



GLENBROOK

Transformative Technology

Federal Reserve Bank of Chicago:
Payment Innovations in the Wake of the Financial Crisis

Bryan Derman

May 20, 2010

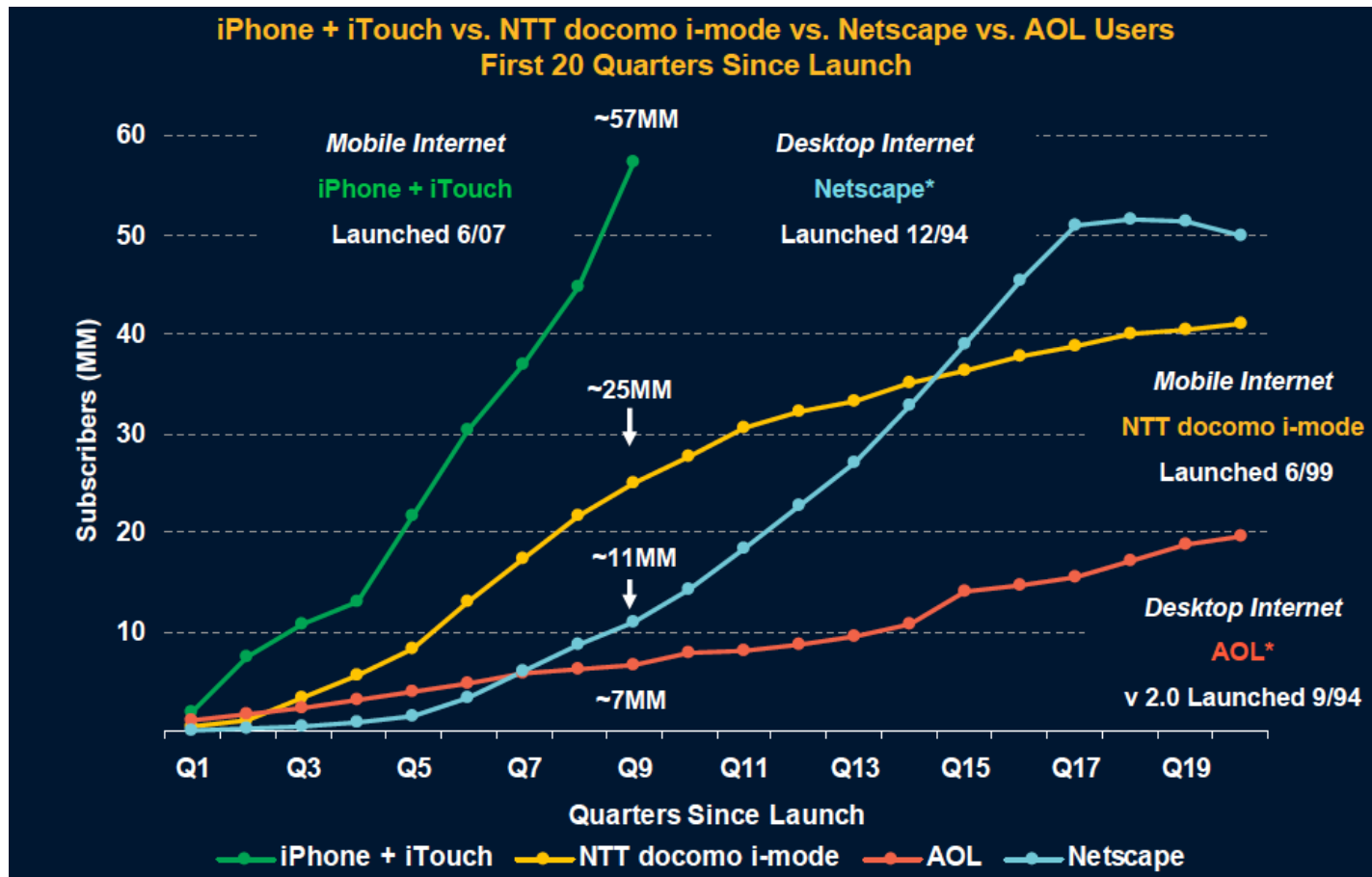
Transformative Technology

- What new products were developed as a result of the economic downturn?
- How have emerging products influenced (or threatened) legacy payments vehicles?
- Have pricing strategies influenced product mix or vice versa?

Someone forgot to tell the mobile ecosystem there was a recession

The Mobile Internet – What Recession?

Mary Meeker (Oct 09) – “Mobile Internet Ramping Faster than Desktop Internet Did and Will Be Bigger than Most Think”



Source: Morgan Stanley

Example: finding the next train on the Internet...

Printer-Friendly Caltrain Schedule Northbound - Weekday Service

Morning to Early Afternoon - Page 1 of 2



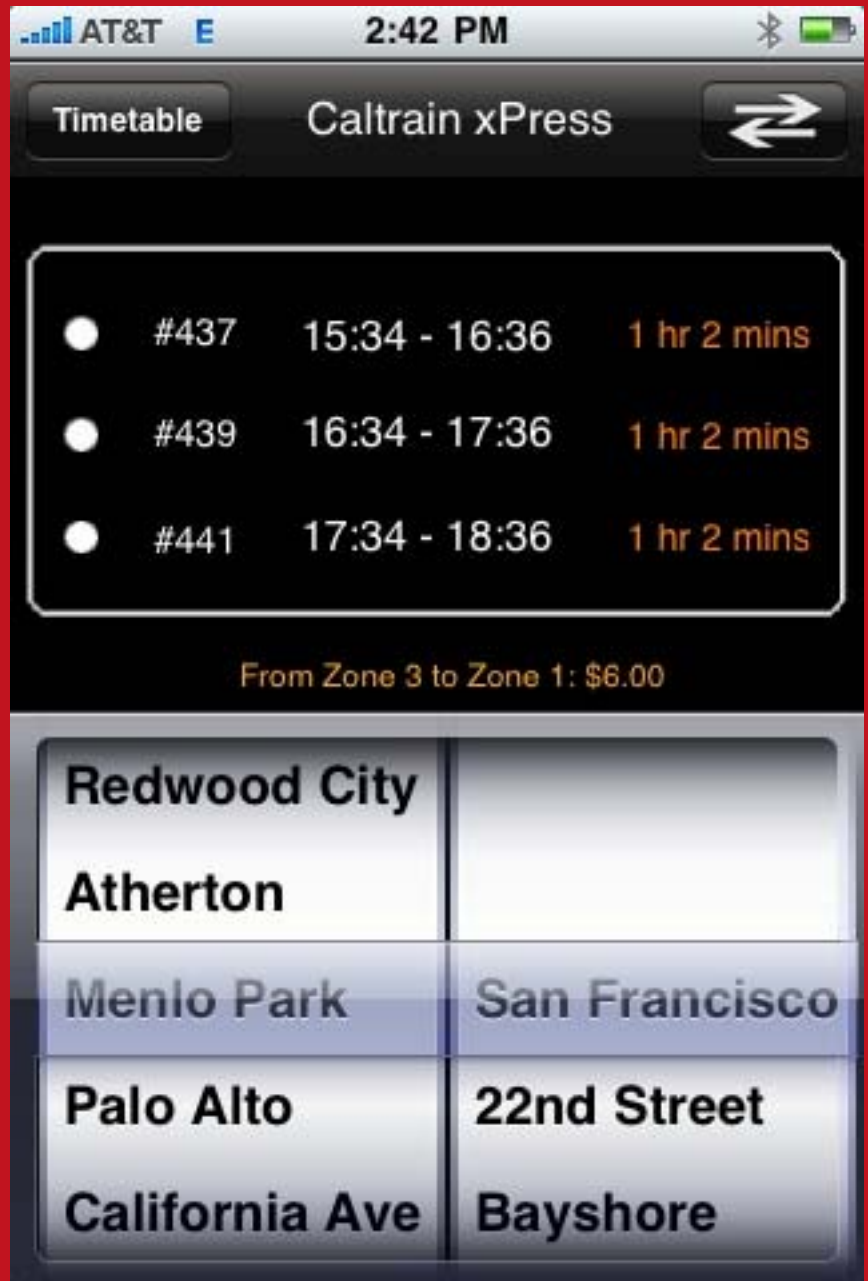
GILROY / SAN JOSE to SAN FRANCISCO - Northbound

WEEKDAY SERVICE

See Page 2 For Early Afternoon and Evening Times

Train #	101	103	305	207	309	211	313	215	217	319	221	323	225	227	329	231	233	135	237	139	143	147	151	
Gilroy									6:07		6:30			7:05										
San Martin	AM								6:16		6:39			7:14										
Morgan Hill									6:22		6:45			7:20										
Blossom Hill									6:35		6:58			7:33										
Capitol									6:41		7:04			7:39										
Tamien	-	4:58		5:50	5:56				6:49	6:56	7:12			7:47	7:56		8:33		9:33					
San Jose Diridon	4:30	5:05	5:45	5:57	6:03	6:22	6:45	6:50	6:57	7:03	7:20	7:45	7:50	7:55	8:03	8:22	8:40	9:10	9:40	10:10	11:10	12:10	1:10	
College Park	-	-	-	-	-	-	-	-	-	-	-	-	-	7:58	-	-	-	-	-	-	-	-	-	-
Santa Clara	4:35	5:10	-	6:02	-	6:27	-	-	7:02	-	7:25	-	-	8:02	-	8:27	8:45	9:15	9:45	10:15	11:15	12:15	1:15	
Lawrence	4:40	5:15	-	6:12	-	-	-	-	7:12	-	7:30	-	-	8:12	-	-	8:50	9:20	9:50	10:20	11:20	12:20	1:20	
Sunnyvale	4:44	5:19	-	6:18	6:13	-	-	7:00	7:18	7:13	-	-	8:00	8:18	8:13	-	8:54	9:24	9:54	10:24	11:24	12:24	1:24	
Mountain View	4:49	5:24	5:57	6:23	-	6:37	6:57	7:05	7:23	-	7:37	7:57	8:05	8:23	-	8:37	8:59	9:29	9:59	10:29	11:29	12:29	1:29	
San Antonio	4:53	5:28	-	6:27	-	-	-	-	7:27	-	-	-	-	8:27	-	-	9:03	9:33	10:03	10:33	11:33	12:33	1:33	
California Avenue	4:57	5:32	-	6:31	-	-	-	7:11	7:31	-	-	-	8:11	8:31	-	-	9:07	9:37	10:07	10:37	11:37	12:37	1:37	
Palo Alto	5:01	5:36	6:05	6:36	6:23	-	7:05	7:16	7:36	7:23	-	8:05	8:16	8:36	8:23	-	9:11	9:41	10:11	10:41	11:41	12:41	1:41	
Menlo Park	5:04	5:39	-	6:39	-	6:45	-	-	7:39	-	7:45	-	-	8:39	-	8:45	9:14	9:44	10:14	10:44	11:44	12:44	1:44	
Redwood City	5:09	5:44	-	6:45	6:30	6:51	-	-	7:45	7:30	7:51	-	-	8:45	8:30	8:51	9:19	9:49	10:19	10:49	11:49	12:49	1:49	
San Carlos	5:13	5:48	-	-	-	6:55	-	7:24	-	-	7:55	-	8:24	-	-	8:55	9:23	9:53	10:23	10:53	11:53	12:53	1:53	
Belmont	5:16	5:51	-	-	-	6:58	-	-	-	-	7:58	-	-	-	-	8:58	9:26	9:56	10:26	10:56	11:56	12:56	1:56	
Hillsdale	5:19	5:54	6:16	6:51	-	7:02	7:16	7:28	7:51	-	8:02	8:16	8:28	8:51	-	9:02	9:29	9:59	10:29	10:59	11:59	12:59	1:59	
Hayward Park	5:22	5:57	-	-	-	7:05	-	-	-	-	8:05	-	-	-	-	9:05	-	10:02	-	11:02	12:02	1:02	2:02	
San Mateo	5:25	6:00	-	-	6:39	7:08	-	7:32	-	7:39	8:08	-	8:32	-	8:39	9:08	9:33	10:05	10:33	11:05	12:05	1:05	2:05	
Burlingame	5:28	6:03	-	-	-	7:11	-	7:35	-	-	8:11	-	8:35	-	-	9:11	9:36	10:08	10:36	11:08	12:08	1:08	2:08	
Millbrae	5:33	6:08	6:24	6:59	6:45	7:17	7:24	-	7:59	7:45	8:17	8:24	-	8:59	8:45	9:17	9:41	10:13	10:41	11:13	12:13	1:13	2:13	
San Bruno	5:37	6:12	-	-	-	7:21	-	7:42	-	-	8:21	-	8:42	-	-	9:21	9:45	10:17	10:45	11:17	12:17	1:17	2:17	
So. San Francisco	5:41	6:16	-	7:05	-	7:25	-	-	8:05	-	8:25	-	-	9:05	-	9:25	-	10:21	-	11:21	12:21	1:21	2:21	
Bayshore	5:47	6:22	-	-	-	7:33+	-	-	-	-	8:33+	-	-	-	-	9:31	-	10:27	-	11:27	12:27	1:27	2:27	
22nd Street	5:52	6:27	-	-	-	7:40+	-	-	-	-	8:40+	-	-	-	-	9:37	-	10:32	-	11:32	12:32	1:32	2:32	
San Francisco	6:01	6:36	6:42	7:19	7:02	7:48	7:42	7:57	8:19	8:02	8:48	8:42	8:57	9:19	9:02	9:45	10:02	10:41	11:02	11:41	12:41	1:41	2:41	

And finding the next train on the iPhone ...



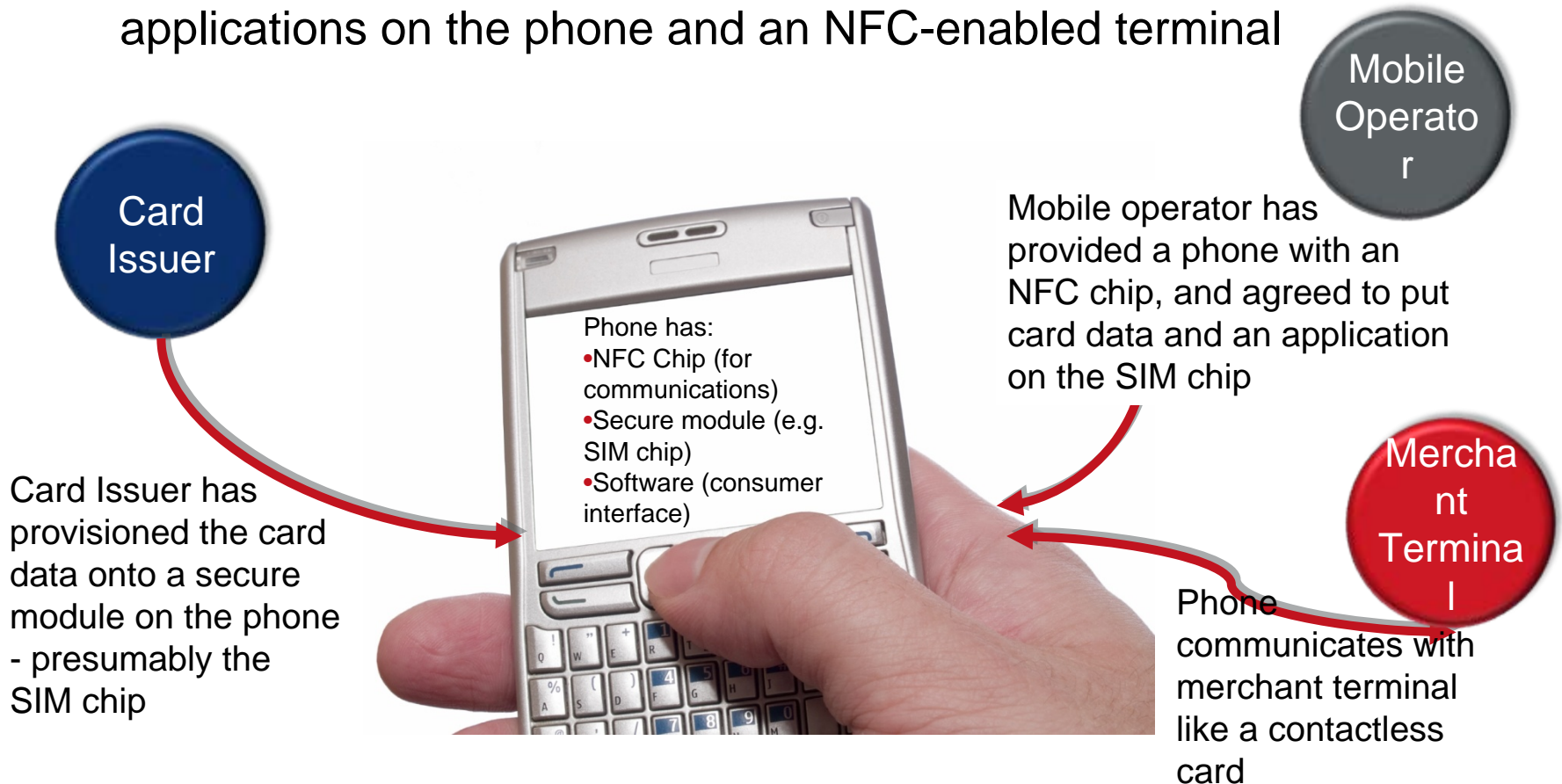
Mobile Plays Developing Across All Payment Domains

Payment Domain	Mobile Initiatives
POS	Mobile phone as payment card (via NFC chip) Mobile phone as POS terminal
eCommerce	Mobile web checkout process Mobile phone bill as payment account (“Bill to Mobile”)
P2P	Casual payments, remittances initiated by mobile phones
Bill Payment	Presentment, alerts and payments on mobile phone
B2B	Mobile banking for enterprises with transactions
Income	Check imaging goes mobile

POS: NFC-Enabled Phones Act as the Card

Good technology but a business model stand-off

NFC (Near Field Communications) chips communicate between applications on the phone and an NFC-enabled terminal



POS: Mobile Phones as Terminals

Phones with Mag-Stripe and/or Chip Card Readers are Emerging



COURTESY: VERIFONE; MOPHIE; SQUARE

Three companies, three rival swipe technologies: Systems from VeriFone (left), Mophie (center) and Square (right) will let business owners process credit cards by iPhone.


eCommerce: Mobile Checkout

Which payment process works on the mobile platform?

Hard

Easy

Musings About Mobile Payments - 2009 Total: \$19.95 USD

Pay with Credit Card or Log In 





[Learn more](#) about PayPal - the safer, easier way to pay.
[Enter your billing information](#)

Country:

First Name:

Last Name:

Credit Card Number:

Payment Type:    

Expiration Date: / CSC: [What's this?](#)

Billing Address Line 1:

Billing Address Line 2: (optional)

City:

State:

ZIP Code:

Home Telephone:

Please log in

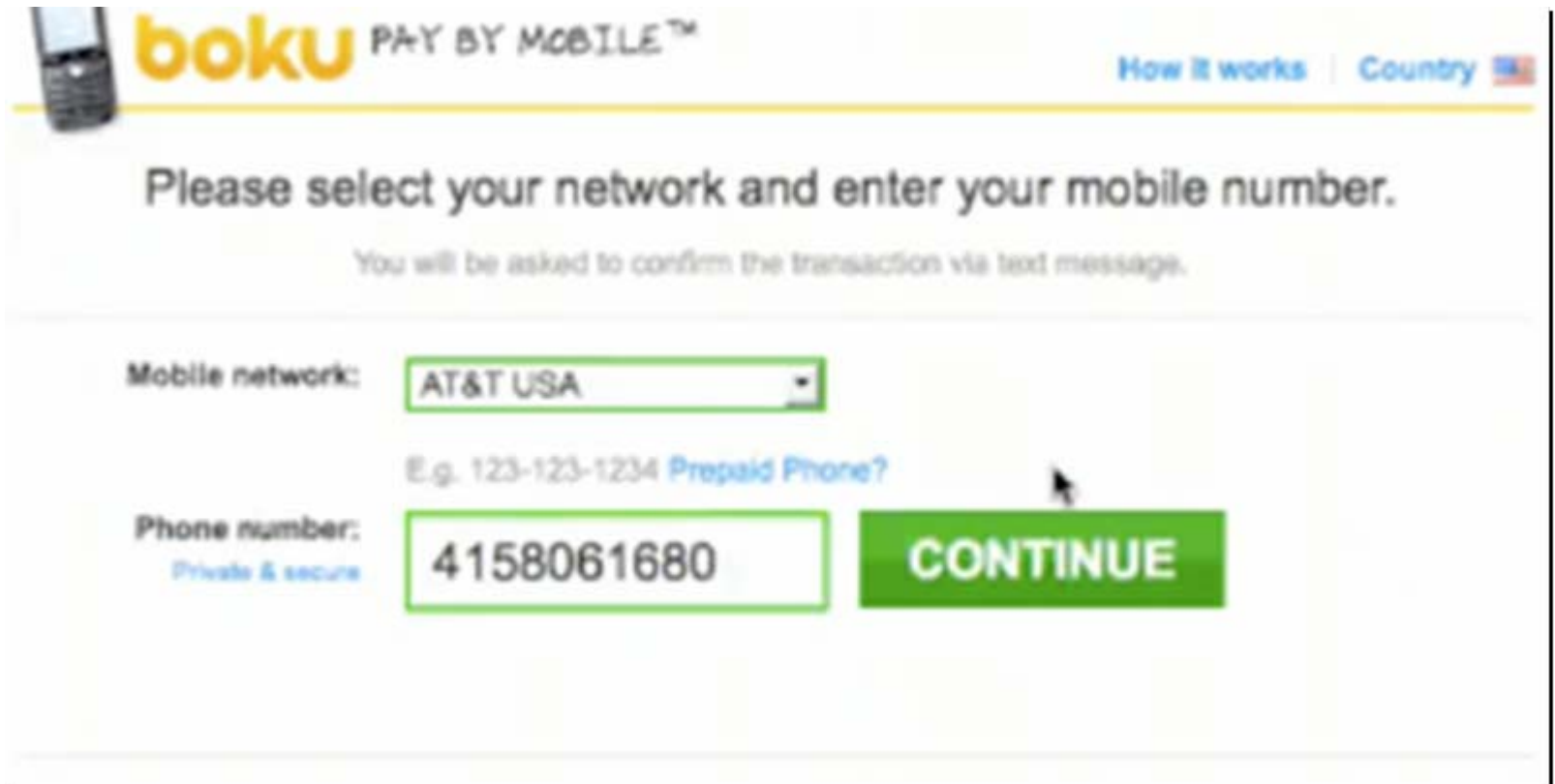
Email:

Password:

Forgot [email address](#) or [password](#)?

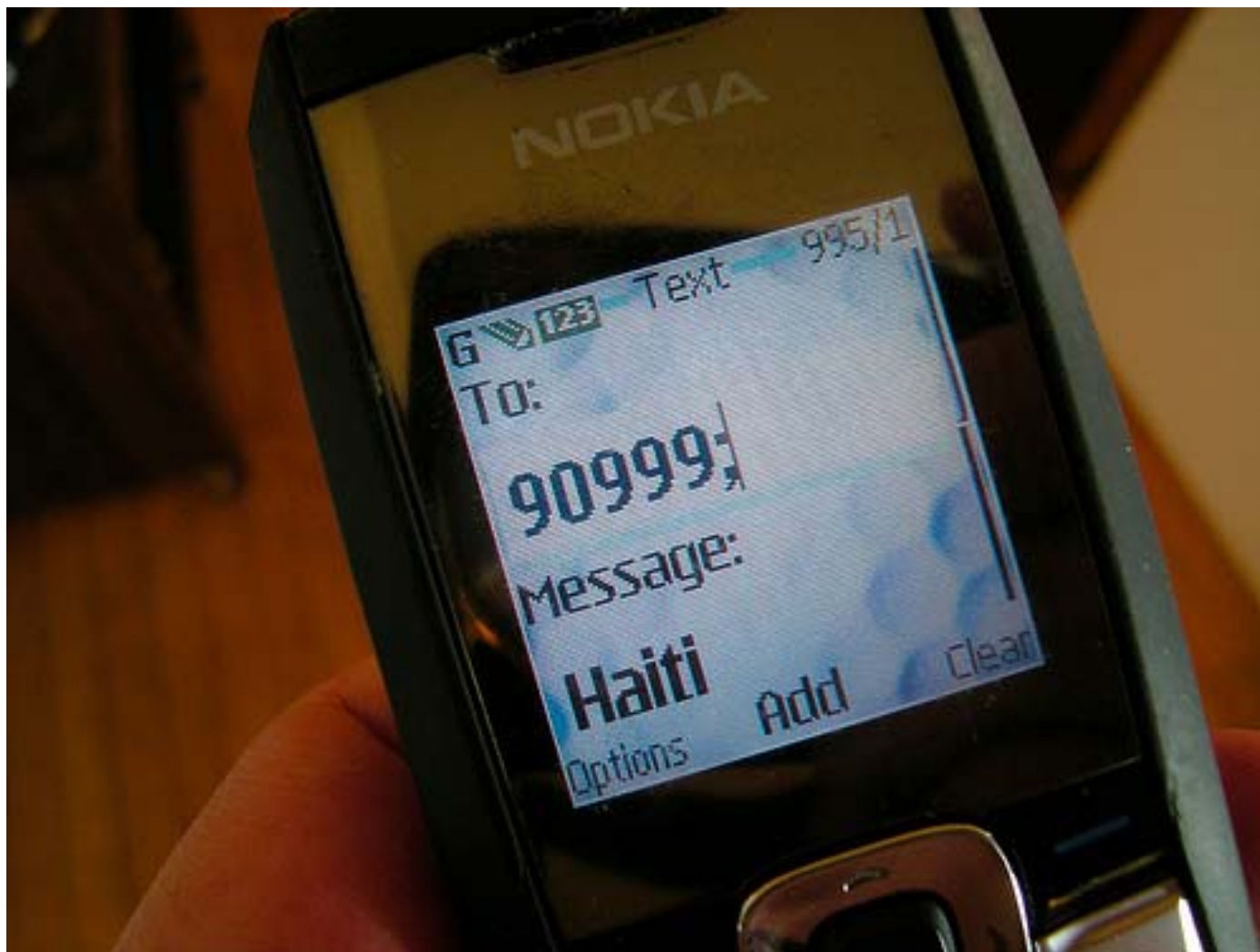
eCommerce: Bill-to-Mobile

Increasingly popular for virtual goods purchases



The screenshot shows the Boku mobile payment interface. At the top left is the Boku logo with a mobile phone icon and the text "boku PAY BY MOBILE™". To the right are links for "How it works" and "Country" with a US flag. The main heading reads "Please select your network and enter your mobile number." Below this is a sub-heading: "You will be asked to confirm the transaction via text message." The form contains two input fields: "Mobile network:" with a dropdown menu showing "AT&T USA" and "Phone number:" with the number "4158061680". A green "CONTINUE" button is positioned to the right of the phone number field. A mouse cursor is hovering over the button. There is also a link for "Prepaid Phone?" next to the phone number field.

P2P: Push Payment Billed to Mobile Account



P2P: SMS-based Transfers in Emerging Markets



Send money from Bank to Zap (Tanzania)
(yours or someone else)

Send money to the account:

Account name:	Zain Settlement Account
Bank:	Citi Bank (T) Ltd
Bank code:	670801
Account number:	100648025
Details:	Destination telephone number

Confirmation:



Bill Pay: Presentment, Alerts, Payments

- Bill payment is common in mobile banking apps
- Bill presentment is possible though not yet common
- Presentment allows for mobile alerts, a potentially high value function on mobile devices



B2B: The CFO is Mobile Too

CEO MobileSM service



Corporate mobile banking
for mobile executives.

Your busy schedule means you aren't always at your desk or on your computer. Our industry-leading *CEO Mobile*SM service enables you to monitor your accounts and perform time-sensitive treasury management functions from wherever you are through your mobile browser.

Services

The *CEO Mobile* service provides mobile versions of reports and services available on the [*Commercial Electronic Office*[®] \(CEO[®]\)](#) portal. With this service you can do all this and more:

- Initiate, approve, or reject wires
- View account balances
- Monitor cash flows in up to 20 accounts
- Manage fraud protection services
- Administer users and reset passwords

Income: Check 21 Evolves to Mobile

