

```
In [1]: %matplotlib inline
```

```
import matplotlib.pyplot as plt
import numpy as np
import pathlib
import re
import tqdm
```

```
In [2]: paths = pathlib.Path('Dataset').glob('*')
paths = sorted([x for x in paths])
```

```
In [3]: image = plt.imread(str(paths[0]))
image.shape
```

```
Out[3]: (1575, 2100, 3)
```

```
In [4]: def Braley_binarisation(image, s=-1, t=0.15):
```

```
    height = image.shape[0]
    width = image.shape[1]
    if s == -1:
        s = width//8;
    s2 = s//2
    grey_pix = 0.2125*image[:, :, 0] + 0.7154*image[:, :, 1] + 0.0721*image[:, :, 2]
    integral_image = np.zeros_like(grey_pix)
    for i in range(width):
        sum = 0
        for j in range(height):
            sum += grey_pix[j][i]
            if (i==0):
                integral_image[j][i] = sum
            else:
                integral_image[j][i] = integral_image[j][i-1] + sum

    res = np.zeros_like(grey_pix)
    for i in range(width):
        for j in range(height):
            x1=max(i-s2, 0)
            x2=min(i+s2, width-1)
            y1=max(j-s2, 0)
            y2=min(j+s2, height-1)
            count = (x2-x1)*(y2-y1)
            sum = integral_image[y2][x2]-integral_image[y1][x2]-integral_image[y2][x1]
            +integral_image[y1][x1]
            if grey_pix[j][i]*count < sum*(1.0-t):
                res[j][i] = 0
            else:
                res[j][i] = 255

    return res
```

```
In [5]: for path in tqdm.tqdm_notebook(paths):
    image = plt.imread(str(path))
    res = Braley_binarisation(image)
    plt.figure(figsize=(17,10))
    plt.grid()
    plt.imshow(image, cmap=plt.cm.gray)
    plt.show()
    plt.figure(figsize=(17,10))
    plt.grid()
    plt.imshow(res, cmap=plt.cm.gray)
    plt.show()
    plt.imsave('res/image' + re.findall(r'Dataset/(\w+).', str(path))[0] + '.png', res, cmap=plt.cm.gray)
```

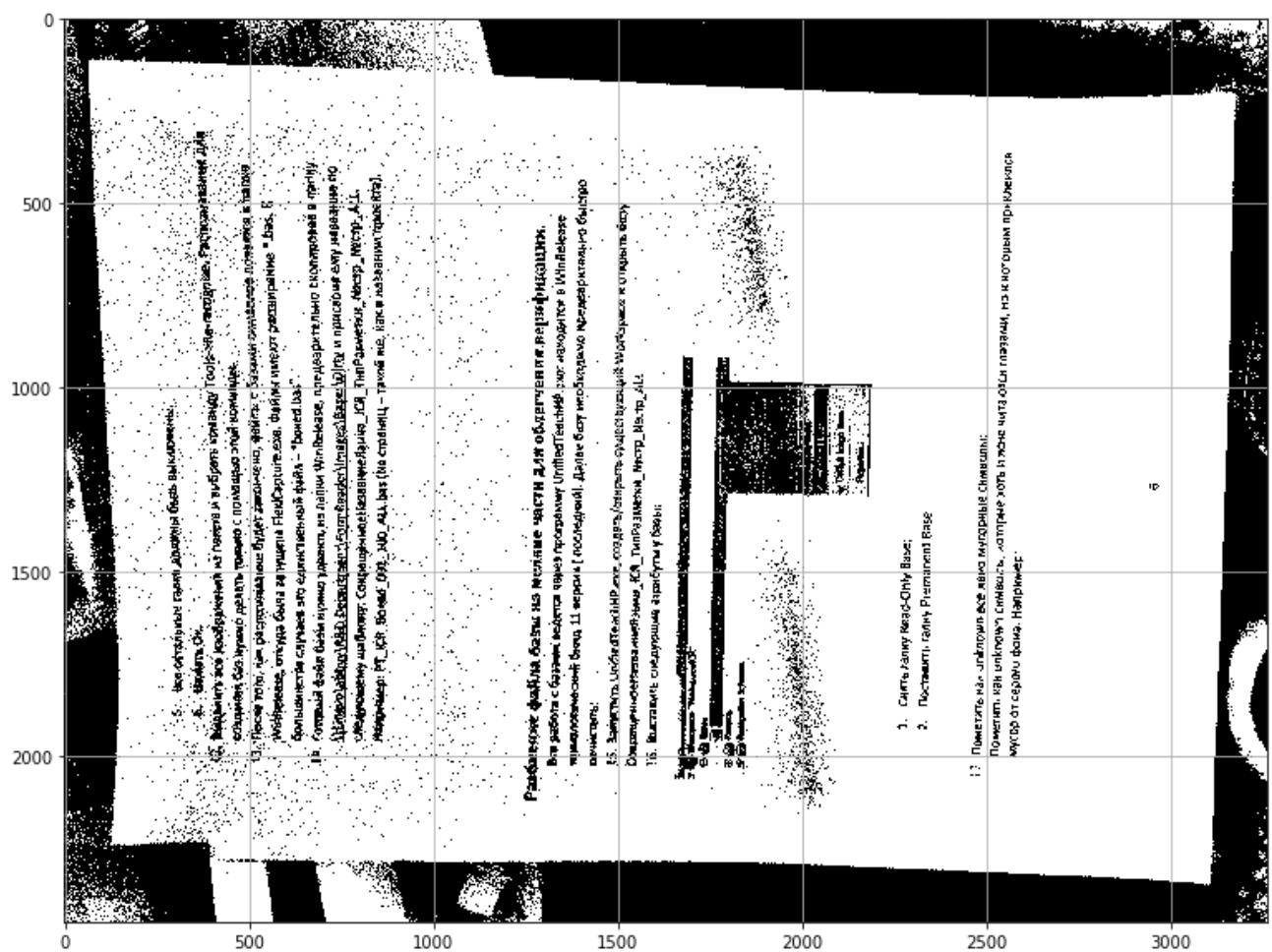
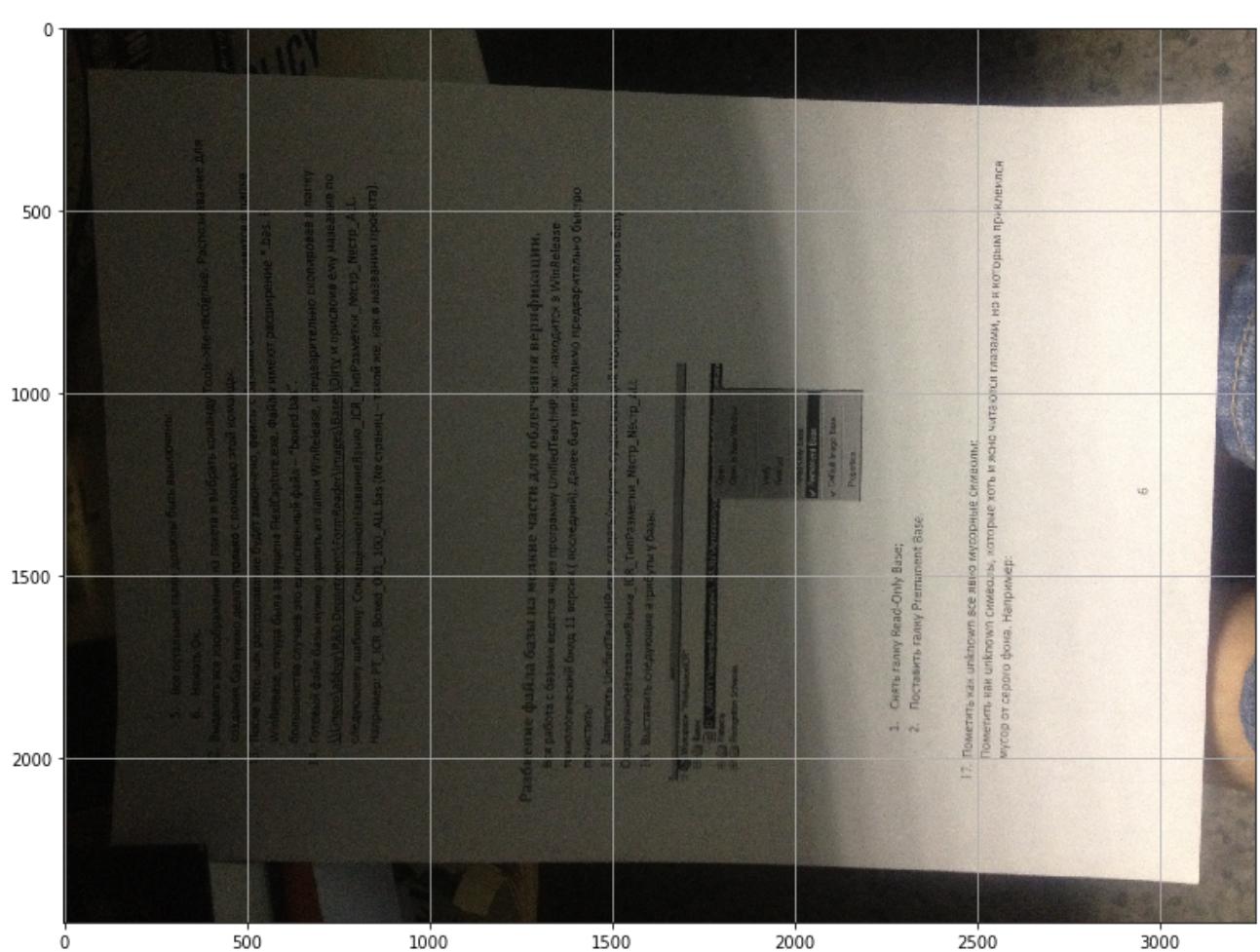
Мой заказ		Печать													
<p>ИНФОРМАЦИЯ О ЗАКАЗЕ НА ПОКУПКУ ПРОВЕДЕНЫХ ДОКУМЕНТОВ (БИЛЕТОВ)</p> <p>ВНИМАНИЕ: ДЛЯ ПОСАДКИ В ПОЕЗД НЕОБХОДИМО ПОЛУЧИТЬ БИЛЕТ В КАССЕ ОАО «РЖД» ИЛИ НА ТРАНЗАКЦИОННОМ ТЕРМИНАЛЕ САМООСЛУЖИВАНИЯ</p> <p>Помимо того, что отправлено в электронном виде, вы можете обнаружить и получите информацию о проданном вами поезде в кассе железнодорожного вокзала, а также в терминале самообслуживания (автомате), установленном перед входом в поезд.</p> <p>Ваш номер заявки: 73170372507461</p> <p>Дата и время заказа: 03.05.2012 15:59</p> <p>Номер поезда: 011А СКИРДА</p> <p>Номер места в поезде/вагоне/место: 05-05 401-2 18:50</p> <p>Дата и время определения поезда: 06.05.2012 00:55</p> <p>Дата и время прибытия поезда: 10</p> <p>Номер вагона: ПЛАСАДАР (ПЛ) УД С ВЕЛЬВЕ</p> <p>Тип вагона / вид обслуживания: УЗДОН</p> <p>Порядковый: 2/101, 052</p> <p>Код места / Номер места: ВРЕМЯ ОТПУСКА МОСКОВСКОЕ</p> <p>Дополнительная информация:</p>															
<p>ИНФОРМАЦИЯ О ПРОЕЗДНЫХ ДОКУМЕНТАХ</p> <table border="1"> <thead> <tr> <th>Тариф</th> <th>Стоймость руб</th> <th>ФИО</th> <th>Тип и номер документа</th> </tr> </thead> <tbody> <tr> <td>Полный</td> <td>532,50</td> <td>СЕМЕНОВА АЛЕКСАНДРА ВЛАДИМИРОВНА</td> <td>ПЛ***4700</td> </tr> <tr> <td>Полный</td> <td>532,50</td> <td>СЕМЕНОВА ЕРУЗАЕМЕВА ВЛАДИМИРОВНА</td> <td>ПЛ***4285</td> </tr> </tbody> </table> <p>Стоймость заказа: 1065 руб.</p> <p>Я согласен с теми условиями покупки и gebruikenwaarden, что приведены в данном письменном порядке.</p> <p>https://ticket.rzd.ru/pass/secure/ticket/cabinet?S=RUUTURE_ID=14&layer_id=5020...</p> <p>* 73170372507461</p> <p>Данный скриншот сделан в 03.05.2012 11:39:23</p>				Тариф	Стоймость руб	ФИО	Тип и номер документа	Полный	532,50	СЕМЕНОВА АЛЕКСАНДРА ВЛАДИМИРОВНА	ПЛ***4700	Полный	532,50	СЕМЕНОВА ЕРУЗАЕМЕВА ВЛАДИМИРОВНА	ПЛ***4285
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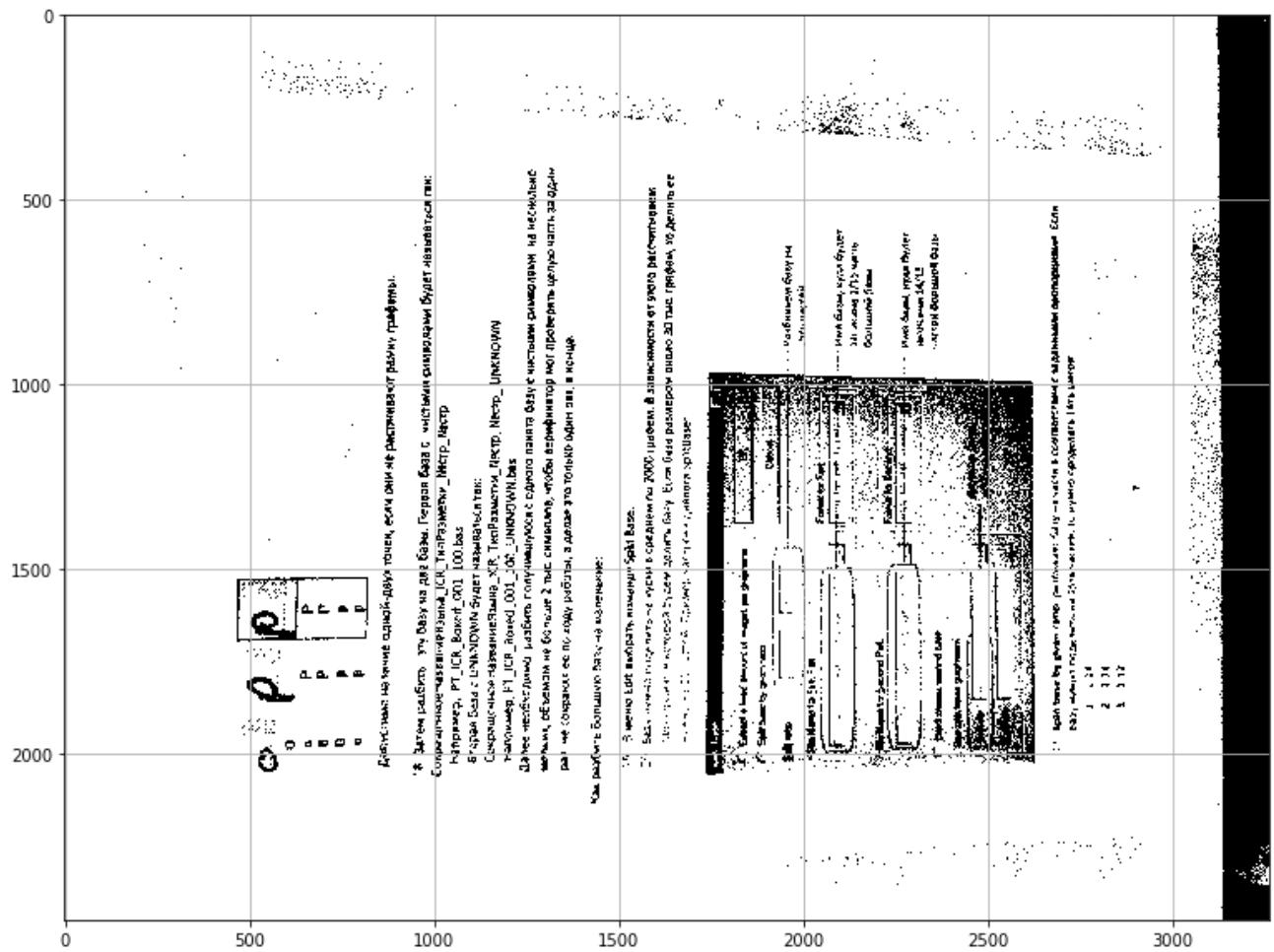
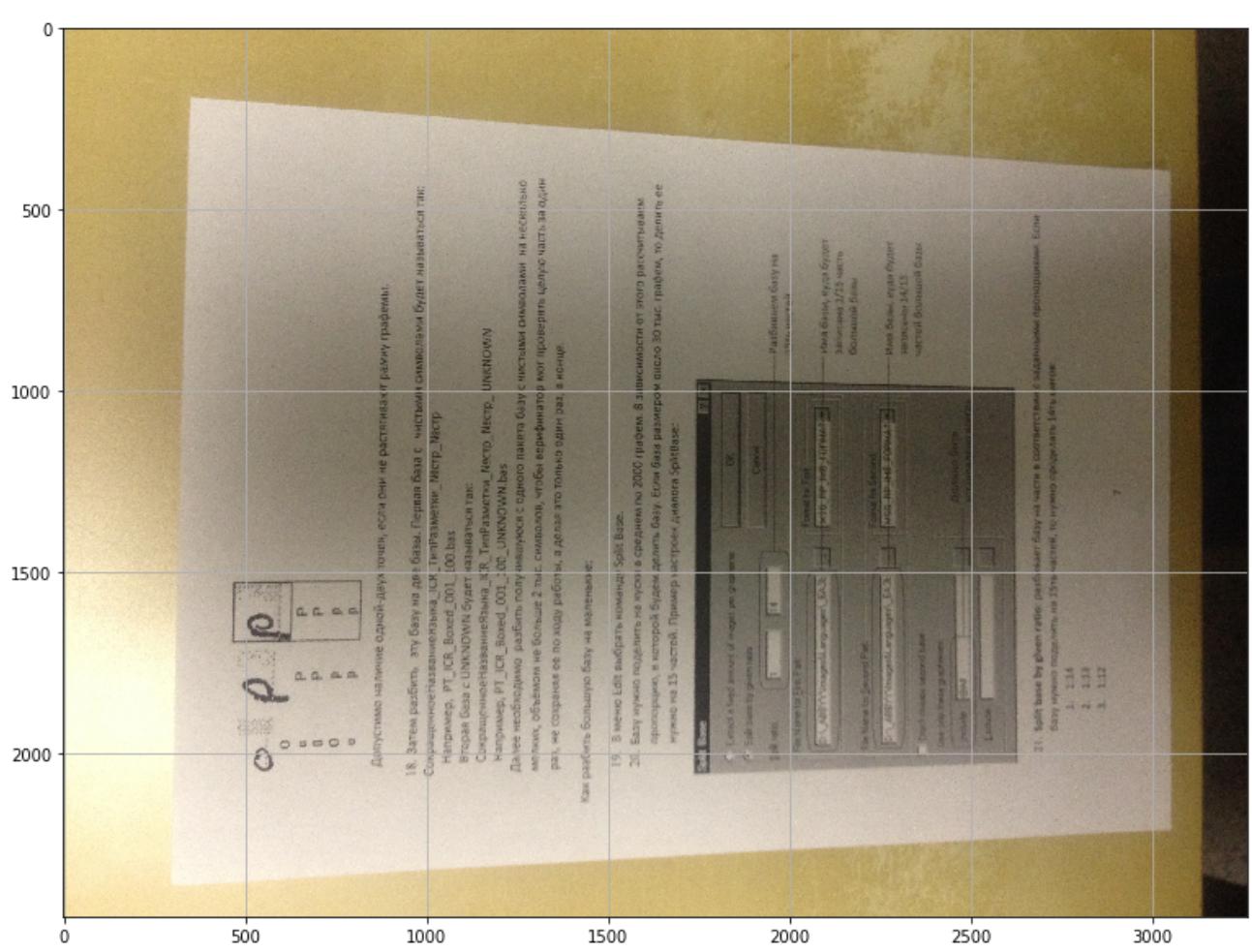
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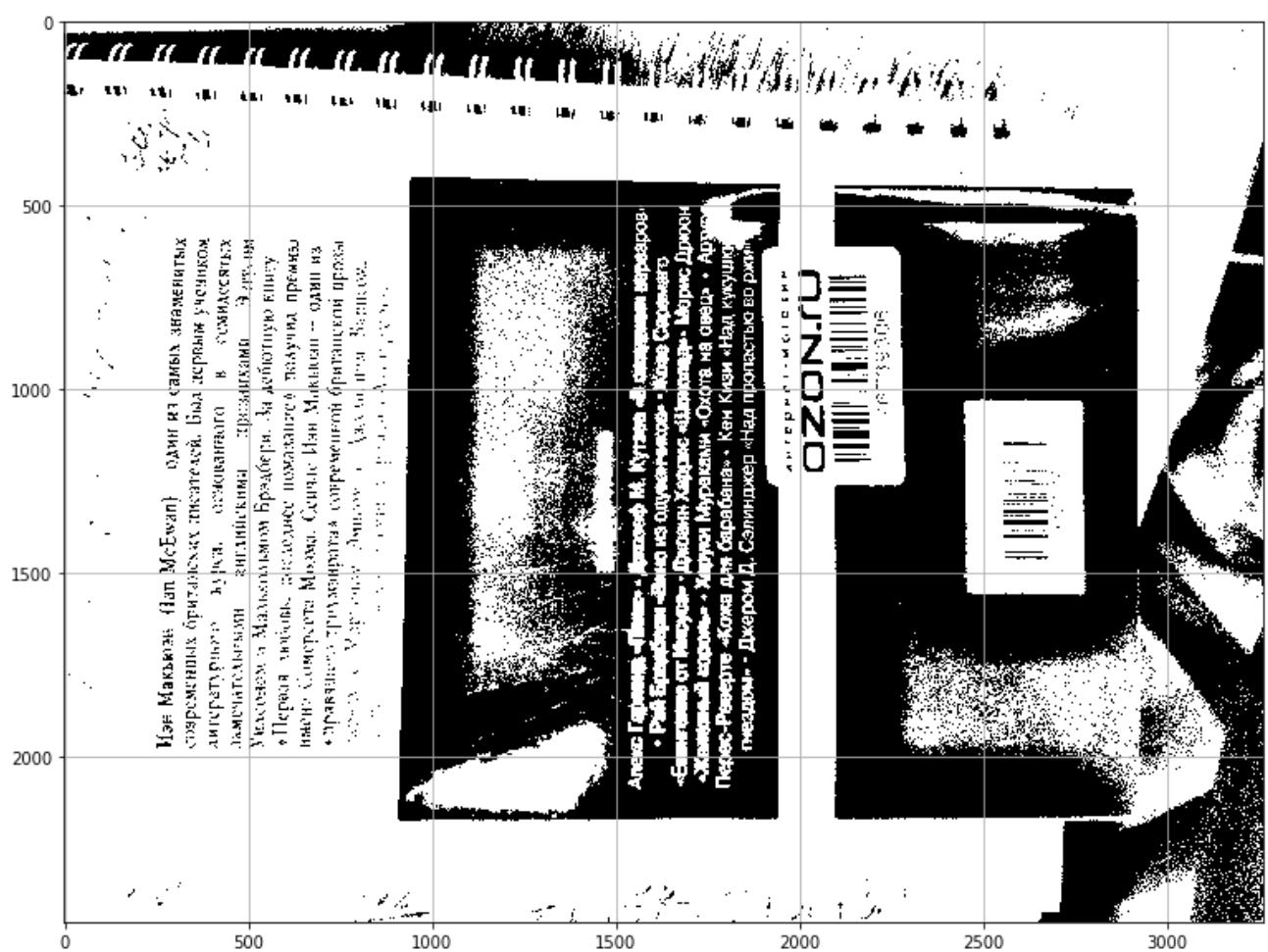
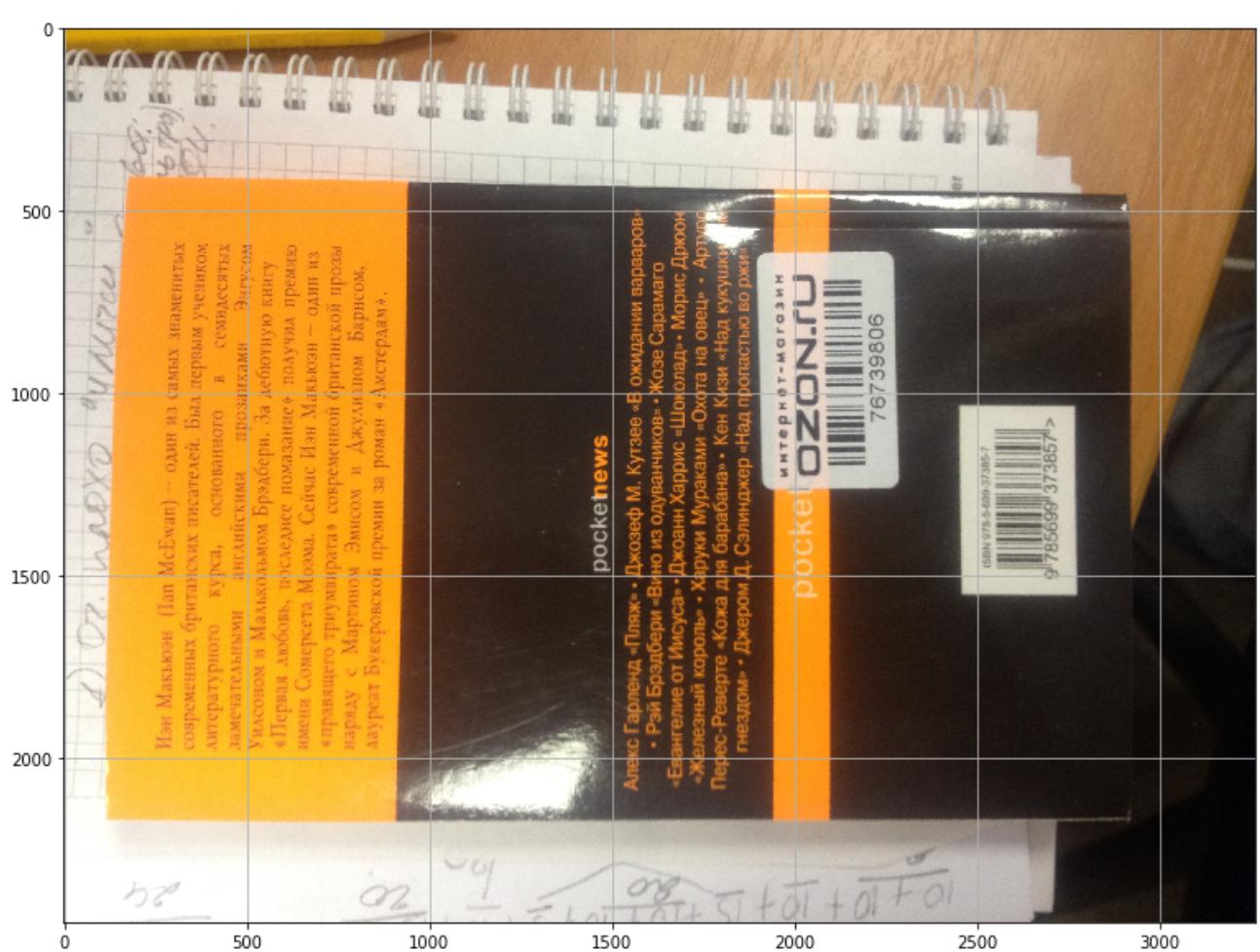
Наш заказ в КУПЛЮ БИЛЕТ

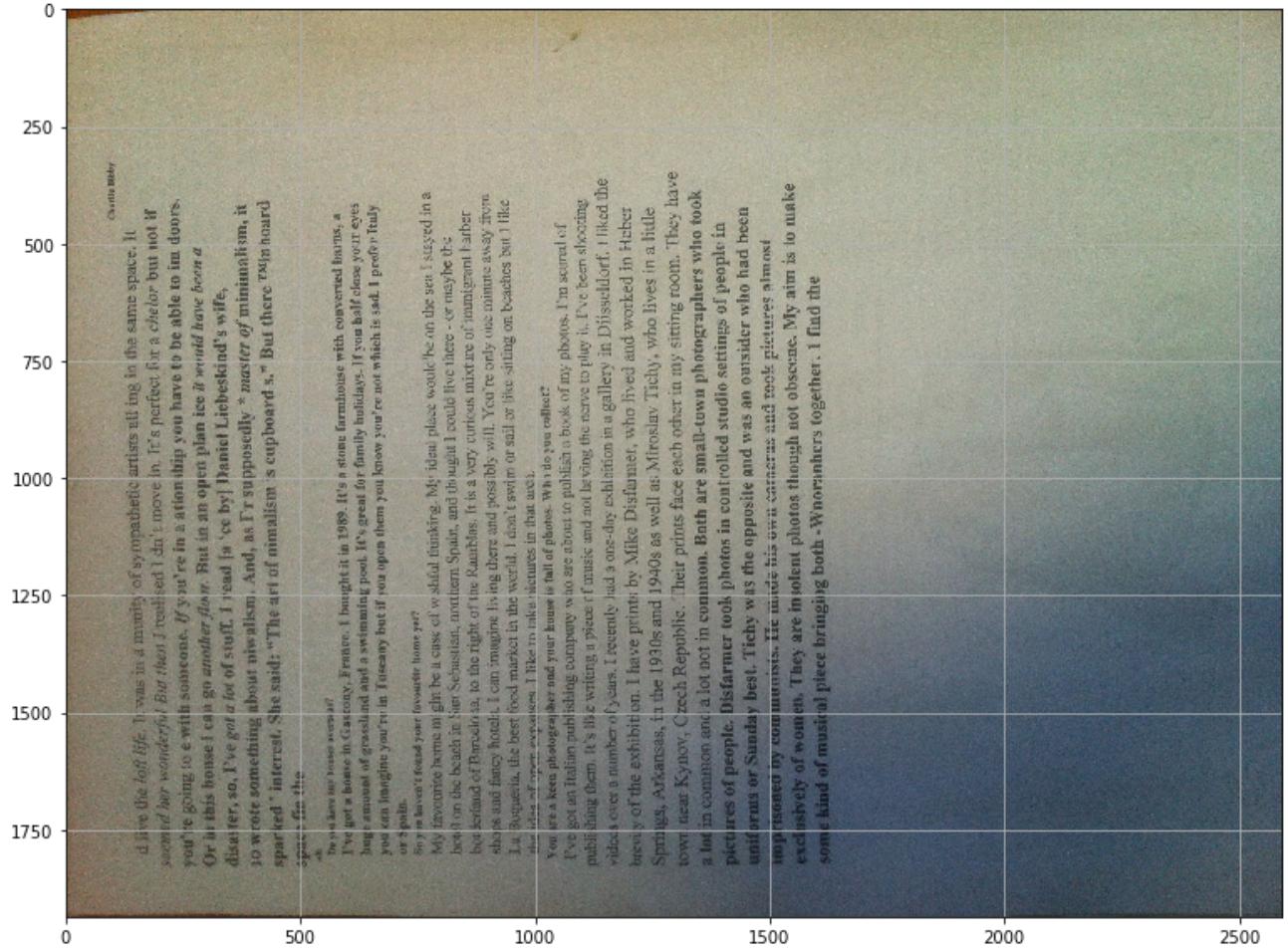
ИНФОРМАЦИЯ О ЗАКАЗЕ НА ПОКУПКУ ПРЕДСТАВЛЯЕМЫХ ДОКУМЕНТОВ (БИЛЕТОВ) ВНИМАНИЕ: ДЛЯ ПОСАДКИ В ПОЛЁТ НЕОБХОДИМО ПОЛУЧИТЬ БИЛЕТ В КУПСЕ ОАО «РЖД» ИЛИ НА ТРАНЗАКЦИОННОМ ТЕРМИНАЛЕ САМООСВЕРЖИВАНИЯ			
<small>Помимо того, что в приложении к оформлению заказа, в нем должны быть отражены и подтверждены предъявлены в билете, в том числе в виде фотографии, данные о единичном и (если, установлено) члене Клуба постоянных клиентов.</small>			
Ваш номер заявки Билет № Авиакомпания: Аэрофлот Авиалайнер: Boeing 747-400 Аэропорт вылета: Аэропорт Шереметьево Аэропорт прибытия: Аэропорт Шереметьево Дата и время вылета: 07.05.2012 18:50 Дата и время прибытия: 08.05.2012 00:55 Тип места: Пассажирский Тип места в Клубе постоянных клиентов: Тип места в Клубе постоянных клиентов: Перевозчик: Аэрофлот Код-эр-номер: Номер нет Документ, удостоверяющий личность: ИНФОРМАЦИЯ О ПРОДАННЫХ ДОКУМЕНТАХ			
Номер	Столбец №15	Фамилия	Тип и вид № документа
Полный	532,50	СНЕГИРОВА АЛЕКСАНДРА ВЛАДИМИРОВНА	Паспорт № 2760
Фамильный	532,50	СНЕГИРОВА ГРИГОРИЯ ВЛАДИМИРОВНА	Паспорт № 2385
Степенность заявки: 100% А сопоставлено с базами данных поиска и проверено на наличие фальшивых документов.			
			ВЛЮЧАЮЩИЙ ПРИЛОЖЕНИЕ: 73170572507461
		<small>Дата и время формирования заявки: 03.05.2012 11:39:15</small>	<small>Дата и время формирования заявки: 03.05.2012 11:39:15</small>

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 03.05.2012









I live the *old life*. I was in a minority of sympathetic artists living in the same space. [I] deserved her wonderful! But then I realised I didn't move in. It's perfect for a chef or, but not if you're going to live with someone. If you're in a situation that you have to be able to live doors. Or in this house I can go another floor. But in an open plan like it would have been a disaster, so, I've got a lot of stuff. I read [in 'ce by] Daniel Liebeskind's wife, to write something about minimalism. And, as far as I'm supposedly a master of minimalism, it sparked' interest. She said: "The art of minimalism is cupboard's." But there remain hard spaces for the

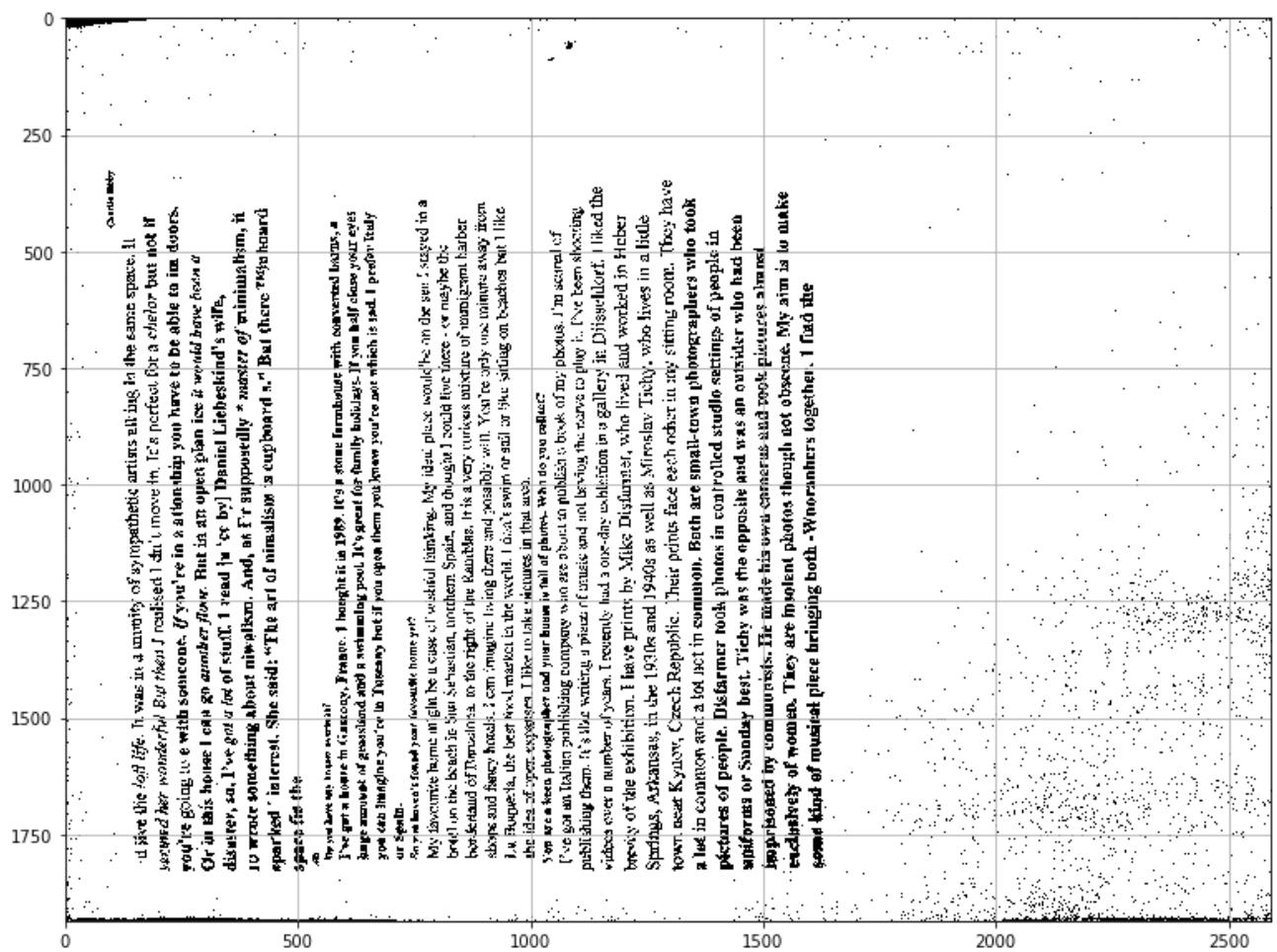
You have no house now? I've got a house in Gstaad, France. I bought it in 1988. It's a stone farmhouse with converted barns, a large amount of grassland and a swimming pool. It's great for family holidays. If you half close your eyes you can imagine you're in Tuscany but if you open them you know you're not which is sad. I prefer Italy or Spain.

So you haven't found your favorite home yet? My favorite home will probably be on the sea. I stayed in a hotel on the beach in Sant Sebastián, northern Spain, and thought it could live there - or maybe the borderland of Barcelona, to the right of the Ramblas. It is a very curious mix of immigrant harbor towns and fancy hotels. I can imagine living there and possibly will. You're only one minute away from La Boqueria, the best food market in the world. I don't swim or sail or like sitting on beaches but I like the idea of open experiences. I like to take pictures in that area.

You are a keen photographer and your house is full of photos. Who do you exhibit?

I've got an Italian publishing company who are about to publish a book of my photos. I'm scared of publishing them. It's like writing a piece of music and not letting the ears to play it. I've been shooting videos over a number of years. I recently had a one-day exhibition in a gallery in Düsseldorf. I liked the brevity of the exhibition. I have prints by Mike Disfarmer, who lived and worked in Heber Springs, Arkansas, in the 1930s and 1940s as well as Miroslav Tichý, who lives in a little town near Kyjov, Czech Republic. Their prints face each other in my sitting room. They have a lot in common and a lot not in common. Both are small-town photographers who took pictures of people. Disfarmer took photos in controlled studio settings of people in uniforms or Sunday best. Tichý was the opposite and was an outsider who had been

imprisoned by communists. He made his own cameras and took pictures almost exclusively of women. They are violent photos though not obscene. My aim is to make some kind of musical piece bringing both - Whorangers together. I find the



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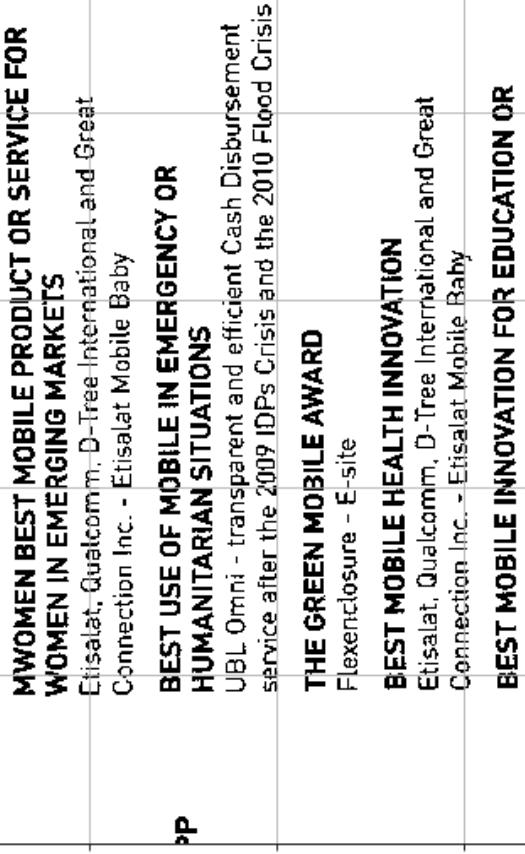
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mobile COVERAGE

A NETWORK ROAMING COVERAGE MAP SERVICE FOR YOUR WEBSITE



COME AND VISIT US AT THE GSMA PAVILION IN HALL 8

Collins mobile Coverage is a web based roaming coverage map service made available through CollinsBartholomew's partnership with the GSMA. Using the latest mapping technology,

Collins mobile Coverage combines up-to-date world base maps with unique mobile network coverage data provided by operators from around the world. These seamless roaming coverage maps are delivered straight to network operators' corporate web pages to help them tell their users where they can use their phones when abroad.

*Interactive seamless network roaming coverage maps
delivered straight to network operator corporate web pages*

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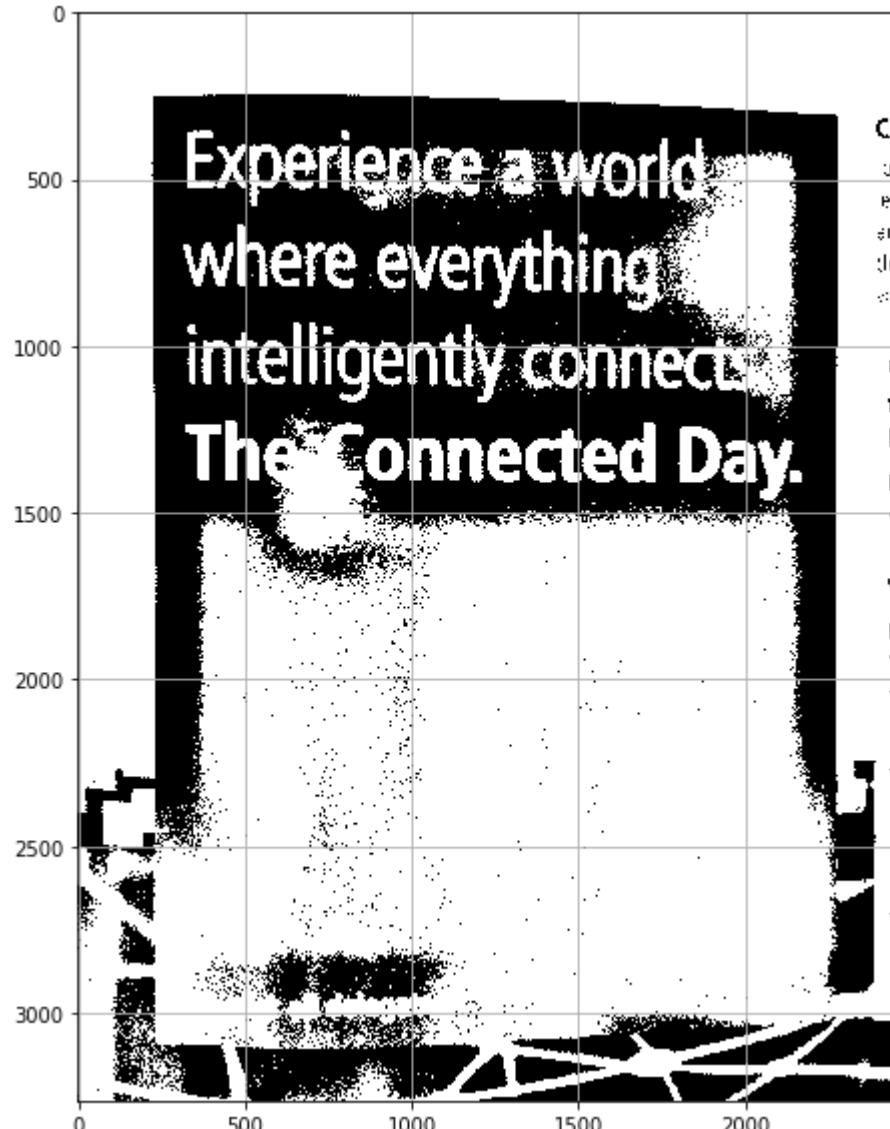
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*Interactive seamless network roaming coverage maps
delivered straight to network operator corporate web pages*

Experience a world
where everything
intelligently connects.
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There is incredible excitement around Near Field Communications (NFC) today, and the news has been awash with service launches, NFC-enabled devices and new alliances. While NFC is perhaps most closely associated with mobile payments, it goes far beyond; NFC will facilitate a wide range of new applications for consumers, such as mobile ticketing to board public transportation, the exchange of information and content, control access to cars, homes, hotels, offices and car parks and more. This is just the tip of the iceberg - the possibility for innovation is endless.

The market potential for NFC is significant - nearly 1.5 billion SIM-based handsets will have been sold worldwide between 2010 and 2016, supporting transactions of more than \$50 billion globally over the same period according to Strategy Analytics, and momentum is growing.

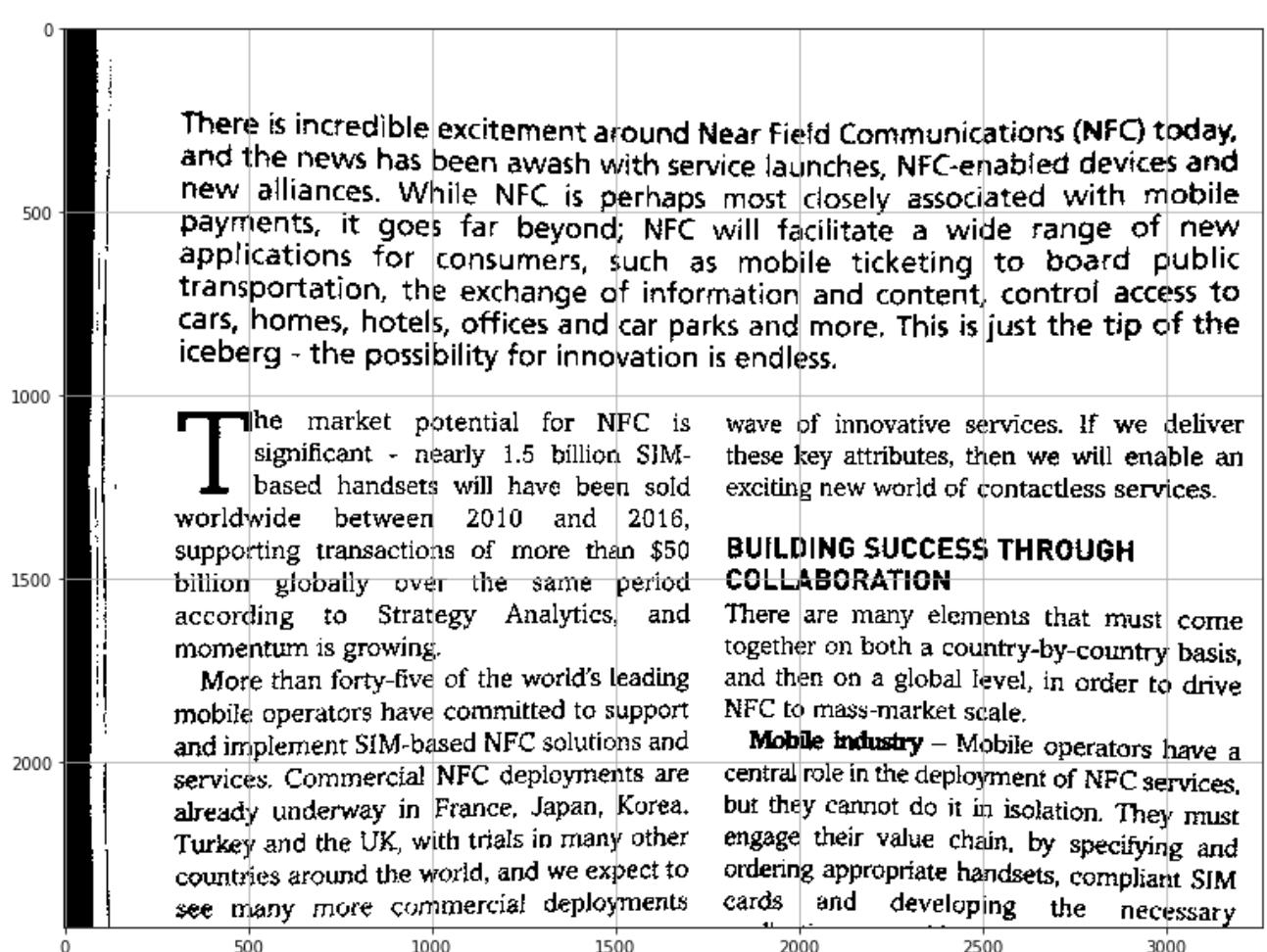
More than forty-five of the world's leading mobile operators have committed to support and implement SIM-based NFC solutions and services. Commercial NFC deployments are already underway in France, Japan, Korea, Turkey and the UK, with trials in many other countries around the world, and we expect to see many more commercial deployments

wave of innovative services. If we deliver these key attributes, then we will enable an exciting new world of contactless services.

BUILDING SUCCESS THROUGH COLLABORATION

There are many elements that must come together on both a country-by-country basis, and then on a global level, in order to drive NFC to mass-market scale.

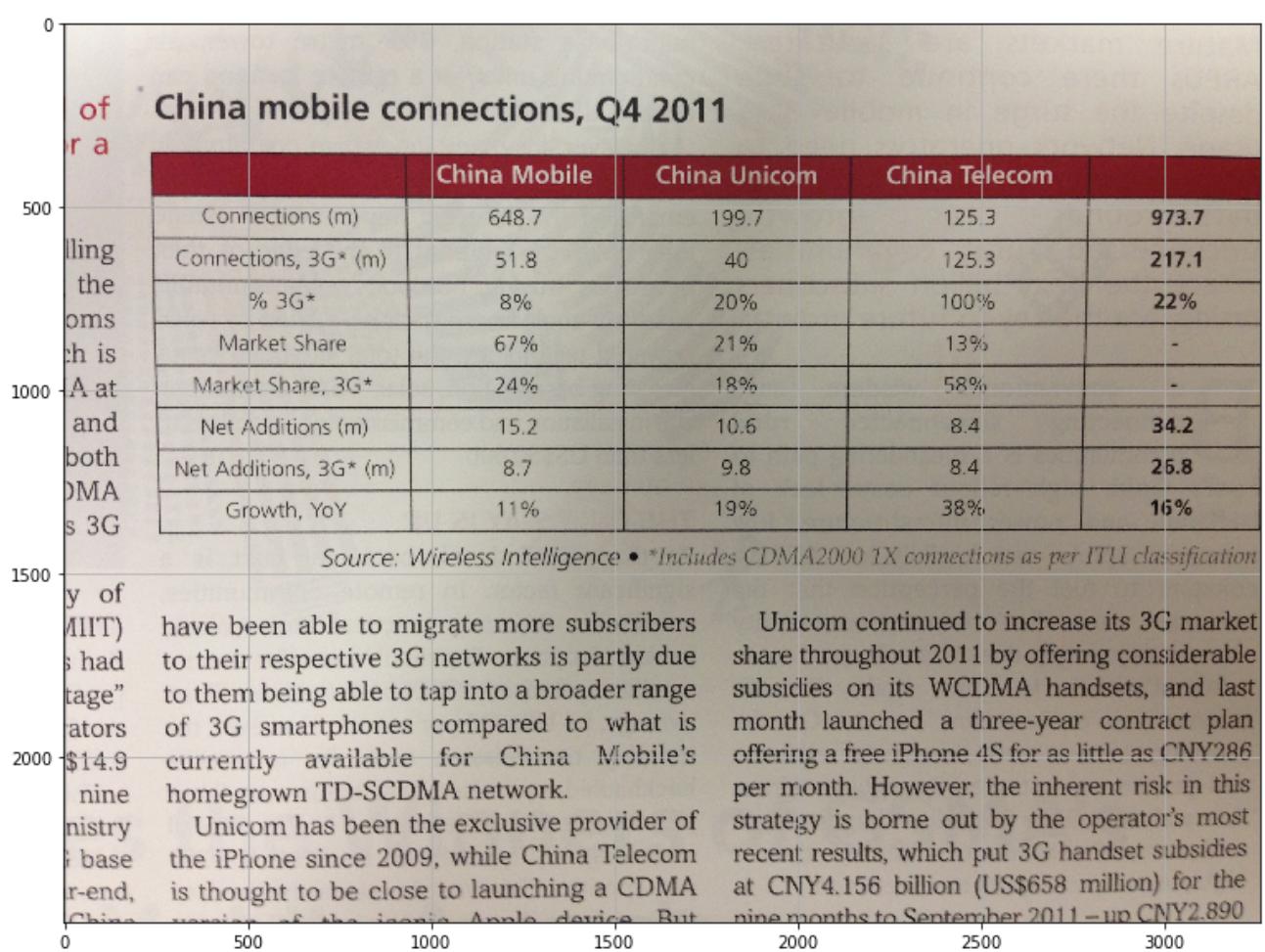
Mobile industry – Mobile operators have a central role in the deployment of NFC services, but they cannot do it in isolation. They must engage their value chain, by specifying and ordering appropriate handsets, compliant SIM cards and developing the necessary

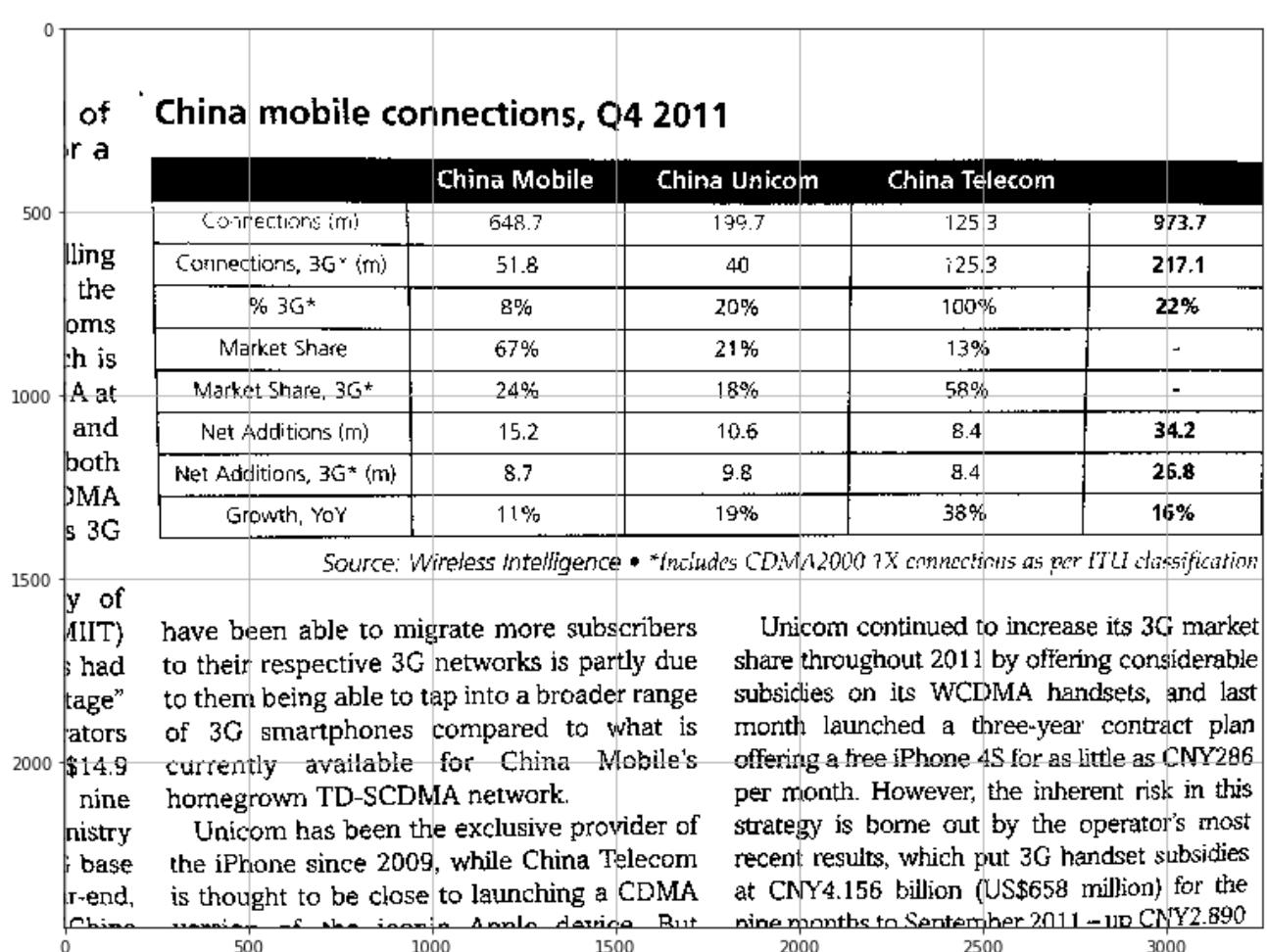


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have been able to migrate more subscribers to their respective 3G networks is partly due to them being able to tap into a broader range of 3G smartphones compared to what is currently available for China Mobile's homegrown TD-SCDMA network.

Unicom has been the exclusive provider of the iPhone since 2009, while China Telecom is thought to be close to launching a CDMA

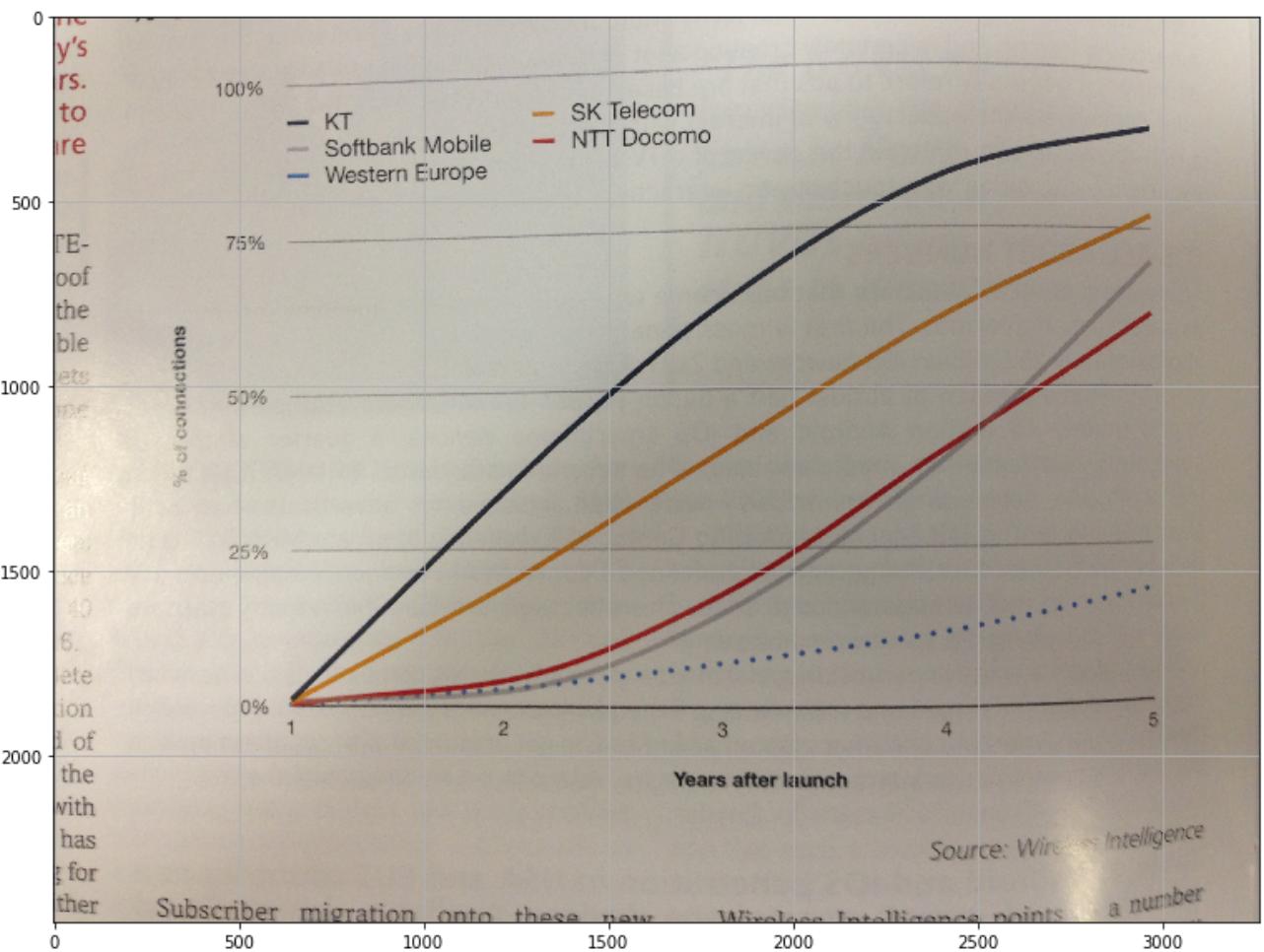
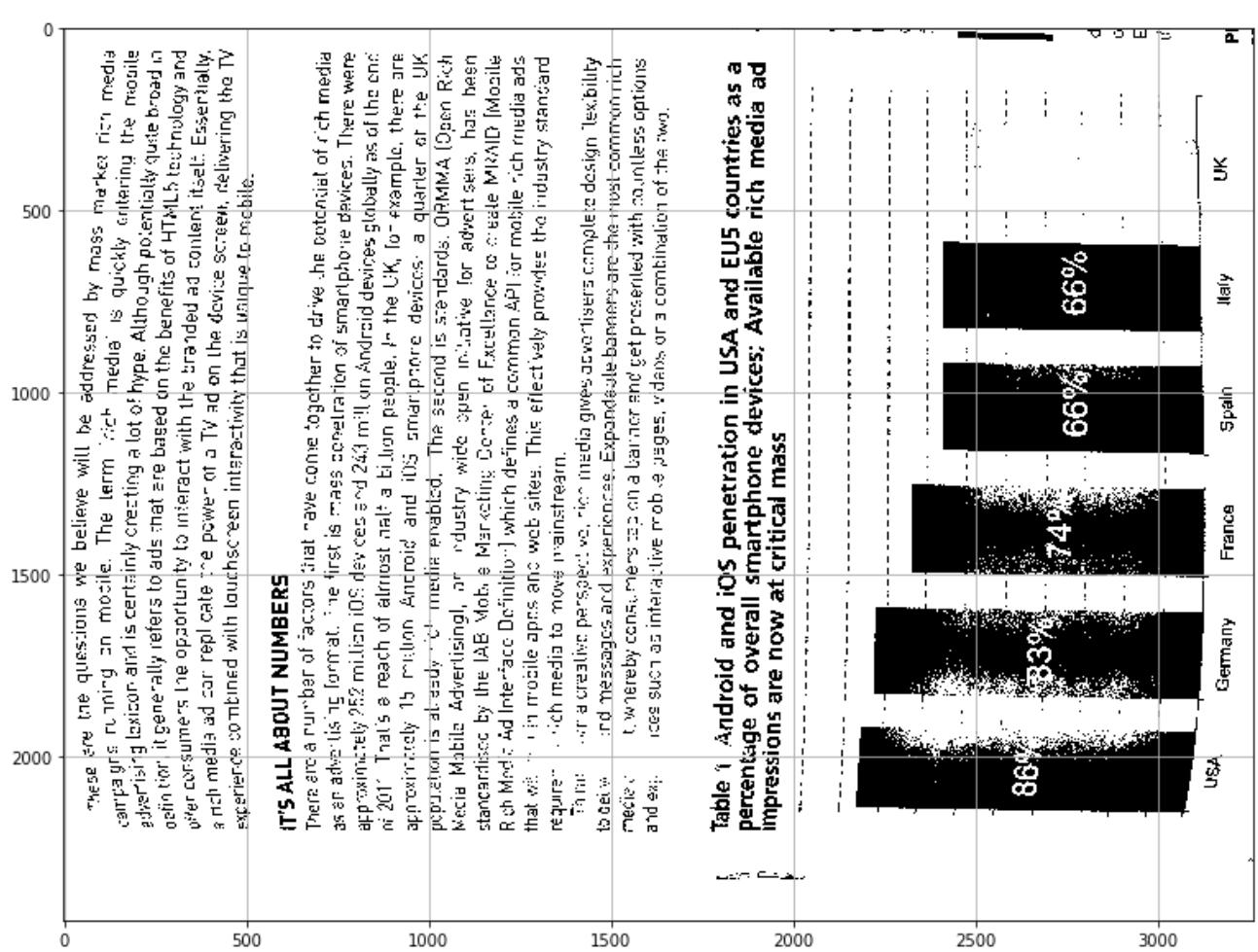
Unicom continued to increase its 3G market share throughout 2011 by offering considerable subsidies on its WCDMA handsets, and last month launched a three-year contract plan offering a free iPhone 4S for as little as CNY286 per month. However, the inherent risk in this strategy is borne out by the operator's most recent results, which put 3G handset subsidies at CNY4.156 billion (US\$658 million) for the nine months to September 2011 – up CNY2.890

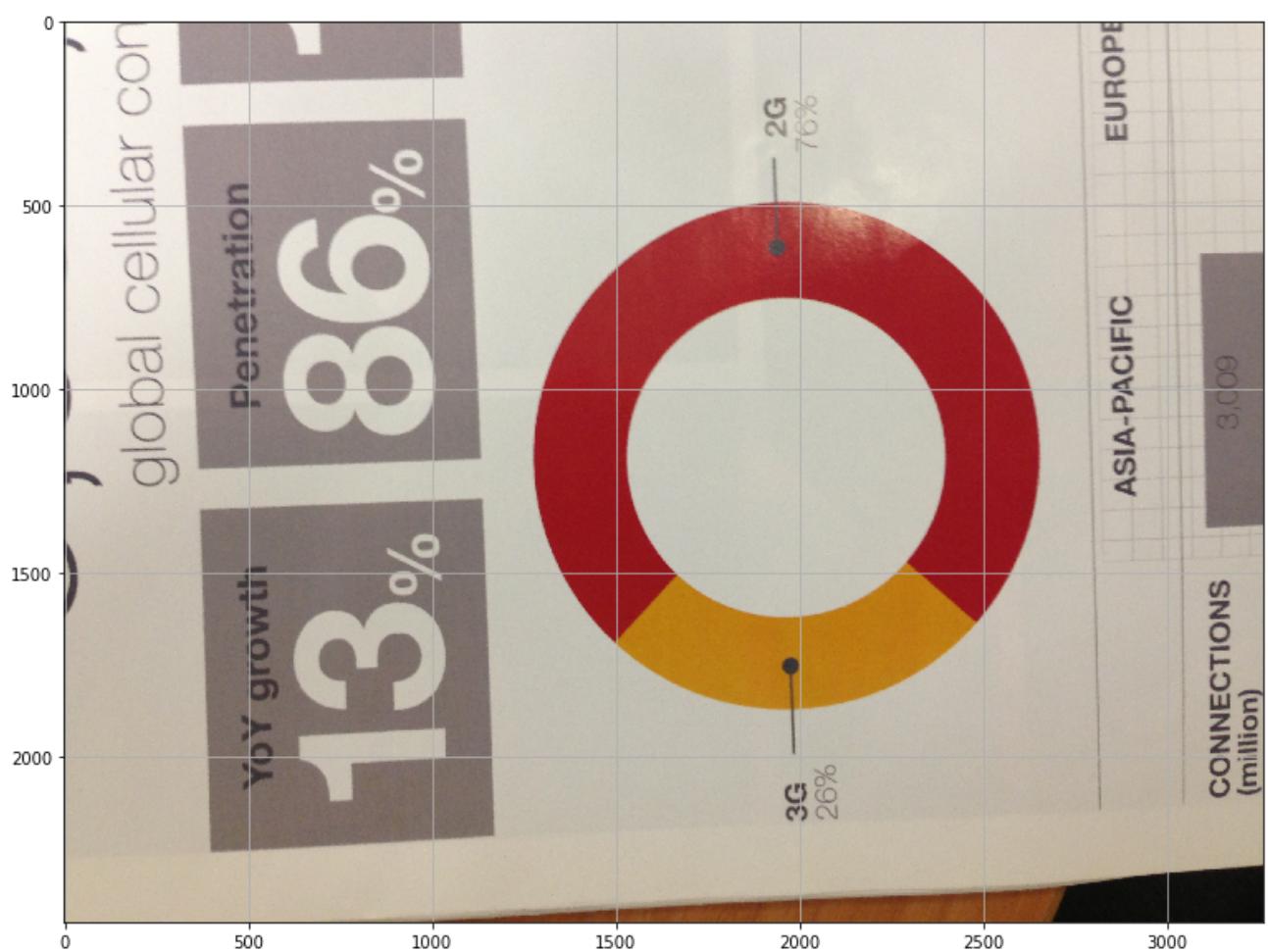
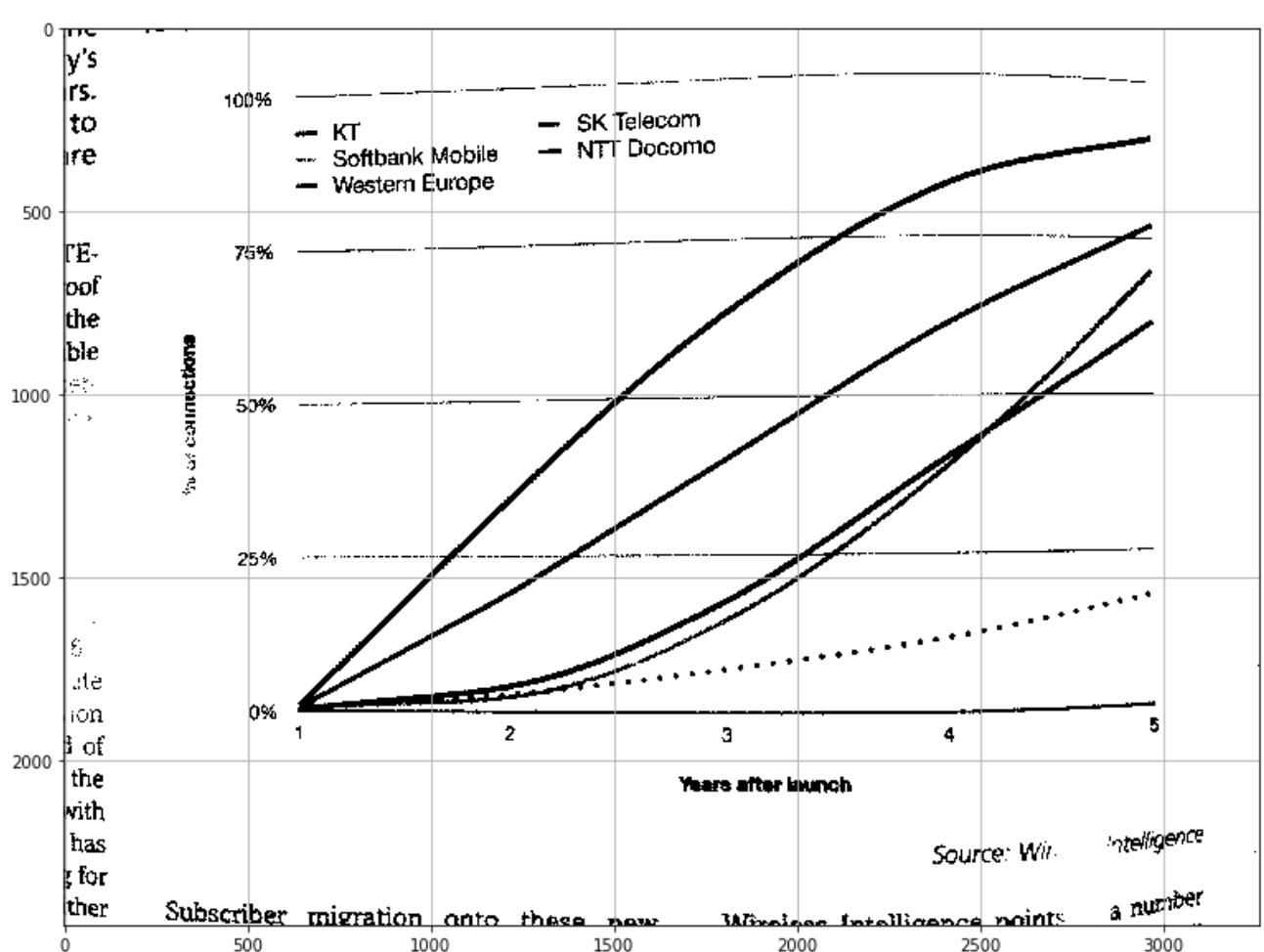


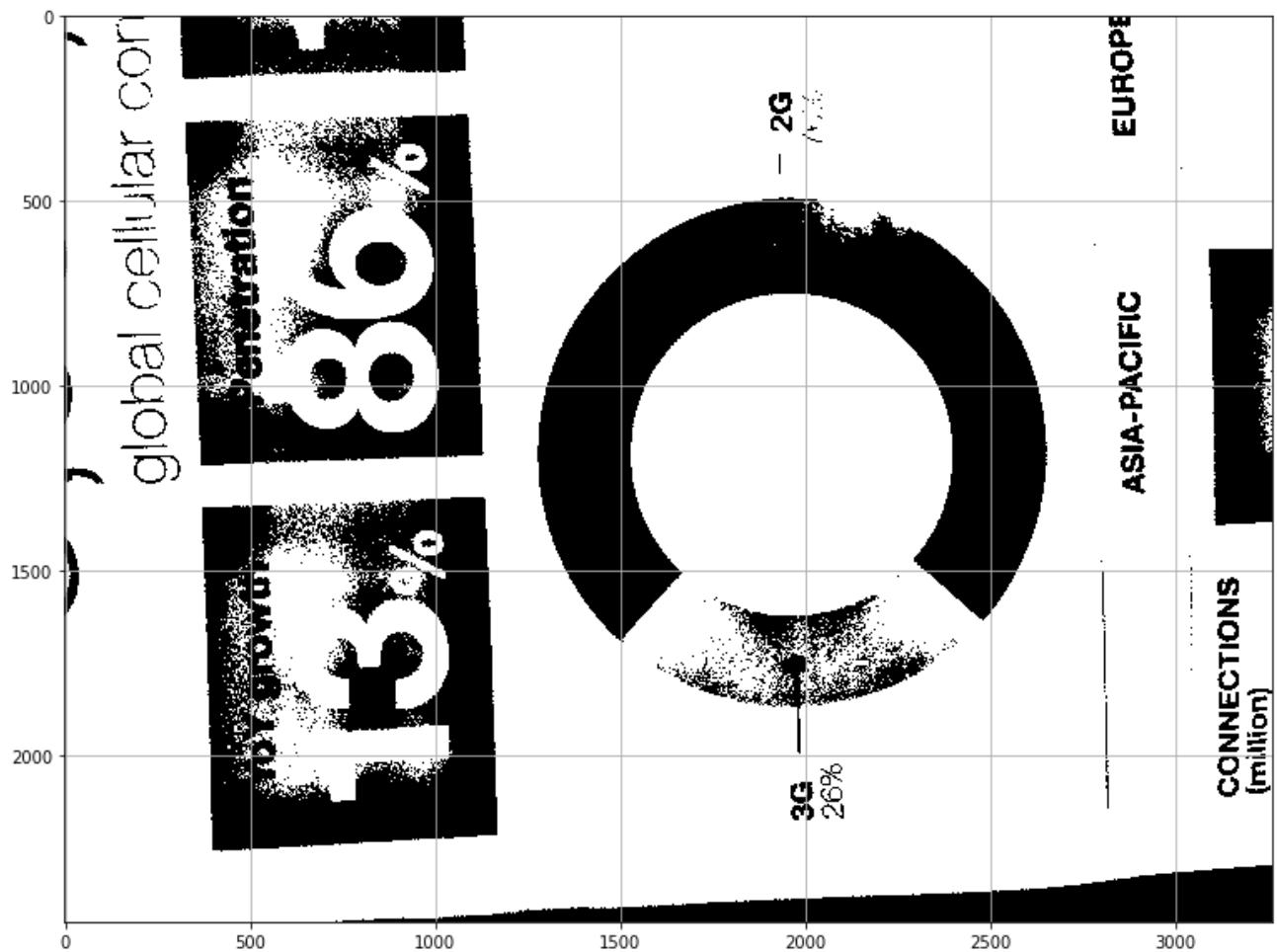
IT'S ALL ABOUT NUMBERS

These are the questions we believe will be addressed by mass market rich media advertising format. The first is mass penetration of smartphone devices. There were approximately 25.2 million iOS devices and 24.3 million Android devices globally as of the end of 2011. That's a reach of almost half a billion people. In the UK, for example, there are approximately 15 million Android and iOS smartphone devices; a quarter of the UK population is already rich media enabled. The second is standards. Open Rich Media Mobile Advertising, an industry wide open initiative for advertisers, has been standardised by the IAB Mobile Marketing Center of Excellence to create MRAID [Mobile Rich Media Ad Interface Definition] which defines a common API for mobile rich media ads that will run in mobile apps and web sites. This effectively provides the industry standard required for rich media to move mainstream. Through a creative perspective, rich media gives advertisers complete design flexibility to deliver brand messages and experiences. Expandable banners are the most common rich media format, whereby consumers tap a banner and get presented with calloutless options and experiences such as interactive mobile pages, videos or a combination of the two.

Table 1: Android and iOS penetration in USA and EU5 countries as a percentage of overall smartphone devices; Available rich media ad impressions are now at critical mass







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- UK operator hails the Spotify effect
- AT&T says MUSIC SERVICE IS DRIVING REVENUE
- Alcatel jumps on Android bandwagon
- AMOTER MANUFACTURER MAKES ON BOARD THE DOODLE
- Verizon Wireless signals new approach to VoIP threat
- LG MARKET LEADER IN GROWING BREAKFAST DEAL
- LiMo aligns itself with apps fightback
- TMW ANDROID OS LAUNCHES AT AT&T VERSUS ONE UI MOBILE PLATFORM

Telstra CTO proposes alternative approach to app stores

BBC pushes mobile app strategy

Join us in Zone 3

Huawei claims LTE device world-first

on the applications developer community by letting them redistribute their software on up to 100 different handsets to maximise popularity. Developers are all struggling with the software ecosystem."

Telstra's move from its usual offer of applications to its customers has Bradlow and the company planning to partner back to a shopping centre where subscribers can buy through a selection of kiosks where small apps which are approved on their handset. Telstra will build the kiosks at its own convenience, with more to come as it becomes a popular concept.

Bradlow estimates an initial trial in light of Telstra's customer base could see 200,000 to 300,000 devices sold in the first year, or 10 million over three years, adding the largest developer network in the world to the operator's currently 10 million.

The platform will support numerous types of devices, according to Bradlow, who adds:

"Huawei is attempting to lead the market in the device space by constantly updating what it claims the world's first triple-LTE modem. The Chinese vendor has indeed announced with 3G-CDMA technology, as P10.



In [6]: `%time`

```
for path in tqdm.tqdm_notebook(paths):
    image = plt.imread(str(path))
    res = Braley_binarisation(image)
```

CPU times: user 9min 52s, sys: 1.23 s, total: 9min 53s
Wall time: 9min 42s

Результаты

Проблемы возникают с текстом на слишком темном фоне, на засвеченных участках. Это можно попробовать решить с помощью подбора параметра t.

Время работы $(9*60+42)/(15*1575*2100)*10^6$, что приблизительно равно 10 сек/мегапиксель.