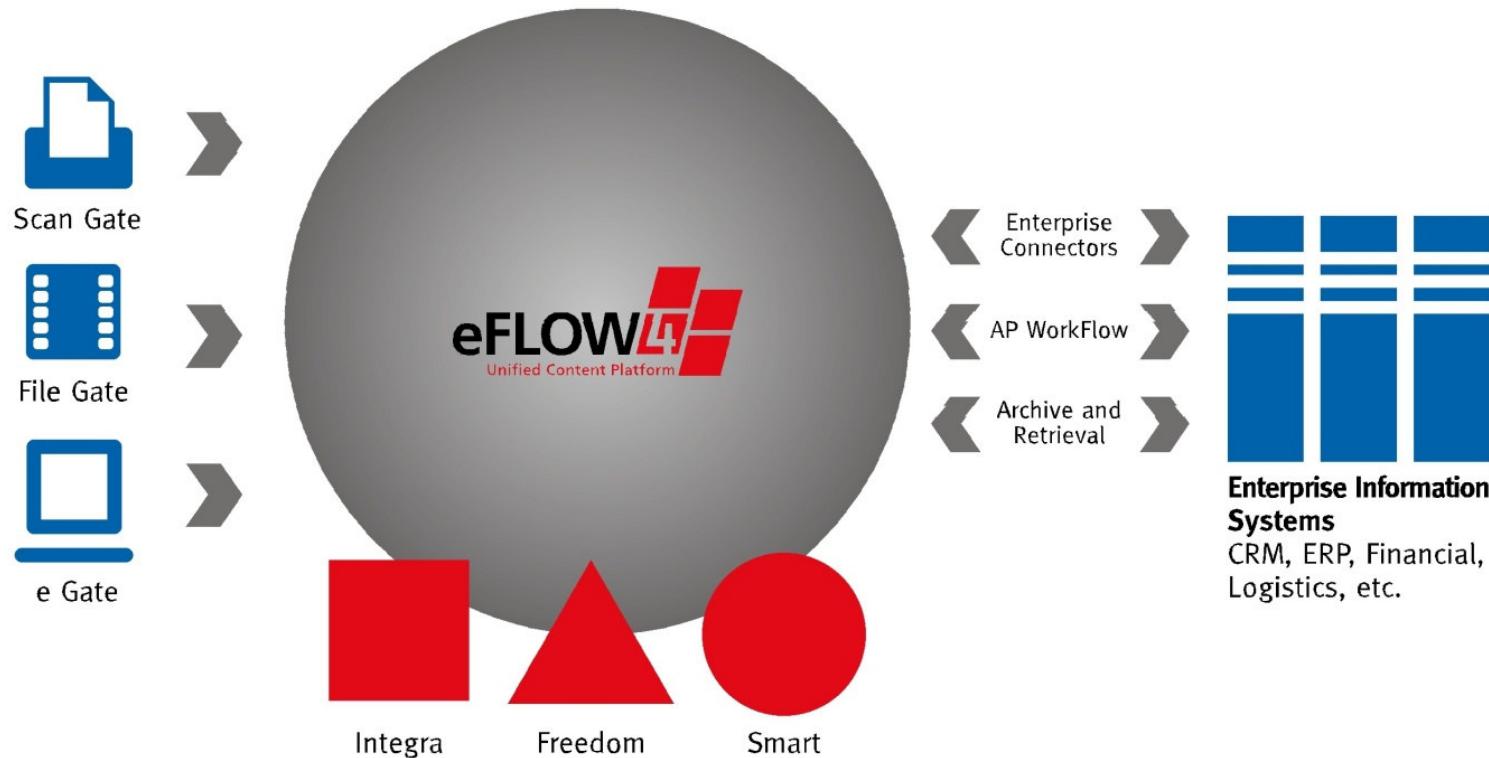


Подготовка Сканирование Ввод данных Back-Office Пользователи

Нет сортировки



Универсальная платформа eFLOW





Transforming Potential Into Ability

Что такое структурированные, частично-
структуренные и неструктуренные
бланки?



Integra

Структурированные бланки

- Фиксированное расположение полей

Дата	No. счёта
Сумма	

Дата	No. счёта
Сумма	

Дата	No. счёта
Сумма	

Структурированные бланки



EASY ORDER FAX FORM

Customer ID# 211152889

Phone Number 714 534 3500 Fax Number 714 534 3500

METHOD OF PAYMENT

Cash Check Credit Card # 21115288972111528892 Exp. Date 01/01
Acct # 1234567890 Credit Card Billing Address _____

SERVICE REQUESTED

Return to the return store Addition to an existing order Check here to order our complete office product catalog
Special instructions _____

ITEMS TO ORDER In order to better service your needs and minimize any inconvenience, we ask that you list the following items by part number with the name of the company you are sending them to.

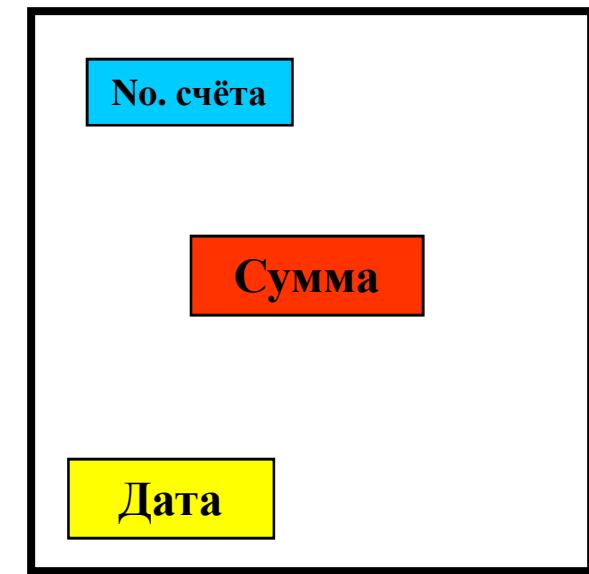
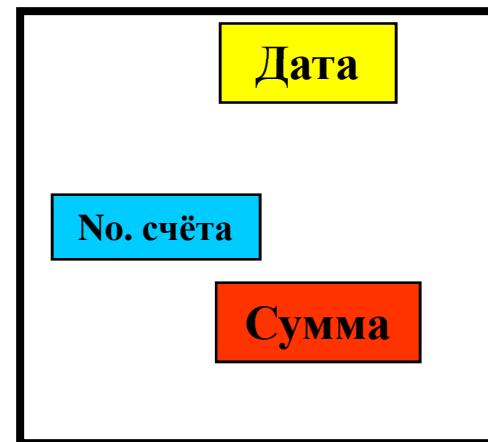
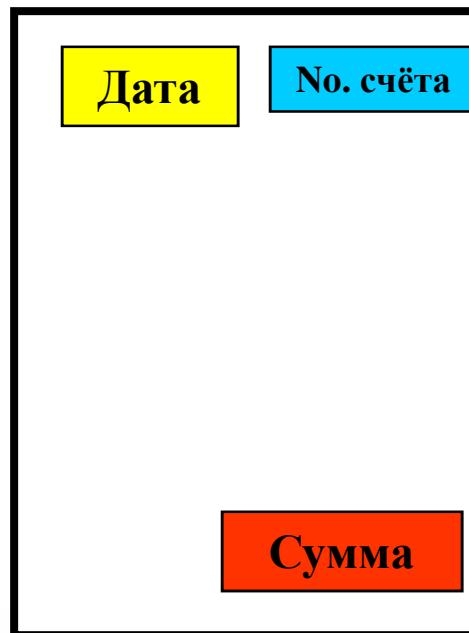
Part	Stock #	Quantity	Price	Description
1	020 151 73	5	\$1.99	Stacking Utility Tray
2	020 413 64	14	\$8.99	Desk Pad Calendar
3	020 456 247	1	\$14.99	Laser Jet 450
4	020 569 525	2	\$12.99	Manila Envelopes
5	020 659 854	7	\$1.99	Legal Envelopes
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				
40				
41				
42				
43				
44				
45				
46				
47				
48				
49				
50				
51				
52				
53				
54				
55				
56				
57				
58				
59				
60				
61				
62				
63				
64				
65				
66				
67				
68				
69				
70				
71				
72				
73				
74				
75				
76				
77				
78				
79				
80				
81				
82				
83				
84				
85				
86				
87				
88				
89				
90				
91				
92				
93				
94				
95				
96				
97				
98				
99				
100				
101				
102				
103				
104				
105				
106				
107				
108				
109				
110				
111				
112				
113				
114				
115				
116				
117				
118				
119				
120				
121				
122				
123				
124				
125				
126				
127				
128				
129				
130				
131				
132				
133				
134				
135				
136				
137				
138				
139				
140				
141				
142				
143				
144				
145				
146				
147				
148				
149				
150				
151				
152				
153				
154				
155				
156				
157				
158				
159				
160				
161				
162				
163				
164				
165				
166				
167				
168				
169				
170				
171				
172				
173				
174				
175				
176				
177				
178				
179				
180				
181				
182				
183				
184				
185				
186				
187				
188				
189				
190				
191				
192				
193				
194				
195				
196				
197				
198				
199				
200				
201				
202				
203				
204				
205				
206				
207				
208				
209				
210				
211				
212				
213				
214				
215				
216				
217				
218				
219				
220				
221				
222				
223				
224				
225				
226				
227				
228				
229				
230				
231				
232				
233				
234				
235				
236				
237				
238				
239				
240				
241				
242				
243				
244				
245				
246				
247				
248				
249				
250				
251				
252				
253				
254				
255				
256				
257				
258				
259				
260				
261				
262				
263				
264				
265				
266				
267				
268				
269				
270				
271				
272				
273				
274				
275				
276				
277				
278				
279				
280				
281				
282				
283				
284				
285				
286				
287				
288				
289				
290				
291				
292				
293				
294				
295				
296				
297				
298				
299				
300				
301				
302				
303				
304				
305				
306				
307				
308				
309				
310				
311				
312				
313				
314				
315				
316				
317				
318				
319				
320				
321				
322				
323				
324				
325				
326				
327				
328				
329				
330				
331				
332				
333				
334				
335				
336				
337				
338				
339				
340				
341				
342				
343				
344				
345				
346				
347				
348				
349				
350				
351				
352				
353				
354				
355				
356				
357				
358				
359				
360				
361				
362				
363				
364				
365				
366				
367				
368				
369				
370				
371				
372				
373				
374				
375				
376				
377				
378				
379				
380				
381				
382				
383				
384				
385				
386				
387				
388				
389				
390				
391				

Freedom

Частично-структурированные бланки



- Произвольное расположение известных полей
- Пример – Платёжные ведомости



Частично-структурированные бланки





Smart

Неструктурированные бланки

- Произвольный текст
- Письма

*Санкциони
рование
контракта*

*Просьба о
смене
адреса*

*Заказ на
поставку*

Неструктурированные бланки



2 2 7 2 0 0 3 5 0 1 9 5 8 5

Änderung der Bankverbindung/Kontonummer



Transforming Potential Into Ability

Каким образом eFLOW “читает” данные?

Типы данных

- **OCR** – Оптическое распознавание символов
(Напечатанный текст и штрих-коды)
- **ICR** – Intelligent Character Recognition
(Прописной текст)
- **OMR** – Оптическое распознавание меток
(Метки)

Типы данных



OCR

ICR

OMR

PAYBACK

Ihre °PAYBACK Galeria Card-Anmeldung.

Füllen Sie bitte die Anmeldung in Druckbuchstaben aus und kreuzen Sie dick umrandete Felder an. Anschließend einfach in den Rücken der Karte schreiben und ab geht die Post.

A B C X

HERR
MAX MUSTERMANN
MUSTERSTR. 123
12345 MUSTERORT

www.payback.de

Bitte unbedingt ausfüllen!

E-Mail: *[Redacted]*

Telefon: 0 1 2 3 4 5 6 7 8 0

Datum: 0 9 . 1 2 . 2 0 0 1

Gibt es weitere Unternehmen,
bei denen Sie Punkte sammeln
möchten? Auf der Rückseite
können Sie sie uns nennen.

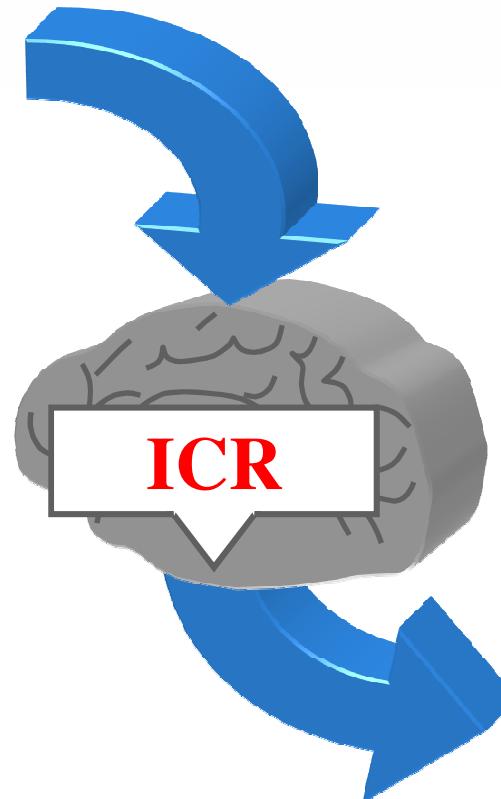
Freiwillige Angaben

Single Paar Verheiratet

Автоматическое распознавание



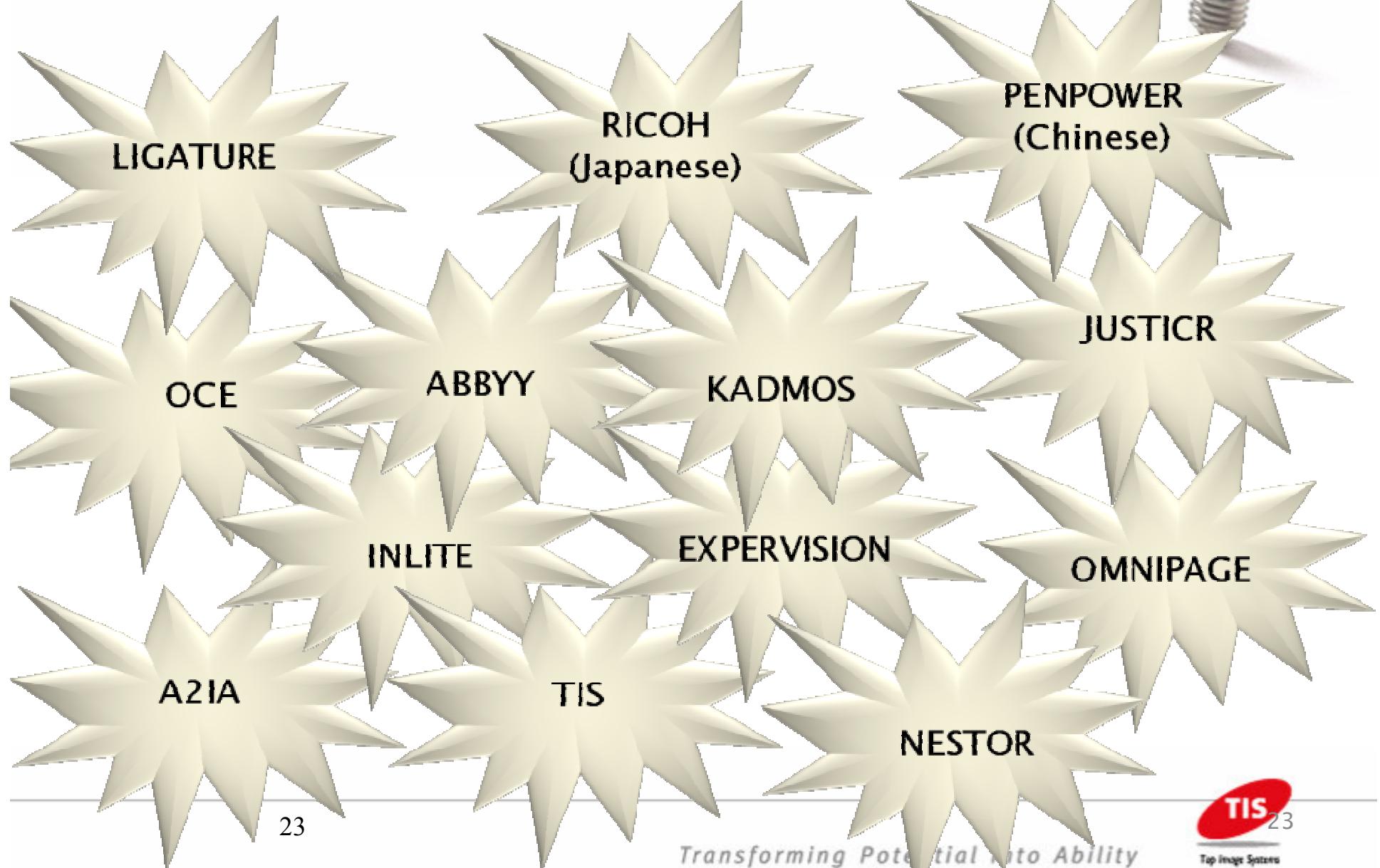
A b c D E F
1 2 3 4 5 6 7



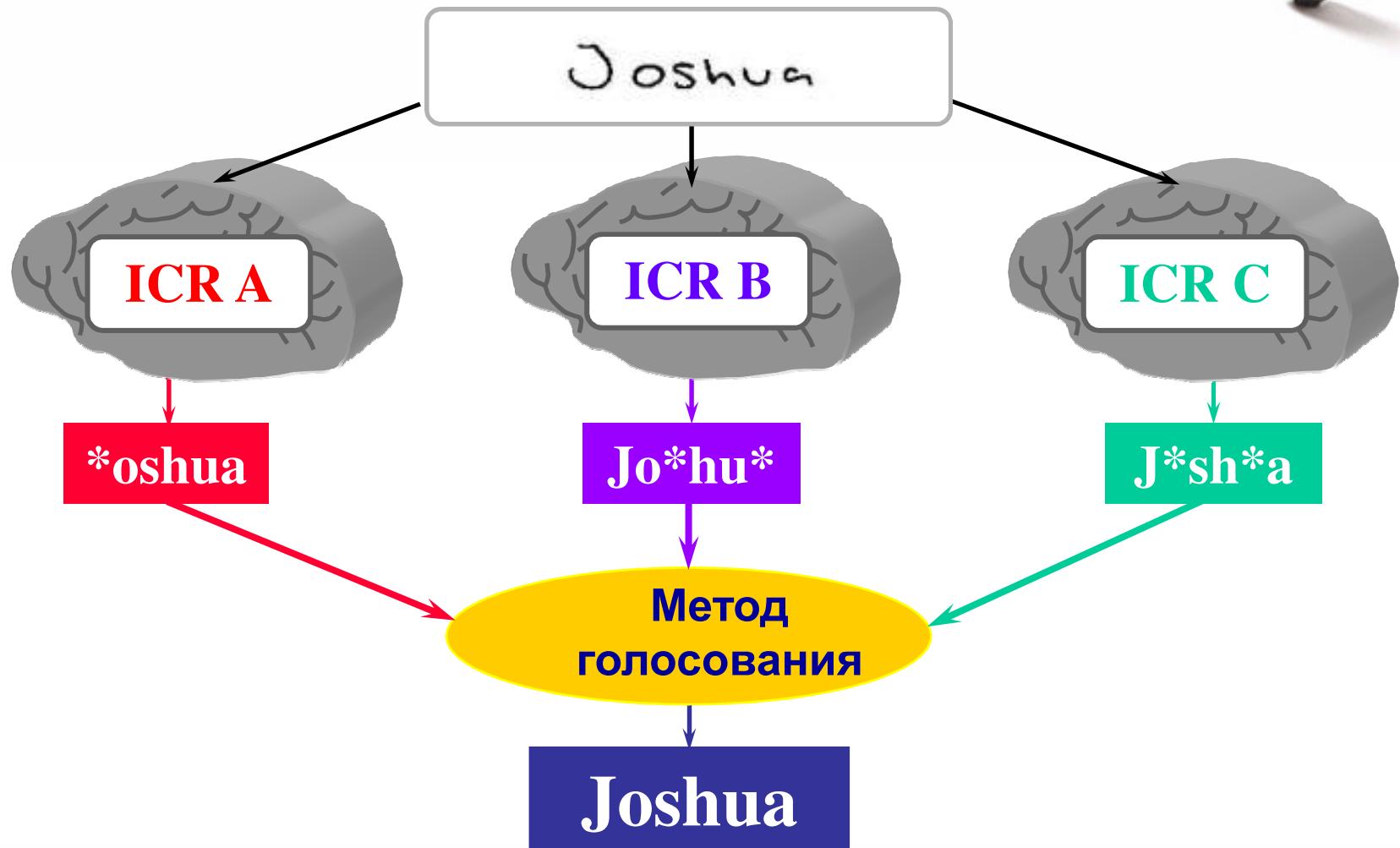
*=Нераспознанный
символ

A * C * E F
1 2 3 4 5 * 7

Технологии распознавания OCR/ICR “движки”



Виртуальные “движки”





Методы голосования

- Виртуальный “движок” с 4 физическими “движками”
- Искомое значение : 253478

- Safe: **2****8**
- Normal: **25**78**
- Majority: **253478**
- Order: **255378**
- Equalizer: **??????**

<i>Engine</i>	<i>Result</i>
1	25***8
2	2*5378
3	253478
4	2*34*8



Transforming Potential Into Ability

**Integra – eFLOW для структурированных
бланков**

Структурированный бланк



°PAYBACK

Ihre °PAYBACK Galeria Card-Anmeldung.

Füllen Sie bitte die Anmeldung in Druckbuchstaben aus und kreuzen Sie dick umrandete Felder an. Anschließend einfach in den Rückumschlag stecken, und ab geht die Post.

A B C X

HERR
MAX MUSTERMANN
MUSTERSTR. 123
12345 MUSTERORT

www.payback.de

Hier können Sie sich auch online für °PAYBACK anmelden und jederzeit Ihren aktuellen Kontostand erfahren.

Barcode

Bitte unbedingt ausfüllen!

Nummer der Hauptkarte
0 1 2 3 4 5 6 7 8 9

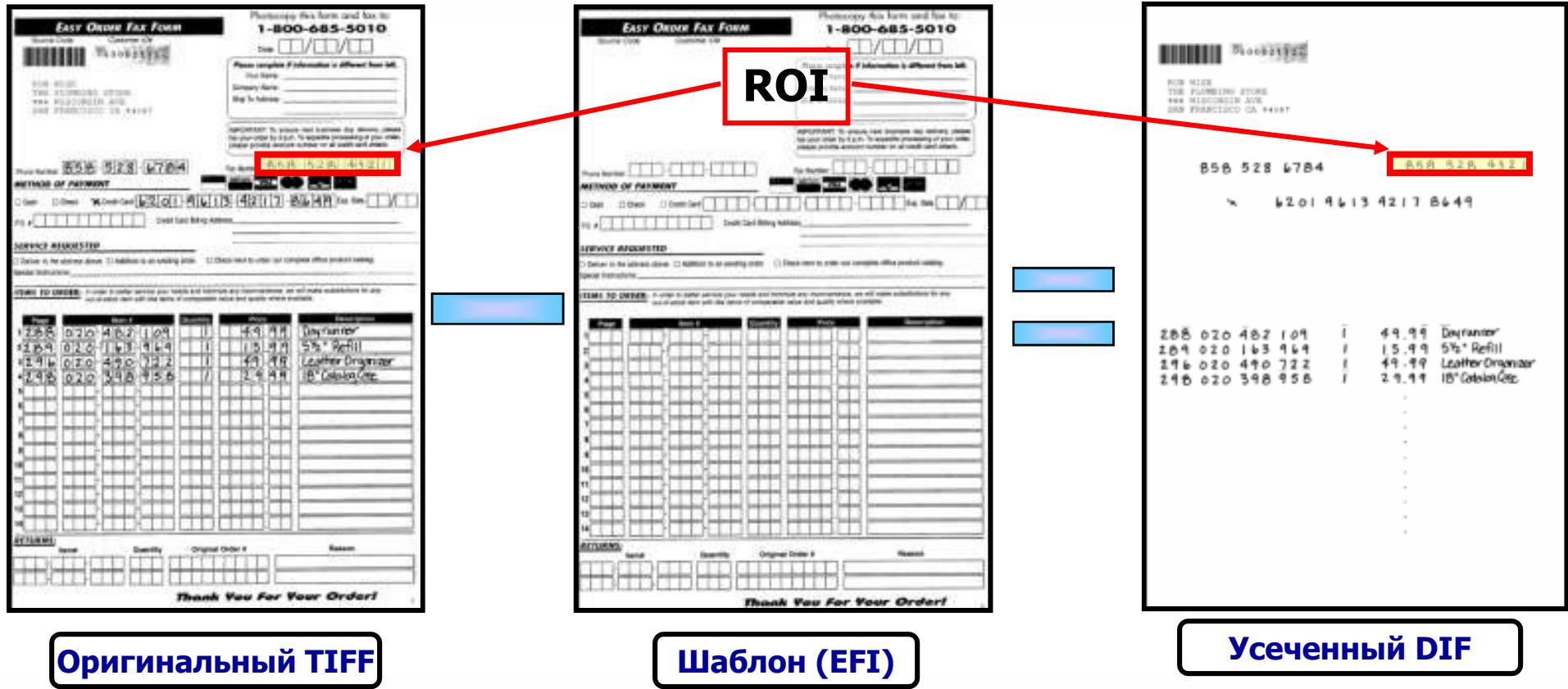
E-Mail
JOHAN@HOTMAIL.COM

Geburtsdatum
09.12.2001

Freiwillige Angaben

Single verheiratet verheiratet

От TIFF к DIF



Оригинальный TIFF

Шаблон (EFI)

Усеченный DIF



Transforming Potential Into Ability

**Freedom – eFLOW для частично-
структурированных бланков**

“Умное” распознавание документов

6.55
9.10
9.80
0.61
36.40
22.24
29.21
2.78
2.56

W. Shirley & Sons Ltd.		
ESTABLISHED 1860		
17 Montague Road		
Croydon CR9 3DU		
Telephone: (0208) 688 8341		
Facsimile: (0208) 680 4909		
		
CITROËN		
Customer a/c no. R10019 Reference		
Customer name Mr J Richardson		
Address 5 Blakes Green		
Postcode CR0 0RS		
Mobile 07788 888888		
Email		
Jagward no. S/ 10180 I/C Date 1/2/01		
MAILED: CHRIS INVOICED: ANDREW		
Labour		
0	CHANGED OUT 60,000 MILE SERVICE	£15.00
0	REPLACED FRONT BRAKE PADS AS WORN,	£2.00
0	REMOVED BRAKE PADS AS WORN	£2.00
0	CHECK REAR COUNTER SHAFT	£0.50
0	REMOVED BRAKES REPLIED RE-CHECKED ALL OK.	£15.00
Total labour 60.00 SUB-TOTAL 60.00		
PARTS AND MATERIALS		
0	LUBRICANT OIL FILTER	£1.00
0	SEAL-SUMPFLIP	£1.00
0	SHRINK TUBE	£0.50
0	644725	£0.50
0	FILTER	£1.00
0	17500008	£2.24
0	CITROËN	£0.50
0	ANTI-SQUEAK PLATE	£1.00
SUB-TOTAL 11.76		
LUBRICANTS		
0	LIQUID ENGINE OIL	£4.00
		£4.80
SUB-TOTAL 1.80		
TOTAL 60.00		
TOTAL VAT 6.00		
TOTAL INVOICE 44.00		

Invoice

21007250

- Слово “invoice” в 3 местах
 - Вероятно это платежная ведомость
- Число “21007250” рядом с “Invoice No.”
 - Вероятно это номер платежной ведомости

Нет одинаковых счётыных ведомостей от различных поставщиков

<p>Metrrex</p> <p>Ship To: OWENS & MINOR DENVER #3 11440 E 56TH AVE DENVER, CO 80239</p> <p>Bill To: OWENS & MINOR DENVER #3 PO BOX 85007 RICHMOND VA 23261-5007</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Invoice Number: 22099</td> <td>Invoice X-Ref:</td> </tr> <tr> <td>Date: 29-SEP-00</td> <td>Order No.: 2004052</td> </tr> <tr> <td>P.O. Number: 04184</td> <td>Order Date: 29-SEP-00</td> </tr> <tr> <td>Customer Number: 198801</td> <td>Pick Slip No.: 893950</td> </tr> <tr> <td>Location Ref: RICHMOND, VA</td> <td>Pick Slip Date: 29-SEP-00</td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2">TERMS:</th> <th>PAYMENT DUE</th> <th>SALESPERSON</th> <th>CUS</th> </tr> <tr> <td colspan="2">1/10 30 NET</td> <td>29-OCT-00</td> <td>MATLING, KRISTEN - 3034</td> <td>3034</td> </tr> <tr> <th>SHIP DATE</th> <th>SHIP VIA</th> <th colspan="3">SHIPPING REFERENCE</th> </tr> <tr> <td>29-SEP-00</td> <td>Arkansas Best Freight</td> <td colspan="3">110415142</td> </tr> <tr> <th>CATALOG NUMBER</th> <th>DESCRIPTION</th> <th>QTY ORD.</th> <th>QTY SHIPPED</th> <th>UOM</th> </tr> <tr> <td>10-1000</td> <td>METRIMICIDE 160 CT.</td> <td>6</td> <td>6</td> <td>CS</td> </tr> <tr> <td>10-1480</td> <td>14 DAY METRICIDE GALLONS 4/CB</td> <td>12</td> <td>12</td> <td>CS</td> </tr> <tr> <td>10-2880</td> <td>28 DAY METRICIDE GALLONS</td> <td>4</td> <td>4</td> <td>CS</td> </tr> <tr> <td>10-3800</td> <td>METRIZONE 1.5% 50 PCS. X 2</td> <td>6</td> <td>6</td> <td>CS</td> </tr> <tr> <td>10-4800</td> <td>METRIZONE GALLONS</td> <td>3</td> <td>3</td> <td>CS</td> </tr> <tr> <td>10-4810</td> <td>METRIZONE HALF GALLON</td> <td>4</td> <td>4</td> <td>CS</td> </tr> <tr> <td>10-1680</td> <td>CAVICIDE GALLONS CDA-128</td> <td>3</td> <td>3</td> <td>CS</td> </tr> <tr> <td>10-1694</td> <td>CAVICIDE 24 OUNCE C12-024</td> <td>13</td> <td>13</td> <td>CS</td> </tr> </table>	Invoice Number: 22099	Invoice X-Ref:	Date: 29-SEP-00	Order No.: 2004052	P.O. Number: 04184	Order Date: 29-SEP-00	Customer Number: 198801	Pick Slip No.: 893950	Location Ref: RICHMOND, VA	Pick Slip Date: 29-SEP-00	TERMS:		PAYMENT DUE	SALESPERSON	CUS	1/10 30 NET		29-OCT-00	MATLING, KRISTEN - 3034	3034	SHIP DATE	SHIP VIA	SHIPPING REFERENCE			29-SEP-00	Arkansas Best Freight	110415142			CATALOG NUMBER	DESCRIPTION	QTY ORD.	QTY SHIPPED	UOM	10-1000	METRIMICIDE 160 CT.	6	6	CS	10-1480	14 DAY METRICIDE GALLONS 4/CB	12	12	CS	10-2880	28 DAY METRICIDE GALLONS	4	4	CS	10-3800	METRIZONE 1.5% 50 PCS. X 2	6	6	CS	10-4800	METRIZONE GALLONS	3	3	CS	10-4810	METRIZONE HALF GALLON	4	4	CS	10-1680	CAVICIDE GALLONS CDA-128	3	3	CS	10-1694	CAVICIDE 24 OUNCE C12-024	13	13	CS	<p>Energizer</p> <p>Eveready Battery Company, Inc.</p> <p>Invoice # 259043A Invoice Date 11/06/2000 Due Date 12/07/2000 Terms 1% 30 NET 31</p> <p>ORDER INFORMATION PO # 14600 Date Ordered 10/25/2000 Pro-Number 61326911216615 Ship X-ref 001</p> <p>SHIPMENT SUMMARY Date Shpd 11/06/2000 Shipped From MELROSE PARK, IL Shipped Via FEDEX GROU Freight Terms PRE-PAID FOB CARRIER'S TERM DEST Total Pkgs 1 Cartons 1 Total Weight 4</p> <p>IN U.S. REMIT TO METRREX RESEARCH CO P.O. BOX 371080 PITTSBURGH, PA 15291-7080</p> <p>DISCOUNT If Payment Received by 12/06/2000 Take Cash Discount \$1.52</p> <p>TOTALS Due Date 12/07/2000 Terms 1% 30 NET 31 Net Invoice Amount \$191.52</p> <p>DISCOUNT INVOICE AMOUNT \$189.60</p> <p>Dun's # 180537714 UPC Manufacturing ID 439800</p> <p>PAY THIS AMOUNT \$191.52</p> <p>Make checks payable to EVEREADY BATTERY CO., INC. P.O. BOX 751162 CHARLOTTE, NC 28275-1162</p>
Invoice Number: 22099	Invoice X-Ref:																																																																											
Date: 29-SEP-00	Order No.: 2004052																																																																											
P.O. Number: 04184	Order Date: 29-SEP-00																																																																											
Customer Number: 198801	Pick Slip No.: 893950																																																																											
Location Ref: RICHMOND, VA	Pick Slip Date: 29-SEP-00																																																																											
TERMS:		PAYMENT DUE	SALESPERSON	CUS																																																																								
1/10 30 NET		29-OCT-00	MATLING, KRISTEN - 3034	3034																																																																								
SHIP DATE	SHIP VIA	SHIPPING REFERENCE																																																																										
29-SEP-00	Arkansas Best Freight	110415142																																																																										
CATALOG NUMBER	DESCRIPTION	QTY ORD.	QTY SHIPPED	UOM																																																																								
10-1000	METRIMICIDE 160 CT.	6	6	CS																																																																								
10-1480	14 DAY METRICIDE GALLONS 4/CB	12	12	CS																																																																								
10-2880	28 DAY METRICIDE GALLONS	4	4	CS																																																																								
10-3800	METRIZONE 1.5% 50 PCS. X 2	6	6	CS																																																																								
10-4800	METRIZONE GALLONS	3	3	CS																																																																								
10-4810	METRIZONE HALF GALLON	4	4	CS																																																																								
10-1680	CAVICIDE GALLONS CDA-128	3	3	CS																																																																								
10-1694	CAVICIDE 24 OUNCE C12-024	13	13	CS																																																																								

Алгоритмы

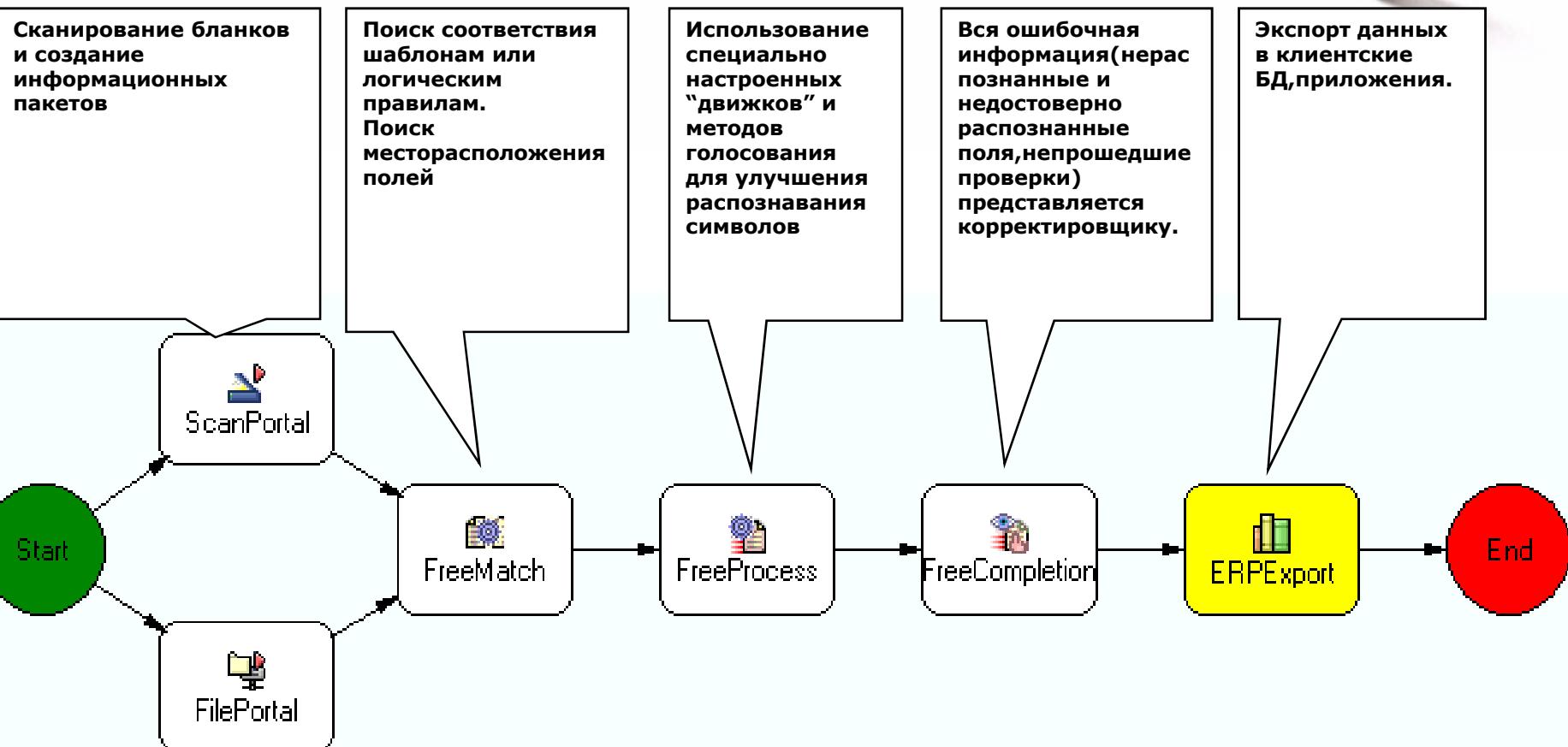
- Freedom ищет информацию по:
 - Ключевым словам: “total”, “total due”, “payment”
 - Маскам полей: @@/@@/@@@
 - Логическим правилам: Subtotal + VAT = Total
 - Топографии: т.е. поле A расположено над полем B
 - Обучению: Поле X было найдено в области Y



Transforming Potential Into Ability

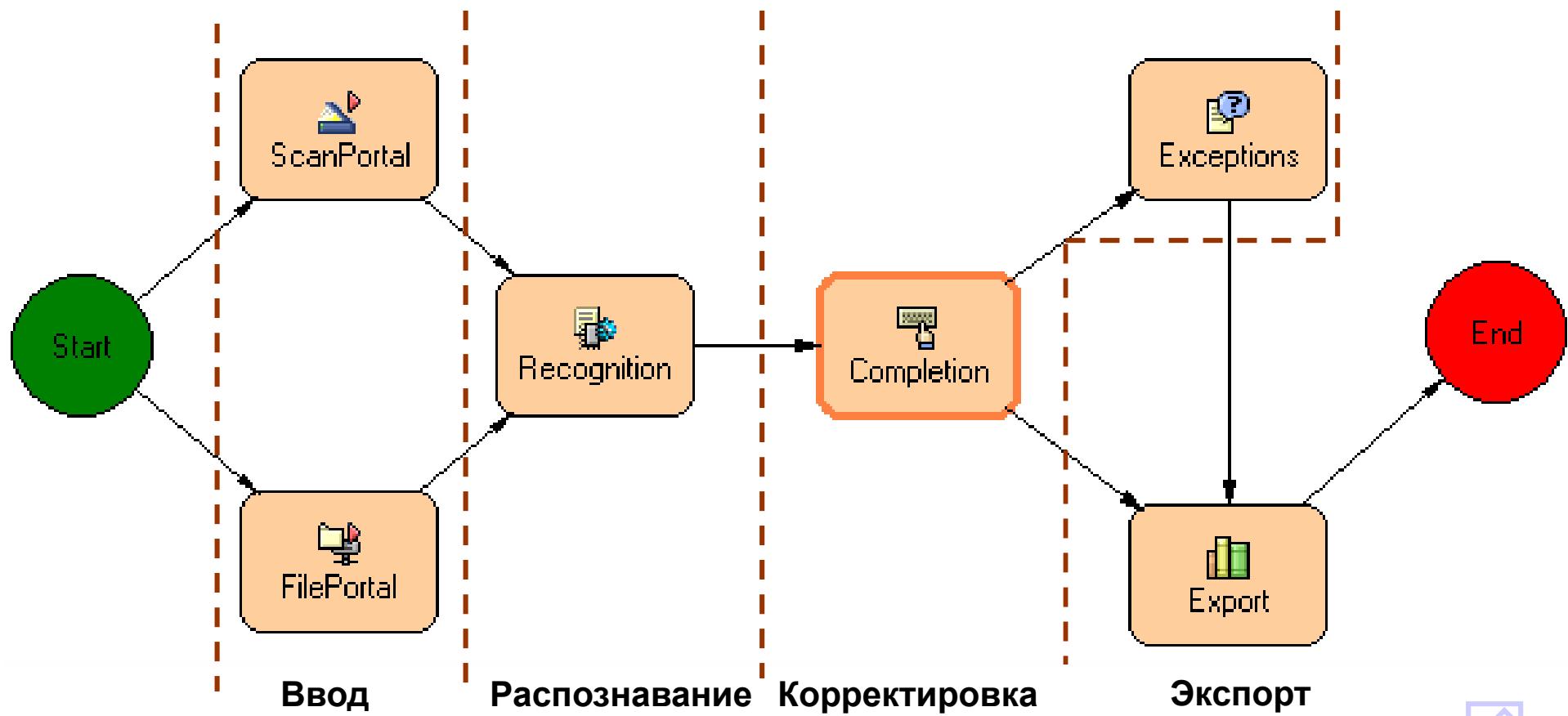
eFLOW станции

Базовый процесс eFLOW

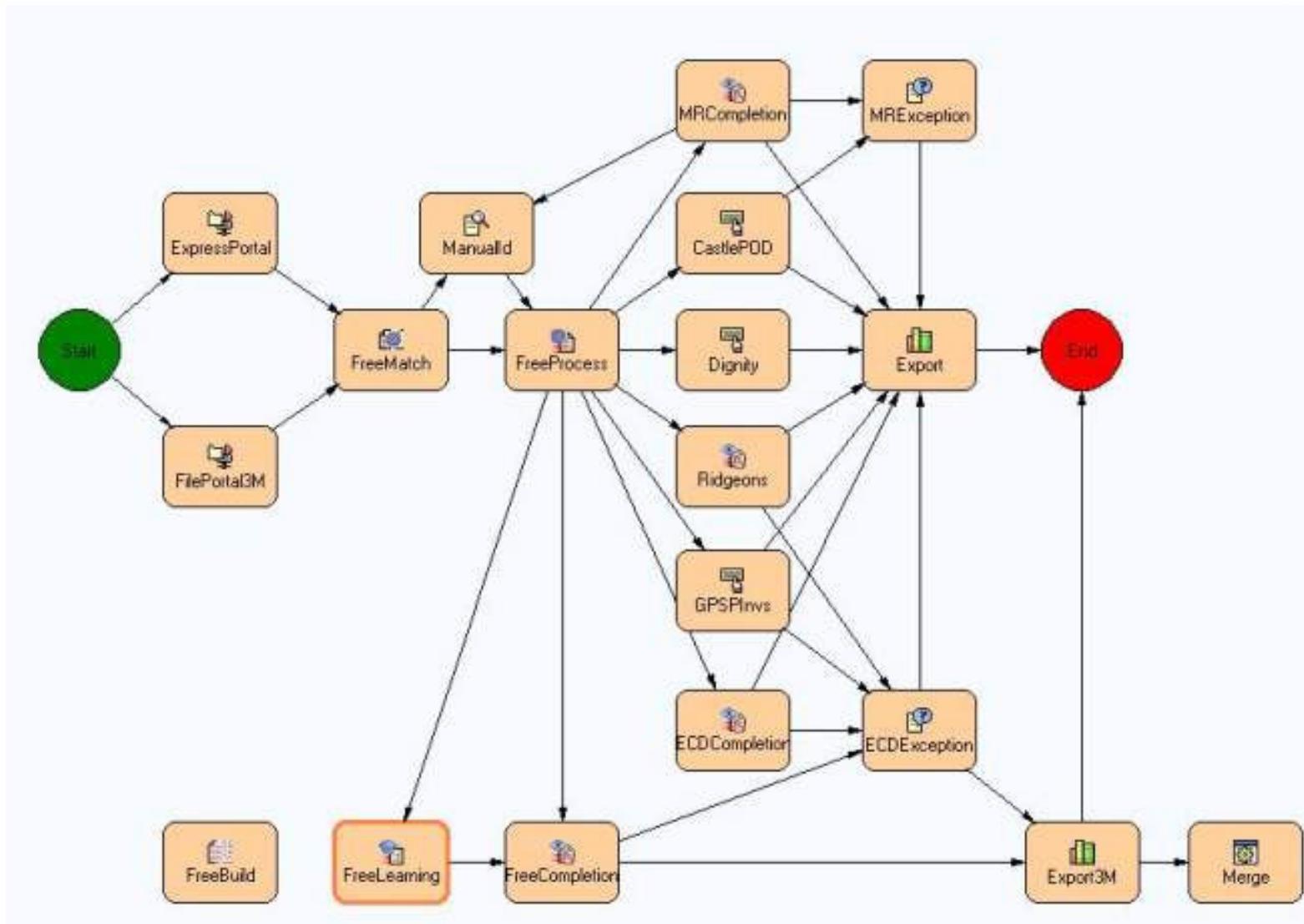




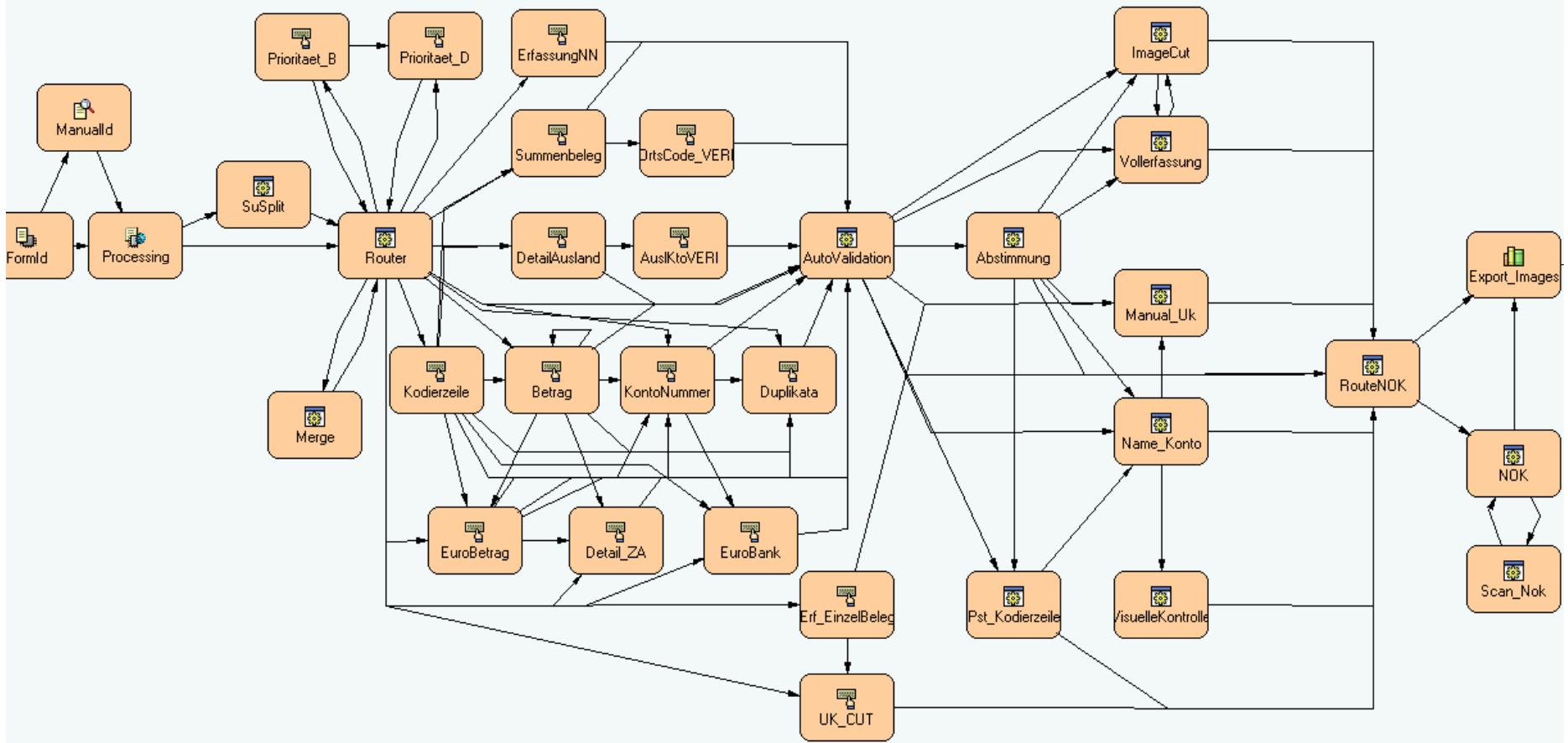
Централизованный запуск станций



Сложный технологический процесс



Сложный технологический процесс



Станция корректировки данных



Integra - Completion (RomaniaPost) - 100000097

File Tools View Options Help

Get Save Discard Exceptions Zoom Skip Pin Image

Destinatar: BEASH TANYA Telefon: 88870

Strada: CALLE VICTORY Nr.: 29 Blocul: Scara: Etaj:

Localitatea BUCHAREST sector județ 23

Oficiul de destinație:

Expeditor: IRENA KELMAN

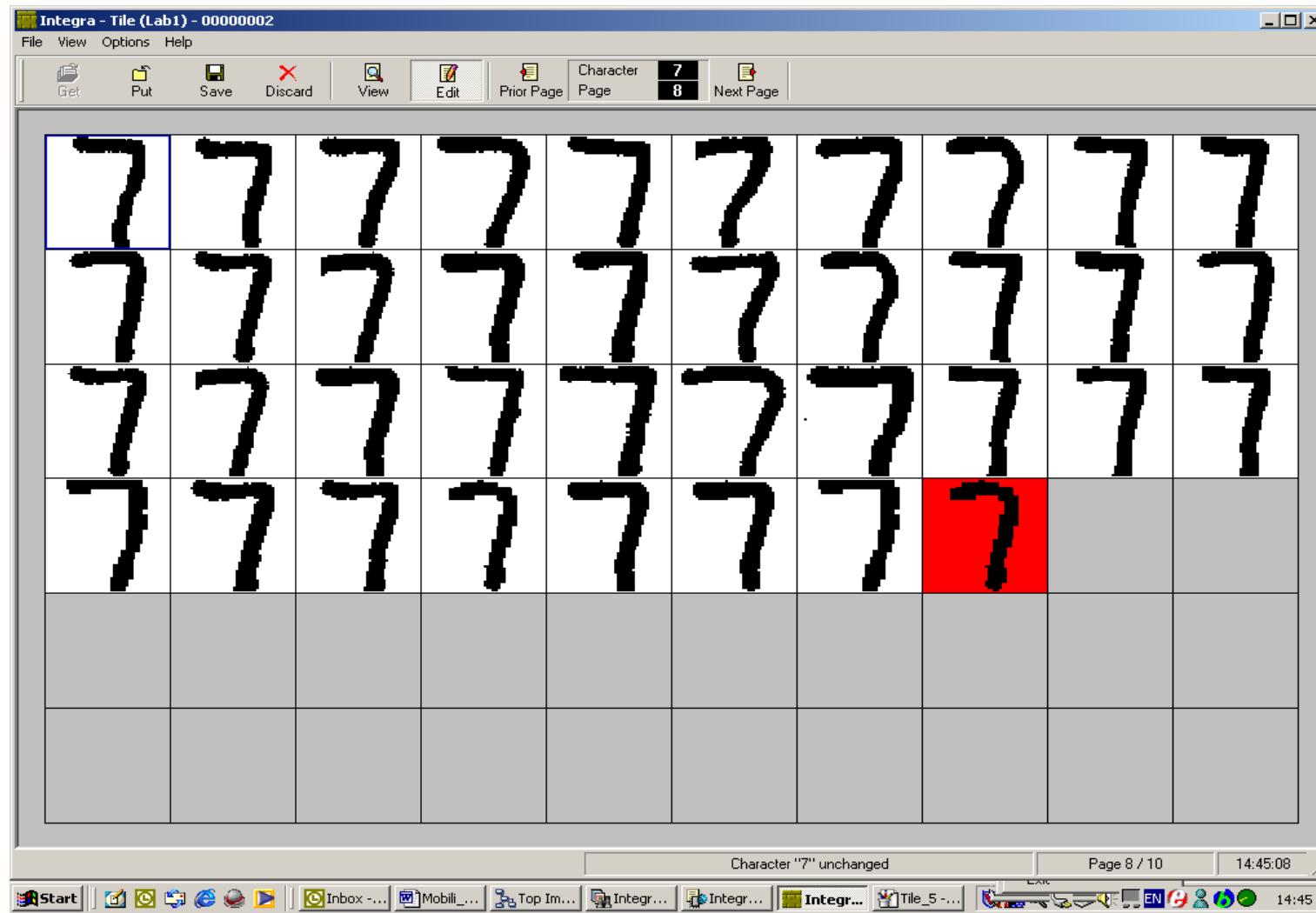
Strada: BLVD. MAHASESTI Nr.: 70 Blocul: Scara: Etaj:

MrField	DataField	NameField	TelefonField
		BEASH TANYA	8887011
Street	StreetNo	countryField	SectorField
CALLE VICTORY	29	BUCHAREST	23
ExpName	ExpStreet	ExpPhone	ExpCountry
IRENA KELMAN	ALUDI MAHASESTI		BUCHAAEST
ExpSector	ExpOnLineField	ExpViaPost	
4			

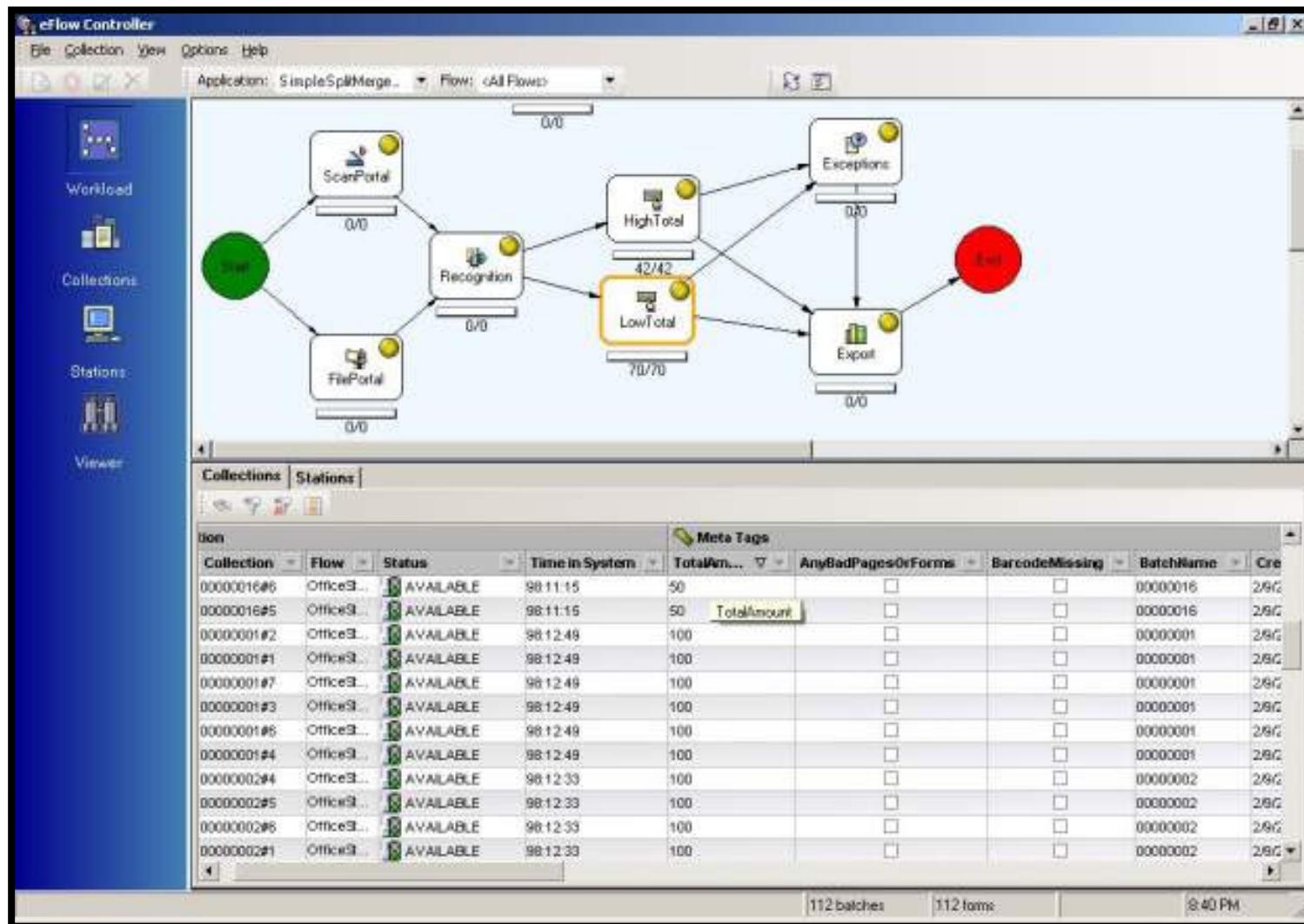
TIS

Form: FP0001 Page: 1 / 6 ALL Insert 17:28:58

Станция посимвольной корректировки



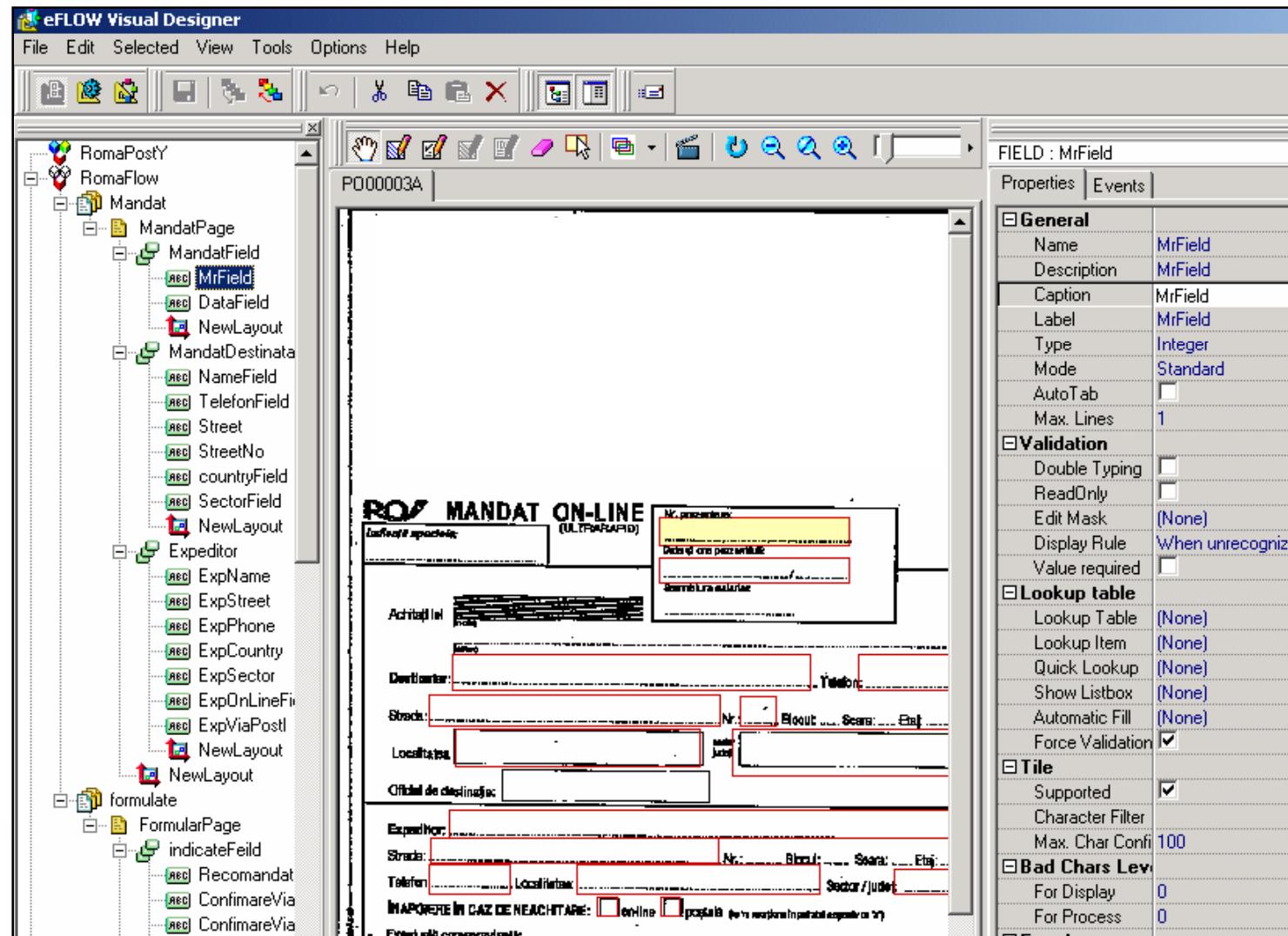
Контроллер



Контроллер



Visual Designer (разработка приложения)





Transforming Potential Into Ability

Расширение стандартной платформы eFLOW

Расширение eFlow



Всё может быть изменено:

- Расположение полей на дисплее станции
“Корректировка”
- Витуальные “движки”
- Технологический процесс
- Бизнес-правила и логические проверки
- Экспортируемые данные
- Поведение станций
- И всё остальное...

Изменение экспортных данных



```
<?xml version="1.0" ?>
- <TisDynamicDatabase>
  - <Collection>
    - <TIS_000000F3>
      - <Properties>
        <BatchName>000000F3</BatchName>
        <CreationDate>20040516</CreationDate>
        <CreationTime>58953</CreationTime>
        <FlowType>OfficeStore</FlowType>
        <FormsInBatch>7</FormsInBatch>
        <PagesInBatch>7</PagesInBatch>
        <CollectionSource>0</CollectionSource>
        <ExportPassCount>1</ExportPassCount>
        <MTFFile>16052004162613.MTF</MTFFile>
      </Properties>
      - <Form>
        - <FP0001>
          - <Properties>
            <FormType>EasyOrderFax</FormType>
          </Properties>
          - <Page>
            - <P0001>
              - <Properties>
                <IdentificationMethod>10</IdentificationMethod>
                <IsAttachment>0</IsAttachment>
                <MatchCode>98</MatchCode>
                <PageId>DEMO</PageId>
              </Properties>
            - <Field>
```

XML

CreditExpDate	CreditNum
0101	296743672191684
1101	18900179
1101	32167172

SQL

760,4388867,760,4382929
760,6343570,760,6343571
760,7368200,760,5213711
760,7368400,760,7638412
858,5286784,858,5284321
858,5669228,858,5661793

CSV

Data for flow: OfficeStore batch: 000000F3										
20000207	2967436721916842	01/01	760	634-3571 OFFICE SUPPLY BUYER VIKING SHEET METAL	7590 CARROL CANYON RDSAN DIEGO CA 92121	Credit	760	6343570		
20000108	7942684321671725	11/01	760	763-8412 JOE MORGAN COUNTRY FURNITURE	850 LOS VALLECITO SAN MARCOS CA 92069	Credit	760	7368400		
	6201961342178649	858	750-4321 ROB WISE THE PLUMBING STORE	10 WISCONSIN AVE SAN FRANCISCO CA 94107	Credit	858	5286784			
20000108	7942684321671725	11/01	60	763-8412 JILL OLEFF'S COUNTRY FURNITURE	10 WISCONSIN AVE SAN FRANCISCO CA 94107	Credit	760	7368400		
20000116	4693216784211596	11/02	80	750-4321 ROB WISE THE PLUMBING STORE	10 WISCONSIN AVE SAN FRANCISCO CA 94107	Credit	760	4388867		
	7897686329071723	09/00	760	727-3711 OFFICE SUPPLY BUYER TWO TOWNS FOR YOUR KENYON RDSAN DIEGO CA 92121	Credit	760	7368200			
	6398426189001793	09/01	858	508-1793 OFFICE SUPPLY BUYER TWO TOWNS FOR YOUR KENYON RDSAN DIEGO CA 92121	Credit	858	5669228			

Tab Delimited



Transforming Potential Into Ability

Спасибо