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## Rawbank's Illico Cash: Can "Fast Money" Overcome Cash Dependency in the DRC?

*"How I love to hear that old money plink, that beautiful sound of cold, hard cash."*

— Lucy van Pelt, *A Charlie Brown Christmas*

*"The overarching policy goal... to provide a vision and direction for financial inclusion in the DRC [is to] improve household welfare, increase economic efficiency, and support growth by increasing the percentage of adults with access to at least one formal financial service from 32% to 46%, and increasing those with access to more than one formal financial product from 5% to 10% by 2021."*

— Making Access Possible (MAP) DRC Initiative, Financial Inclusion Roadmap (2016 - 2021)

Sitting in his Kinshasa office overlooking the Congo River, Thomas de Dreux-Brézé reviewed the latest user data for Rawbank's mobile money app, Illico Cash. Since Illico Cash 2.0, the second version of the app, had launched in February 2022, it had seen a significant boost in use from new features, but adoption rates were still considered slow per the bank's expected goals in the general population. With the local informal economy seemingly eliminating the need for bank accounts for many potential users, traditional bank penetration rates remained low from between 6-12%. Mobile money penetrations similarly lagged at 19% in 2017, which de Dreux-Brézé had hoped to nudge upwards through the newly launched update.

At the same time, he understood the monumental challenges facing the bank in expanding its mobile money user base. The Democratic Republic of the Congo (DRC) was approximately a third of the size of the U.S. with poor infrastructure in many regions (see **Exhibit 1** for comparative maps of the DRC). A clear preference for tangible, *hard* cash was combined with low rates of financial literacy among local populations. Yet, latent opportunities existed in a youthful population, higher rates in mobile phone penetration than in mobile money penetration, and a plethora of emergent Internet players with affordable, unlimited access to the web. Altogether, de Dreux-Brézé believed these openings could outweigh the obstacles, and in net open new avenues of financial inclusion and profit while helping to preserve Rawbank's status as the country's top banking institution. As he started to consider Rawbank's next step, he contemplated how the bank's strategy could adapt to the continued

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operating challenges and ultimately for Rawbank to become the key player in promoting financial technology, inclusion, and digital payments in the DRC.

## Rawbank DRC and Illico Cash 2.0

In September 2021, Rawbank was listed as the top bank in the DRC with total asset holdings of \$4.1 billion. Its primary areas of focus included retail, small and medium enterprises (SMEs), and large corporate customers with over 100 branches in addition to a digital banking option.

### *Rawbank from Its Founding to Today*

Since Rawbank's founding in 2002, the family-owned bank was held by the Rawji Family, a family of Indian origin who had migrated to the DRC in the early 20<sup>th</sup> century. Since 1922, the family had operated coffee and cocoa trading businesses before delving into the consumer goods market by acquiring Beltexco, one of the largest trading companies in the DRC, in 1966. The Rawji family and its businesses survived both the First and Second Congolese Wars and continued to diversify their business activities over time with acquisitions of vehicle importers, soap and cosmetics manufacturing companies, and other international trade companies. In 2021, the family maintained a 95% ownership interest in the bank through various holdings, and joint ownership was split across five brothers: Mazhar Rawji, Mushtaque Rawji, Aslam Rawji, Murtaza Rawji, and the late Zahir Rawji.

The bank has received public accolades for its innovative initiatives, including a July 2020 ranking amongst the "*Top 30 High Impact African Banks*," by Financial Afrik for strong regional impact. Rawbank credited its digitization and empowerment strategies' impact on DRC's economic development for this accolade.<sup>1</sup> In fact, within the first 10 years since its founding, Rawbank had not only become the country's largest bank by measures of total deposits and total assets, but also it had become an early adopter of financial technology in the region. In 2013, it partnered with Clear2Pay, a streamlined payments processing technology company, a partnership that enabled the bank to venture into internet banking for the first time.<sup>2</sup>

For Rawbank CEO Mustafa Rawji, digital innovation would ensure Rawbank maintained its competitive edge: "Rawbank led the DRC's banking sector in 'bancarisation' programs by opening credit access to those without formal credit scores in the early 2010s. Through this early microfinancing pilot program, our staff gave our clients their very first total real wealth assessment that accounted for all of their assets. It is these types of innovative solutions that has made Rawbank a successful bank and a major contributor to Congolese society today."

The DRC's banking ecosystem encompassed the Central Bank of Congo (BCC), 17 commercial banks, various savings and credit cooperatives, microfinance institutions, financial transfer services, and SOFIDE, the country's development bank. (See **Exhibit 2** for statistics on the DRC's financial sector.)

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<sup>1</sup> Illico Cash by Rawbank, "Rawbank among the 30 high-impact African banks," <https://illicocash.com/2020/09/09/awbank-parmi-les-30-banques-africaines-a-fort-impact/>, accessed December 6, 2021.

<sup>2</sup> "Rawbank revamps internet banking services with Clear2Pay," *FinTech Futures*, February 27, 2013, <https://illicocash.com/2020/09/09/awbank-parmi-les-30-banques-africaines-a-fort-impact/>, accessed December 6, 2021.

*Illico Cash: 'My phone is my bank.'*

Illico Cash was an e-wallet with an option to be linked to a Rawbank account. Led by Karim El Nouri, Rawbank's FinTech Director, the service's first version offered three primary functions: the ability to check one's balance, to send or receive money domestically and internationally, and to withdraw money via an ATM. Accounts were available in two currencies: U.S. dollars (USD) and Congolese francs (CDF). Furthermore, unlike many other mobile money platforms on the African continent, Illico Cash was backed by an established bank – not a technology company, such as Vodafone and Safaricom's M-Pesa.

To customers, the service advertised cardless transfers and quick withdrawals. In fact, from French to English, "illico" translated as "pronto", effectively meaning "Fast Cash" to highlight its nearly instantaneous transfers.<sup>3</sup> Unbanked customers could open an Illico cash account easily with one of the lowest total click requirements to open an account in the industry, El Nouri highlighted. (See **Exhibit 3** for industry statistics on total clicks required to open a new account.) The e-wallet's send-money-to-anyone feature worked even if the recipient did not possess a bank account or resided outside of the DRC. (See **Exhibit 4** for the process to open an account.)

When Illico Cash 2.0 launched in February 2022, the new version of the app highlighted new features such as topping up one's balance via mobile phone credits at four operators, Africell, Airtel, Orange, and Vodacom, and paying TV subscriptions directly in the app itself.<sup>4</sup> The new version also offered a new, secure virtual card, and users could request money from a third-party via the app. Rawbank, de Dreux-Brézé, and El Nouri all viewed the continued growth of its mobile payments operations as a strategic imperative, particularly for attracting unbanked populations and young people to Rawbank's clientele.

## Challenges to Digital Finance in the DRC

Despite its promotional efforts, Rawbank encountered substantial challenges in attracting users for Illico Cash in several regions in the DRC. De Dreux-Brézé saw five particular obstacles to overcome: (i) the need to build a digital ecosystem infrastructure, (ii) an unfavorable climate of civil conflict, (iii) local corruption and tax issues, (iv) high rates of inflation and currency instability, and (v) local preferences for cash, especially in the country's east.

### *(i) Building the Infrastructure for a Digital Ecosystem*

A primary area of frustration for attracting a broader user base centered on the poor existing infrastructure that hindered digital efforts from becoming popular. "If we want to promote digital payments, a whole ecosystem must be in place to allow payments in stores. But merchants will only adopt the technology if there are enough transactions. It's a classic chicken and egg problem. The Congolese must have enough options to use their digital money [so that] they don't feel the need to withdraw cash – and yet merchants will only adopt if enough everyday Congolese citizens have already adopted so that it makes sense for them to install. So, who is going to move first? Only when we've solved this can we hope for the network effect to kick in," de Dreux-Brézé lamented.

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<sup>3</sup> Harlan Cockburn, "The African FinTech Scene – Merging with the Global Mainstream," *Ergomania*, July 17, 2020, <https://ergomania.eu/the-african-fintech-scene-merging-with-the-global-mainstream/>, accessed December 6, 2021.

<sup>4</sup> Illico Cash by Rawbank, "Features," <https://illicocash.com/en/features/>, accessed December 6, 2021.

"The rollback will face difficulties with respect to the weak infrastructure in the DRC, but what we used to do in a year with Illico Cash 1.0, we now do in a month with Illico Cash 2.0," El Nouri put forth. "What we didn't expect is the number of registrations we are receiving a day without any marketing, without any communications. We're having thousands of registrations a day – not downloading the app, but registering a new account on the app," he enthused.

Nevertheless, the DRC government had previously stepped in to promote banking services in the past. Beginning in 2011, the DRC had required its civil servants to receive salaries through direct deposit, which required many bureaucrats to open bank accounts.<sup>5</sup> Similar efforts to promote wire transfers into mobile wallets could also give Illico Cash the transaction boost it needed to achieve a network effect among new users.

Additionally, the DRC lagged on phone usage rates, due to highly expensive data rates and hardware and unpredictable electricity access. Its telecom system remained one of Central Africa's least developed.<sup>6</sup> "About 45% of Congolese have a mobile phone, but they unfortunately do not always have access to electricity to charge their device. Having their money trapped in a phone is a serious concern," de Dreux-Brézé emphasized. Still, a greater share of the population possessed a cell phone than held a bank account. In 2018, 25.8% of the DRC's population over age 15 had an account at a financial institution or mobile money service provider.<sup>7</sup> (See **Exhibit 5** for statistics on phone usage and bank accounts in the DRC.) In 2019, only 19.1% of the population had reliable access to electricity.<sup>8</sup> (See **Exhibit 6** for a graph on electricity access over time.) Since the COVID-19 epidemic emerged in March 2020, mobile device production and further investments in cellular infrastructure had stalled. Furthermore, widespread job losses contributed to a significant drop in spending on telecom services.<sup>9</sup> Rawbank's research and development team sympathized with the difficulties of procuring a phone itself. They explained, "A \$25 smartphone can reach the DRC at \$38, and now it's selling between \$35 and \$40 from mobile operators. The purchasing power of the population is starting to improve now, but the phone markups on hardware can still make it inaccessible for some users."

At the same time, digital payments offered an opportunity to bypass poor transportation infrastructure (see **Exhibit 7** for a breakdown on the DRC's road network infrastructure). "Considering the specifics of the country: size, family financial sharing, and dual currency usage, digital payments would streamline the whole transaction process. There would be no flying large amounts of cash around the country [to settle transactions]," de Dreux-Brézé exclaimed.

## *(ii) An Unfavorable Climate of Civil Conflict*

For centuries, the Congo and its people have experienced prolonged periods of instability, violence, and conflict under Belgian colonialism, authoritarian governments, and two recent devastating wars that have all left a legacy of persistent socioeconomic problems. After gaining independence from Belgium in 1960, the Congo faced five years of bloody internal fighting before being first ruled by Col.

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<sup>5</sup> Aurélie Fontaine, "Finance: DRC's civil servants head to the banks," *The Africa Report*, May 4, 2015, <https://www.theafricareport.com/3056/finance-drcs-civil-servants-head-to-the-banks/>, accessed December 6, 2021.

<sup>6</sup> The CIA World Factbook, "Congo, Democratic Republic of the," <https://www.cia.gov/the-world-factbook/countries/congo-democratic-republic-of-the/>, accessed December 6, 2021.

<sup>7</sup> The World Bank, World Development Indicators.

<sup>8</sup> Ibid.

<sup>9</sup> The CIA World Factbook, "Congo, Democratic Republic of the," <https://www.cia.gov/the-world-factbook/countries/congo-democratic-republic-of-the/>, accessed December 6, 2021.

Joseph Mobutu, whose despotic regime was noted for its brutality and corruption.<sup>10</sup> Mobutu's regime was overthrown during the First Congo War (1996 to 1997) and replaced with rebel leader Laurent-Désiré Kabila, who declared himself president. During the Second Congo War (1998-2003; also known as the African World War), Kabila was assassinated in 2001. His son, Joseph Kabila, assumed the presidency and continued to remain in power after the 2003 Sun City Agreement brought an end to the conflict.

After a transitional government was installed in 2003, economic conditions started to improve with the commencement of new relationships with international financial institutions and donors and the introduction of economic reforms. Despite this, Kabila's time in office was marked by nearly continuous warfare, particularly in the eastern Congo. He stepped down in the country's first peaceful transition of power in December 2018, and Félix Antoine Tshisekedi Tshilombo was democratically elected to the presidency. Continuing governance challenges have led to comparatively weak state institutions with notable challenges in the eastern part of the country, where armed militias continued to perpetuate armed conflict. As of 2021, there continued to be over 100 armed groups active in the country, and more than 16,000 UN peacekeepers remained in the country after over two decades since their initial deployment.<sup>11</sup>

Nevertheless, the country is blessed with vast natural resource wealth, including 46% of the world's terrestrial cobalt reserves, plenty of arable land, and large biodiversity with the world's second largest rainforest after the Amazon.<sup>12</sup> Despite this natural wealth in resources, economic gains have not translated into higher living standards for the local population. The DRC ranked only 175 out of 189 countries on the 2020 UN Human Development Index (see **Exhibit 8**).<sup>13</sup> In 2018, an estimated 73% of the Congolese population lived below the international poverty rate of USD \$1.80 per day.<sup>14</sup> Economic growth stalled at an estimated 0.8% in 2020 from a pre-COVID growth rate of 4.4% in 2019 due to mobility restrictions and a fall in both individual consumption and government spending.<sup>15</sup>

### *(iii) Local Tax and Corruption Issues*

In part due to political challenges, de Dreux-Brézé believed the DRC should welcome the tracking capabilities that a digital payments ecosystem could enable. For instance, in 2018 the DRC collected just 7.766% of its GDP in tax revenue, far below the Sub-Saharan African aggregate rate of 18.556%.<sup>16</sup> Theoretically, tracking transactions could allow the government to collect tax revenue more straightforwardly, as many other low- and middle-income countries in similar positions sought to do. "The government, even backed by financial institutions [such as the IMF], has difficulty tracking cash

<sup>10</sup> J. Y. Smith, "Congo Ex-Ruler Mobutu Dies in Exile," *The Washington Post*, September 8, 1997, <https://www.washingtonpost.com/wp-srv/inatl/longterm/congo/stories/mobutu090897.htm>, accessed December 6, 2021.

<sup>11</sup> Global Conflict Tracker, "Violence in the Democratic Republic of Congo," *Council on Foreign Relations*, December 3, 2021, <https://www.cfr.org/global-conflict-tracker/conflict/violence-democratic-republic-congo>, accessed December 6, 2021.

<sup>12</sup> U.S. Department of the Interior U.S. Geological Survey, "Mineral Commodity Summaries 2022," January 31, 2022, <https://pubs.usgs.gov/periodicals/mcs2022/mcs2022.pdf>, accessed April 2022. The World Bank, "The World Bank in DRC," <https://www.worldbank.org/en/country/drc/overview#1>, accessed December 6, 2021.

<sup>13</sup> UN Human Development Programme, Human Development Report Office, "Latest Human Development Index Ranking," 2020, <http://hdr.undp.org/en/content/latest-human-development-index-ranking>, accessed December 6, 2021.

<sup>14</sup> The World Bank, "The World Bank in DRC," <https://www.worldbank.org/en/country/drc/overview#1>, accessed December 6, 2021.

<sup>15</sup> Ibid.

<sup>16</sup> The World Bank, World Development Indicators.

transactions. Digital allows an easy monitoring of the money flow and the tax owed, though it might threaten the well-established model in place," de Dreux-Brézé described. "To counterbalance the large informal economy, the government maintains a heavy tax burden on international and large companies that follow strict compliance standards. To overcome this situation and welcome more companies (mainly SMEs) into the formal economy, the paradigm has to change to focus on volume rather than margins. This approach will only be institutionalized if managers see tangible improvements: infrastructure, social benefits, etc. Otherwise? Back to good old cash!"

Furthermore, in the 2019 Corruption Perceptions Index, the DRC ranked 168 out of 180 countries, and it regularly remained amongst the worst performers on this dimension in Sub-Saharan Africa. As per a 2019 IMF report, receiving cash bribes was seen as the only means of survival for many public service employees.<sup>17</sup> Although a textually strong anti-corruption framework was established under international pressure, weak governance institutions, an underfunded judiciary, and a restricted civil society made it difficult if not impossible to enforce, therefore leaving the framework largely ineffective.<sup>18</sup> While digital payments could provide data for the enforcement of anti-corruption laws, tracking could also implicate government officials. Consequently, de Dreux-Brézé worried that those who should be the strongest advocates for digital payments may be a source of resistance.

#### *(iv) High Rates of Inflation and Currency Instability*

During the Congolese Wars, the DRC experienced periods of hyperinflation in which the real value of the local currency, the Congolese franc (CDF), depreciated rapidly. Owing in part to this history, many Congolese held USD over the CDF, despite government efforts to promote use of the CDF in its transactions. (See **Exhibit 9** for consumer price inflation from 2003-2016.) More recently, from November 2016 to November 2021, the DRC experienced two periods of significant depreciation of the CDF against the USD – one in 2016 to 2017 and another in early 2020. (See **Exhibit 10** for the 10-year longitudinal graph of currency conversion rates.)

Rawbank had incorporated preferences for both CDF and USD holdings by permitting Illico Cash users to hold accounts in either currency. However, according to a Banking Association of Congo report, only 4.7% of an estimated 65% of the Congolese population who saved money did so through a formal savings account, and many account holders preferred to withdraw their earnings in full after their paycheck was deposited.<sup>19</sup> An estimated \$10 billion in savings was held outside of formal bank accounts.<sup>20</sup>

An additional hurdle to switching payment models in a low-value currency economy arose in the human consequences such a digital change would spark. In order to process physical payments in cash between businesses and consumers in different areas of the country, businesses and financial institutions often flew large volumes of low-value cash from city to city to settle balances. As a single bill's miles travelled racked up, it often became unreadable by automatic counting machines and ATMs. As a consequence, many workers in the DRC were paid specifically to count high volumes of

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<sup>17</sup> Ibid.

<sup>18</sup> Transparency International, "Overview of Corruption and Anti-Corruption in the Democratic Republic of the Congo," <https://knowledgehub.transparency.org/helpdesk/overview-of-corruption-and-anti-corruption-in-the-democratic-republic->, accessed December 6, 2021. International Monetary Fund, "Democratic Republic of the Congo Technical Assistance Report – Governance and Anti-Corruption Assessment," October 2020.

<sup>19</sup> U.S. International Trade Administration, "Congo (DR) – Financial Sector," July 24, 2017, <https://www.stopfakes.gov/article?id=Congo-Democratic-Republic-Financial-Sector>, accessed December 6, 2021.

<sup>20</sup> Ibid.

currency notes in banks to verify their value on top of those employed in the transportation of large volumes of cash around the country. Still more Congolese earned their living by operating unofficial foreign exchange offices on the street, where they would exchange CDF to USD for a small fee. While a digital disruption would entail changes for many everyday Congolese and potential political challenges in a country where low pay, high unemployment, and low education rates persisted, de Dreux-Brézé expected that many of those impacted could find alternative employment options in the formal economy or through upskilling via additional financial education opportunities.

#### *(v) Local Preferences for Cash*

Finally, academic research had also shown that even in advanced economies, there was an individual preference for holding tangible cash as a component of psychological ownership. Utilizing a broad survey conducted across 24 countries, Lieven (2021) concluded that even in contexts where transactions were predominantly conducted via card or a digital platform, many people additionally preferred to have an available cash option.<sup>21</sup> Women tended to prefer cash more than men and older populations tended to prefer cash in a way that increased as they aged. Lieven (2021) hypothesized that one potential explanation for each of these results might stem from the place of purchases, such as youth being more likely to adopt e-commerce and corresponding digital payments, whereas women responsible for grocery shopping may purchase key goods with cash at a local corner store. Cultures with high measures for either individualism or uncertainty avoidance or both were also associated with increased preferences for cash (see **Exhibit 11** for a cluster analysis of the effect of culture in preferences for cash). Overall, approximately 60% of survey respondents opted to have an available cash option when asked about their transaction preferences. (See **Exhibit 12** for a cross tabulation breakdown per region.)

### **Digital Payments or Cash?: The Nash Equilibrium's Suboptimal Solution**

"Many players benefitted and still benefit from this cash-based economy. Formal and informal rules have been built upon the exchange of bank notes. This is a well-known situation," de Dreux-Brézé recounted. Still, he believed that digital payments could eliminate economic inefficiencies that would boost the whole country's economy – if only they would be adopted. He wondered, could Rawbank and Illico Cash overcome these engrained societal norms? If so, how – and when should they start?

"Efficient implementation within the whole country is a huge challenge. A focus on a small number of discrete, prioritized business cases must be made," he determined. "The eastern region of the DRC seems like a good place to start, influenced by more advanced economies like Rwanda or Kenya. The rising middle class in Kinshasa or Katanga should also be priority targets." If the network effect could be achieved, then Illico Cash could become so obvious for the Congolese population that they could not *not* use it.

Looking towards the future, "digital currencies would impact the whole value chain. Some might be scared to break the cash machine," he reflected. However, he considered the risks of Rawbank moving forward unilaterally to set the digital payments standard for the country. As a first mover, Rawbank faced not only an unfavorable regulatory framework but also the possibility that their hard work would remove the entry barriers in time, money, and energy for competitors, who would consequently enjoy a higher ROI from introducing their own digital products. Moreover, based on the

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<sup>21</sup> Theo Lieven. "They still want to have cash – A case of psychological ownership," *Journal of Business Research*, (2021): 22, <https://ssrn.com/abstract=3888666>, accessed December 6, 2021

duration of the switch from cash to digital payments, Rawbank would entail operating costs for both cash-based and digital payments-based models. De Dreux-Brézé expected that the 'low-cost' features of the app would result in lower income from new and existing customers who adopted it, and the bank would need to square the timing of transitioning customers over to the app with the high operating costs of maintaining 100+ physical bank branches for cash-oriented customers' use.

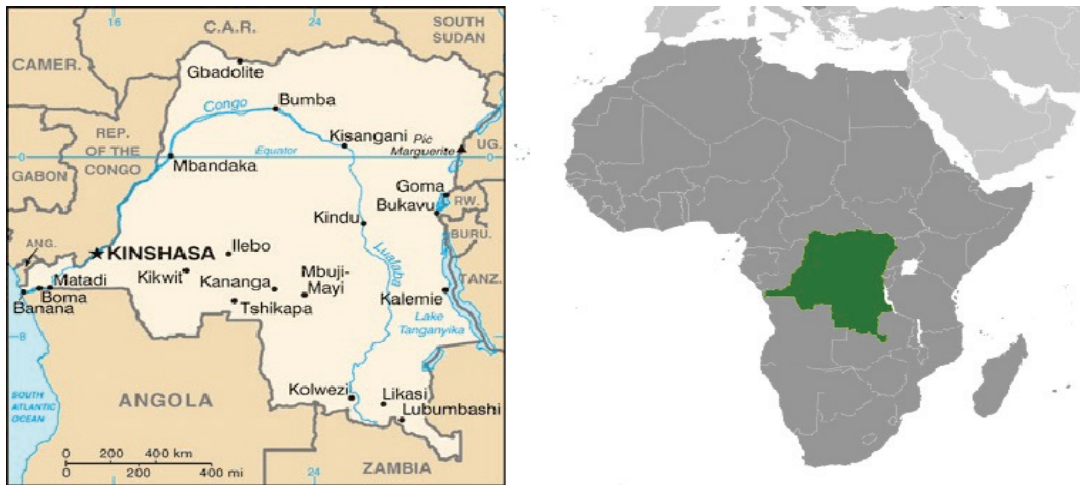
As de Dreux-Brézé gazed over the Congo River, he could not help but be reminded of the centrality of efficient payment networks to the vitality of an economy. Just as the Congo River represented the most powerful yet untapped source of hydroelectric power in Africa, so could he see the incredible latent economic potential that a heretofore "unlocked" financial system could unleash in the DRC. Despite its associated challenges, de Dreux-Brézé was willing to try. After all, Rawbank itself had already overcome numerous challenges to succeed as a bank in the DRC. Moreover, to stay at the leading edge, the bank would need to continue innovating forward.

That said, taking this risk posed considerable downside potential in terms of resource-drain and distracting the bank from other priorities. To maximize the chances of success, de Dreux-Brézé had to distill and convey clear direction on *precisely* what tact the bank should take in rolling out Illico Cash in its 3.0 phase:

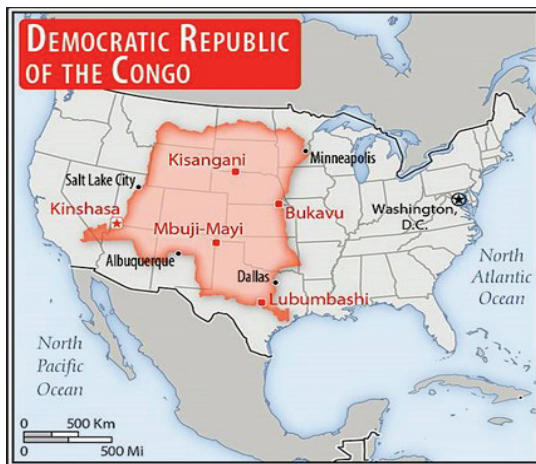
Why did local users prefer conducting transactions in cash? How could Rawbank convert those preferring cash into users of Illico Cash? And to what extent would the bank need to step in for the government to promote the necessary infrastructure to reach persistently underbanked customers?

All swirled in de Dreux-Brézé's head as he turned his attention back from the Congo River to his computer-screen to further elucidate the strategy that would encapsulate Illico Cash 3.0.



**Exhibit 1a** Political and Locator Maps of the Democratic Republic of the Congo

Source: The CIA World Factbook

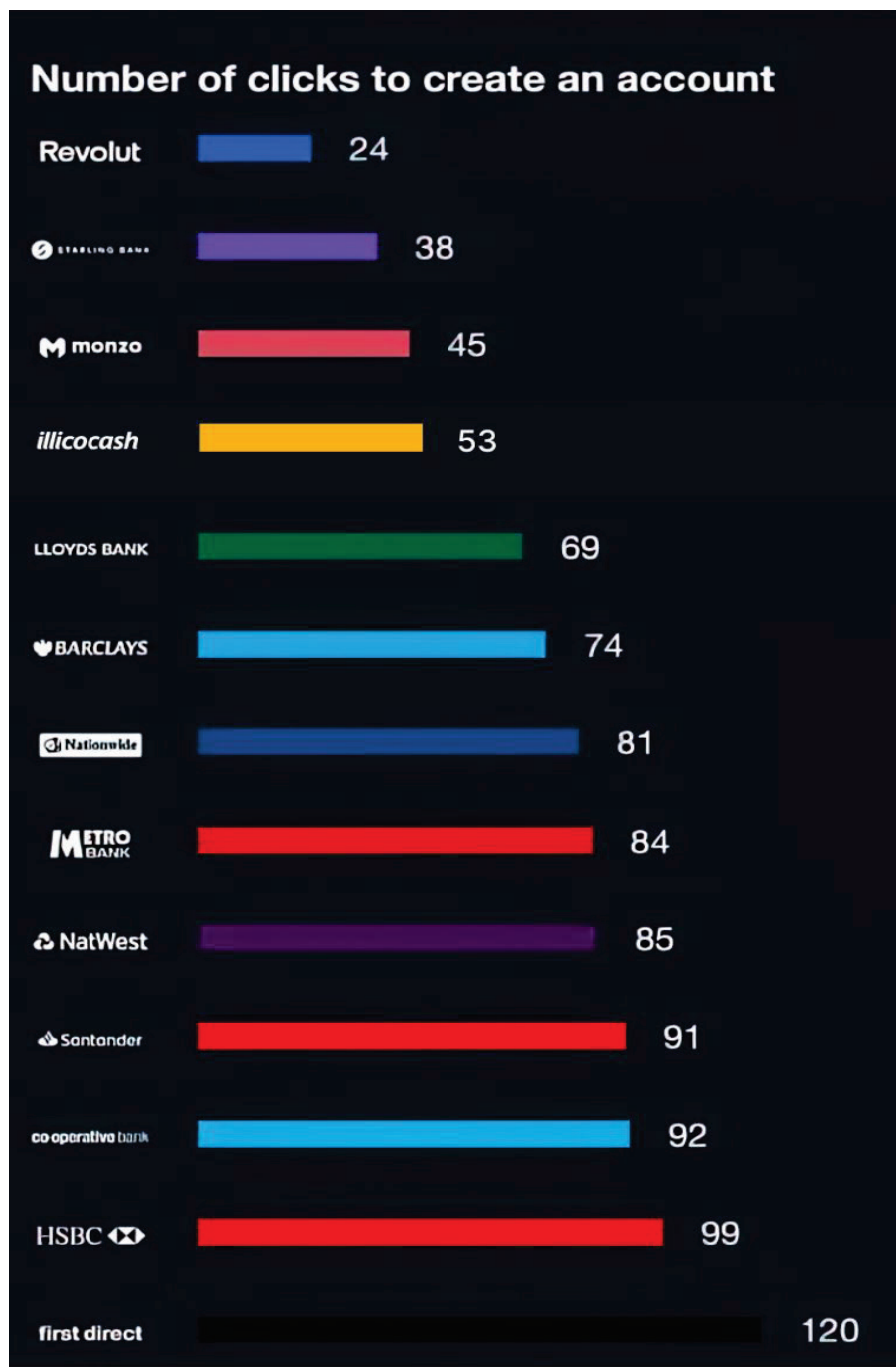
**Exhibit 1b** Area Comparison Map of the DRC to the U.S.

Source: The CIA World Factbook

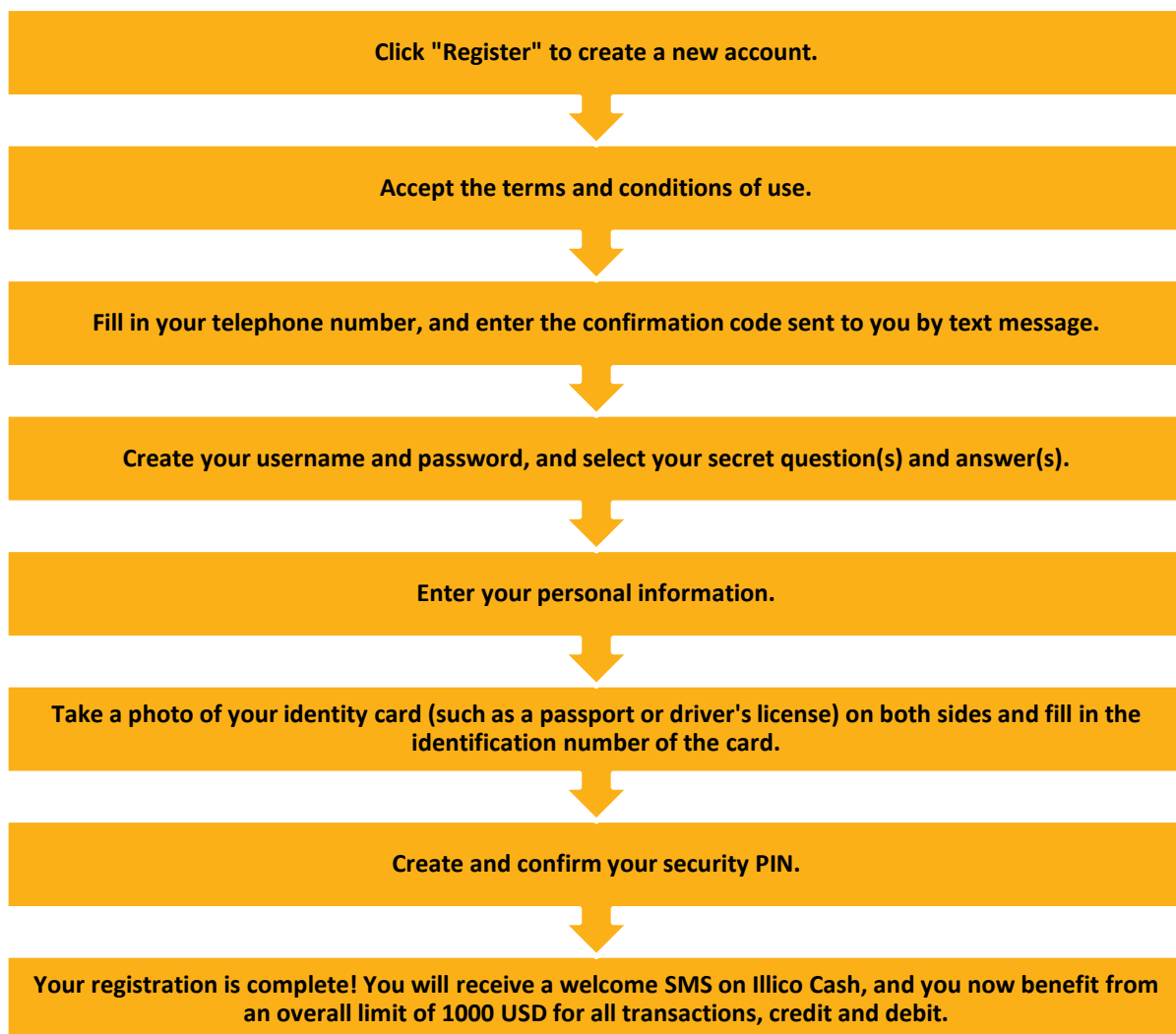
**Exhibit 2** DRC Financial Sector as of July 31, 2021

Item	DRC Financial Sector (USD)	Rawbank (USD)
Deposits	\$9.1 billion	\$3 billion
Assets	\$12.8 billion	\$3.8 billion
Credit	\$3.8 billion	\$859 million
Revenue	\$447 million	\$155 million

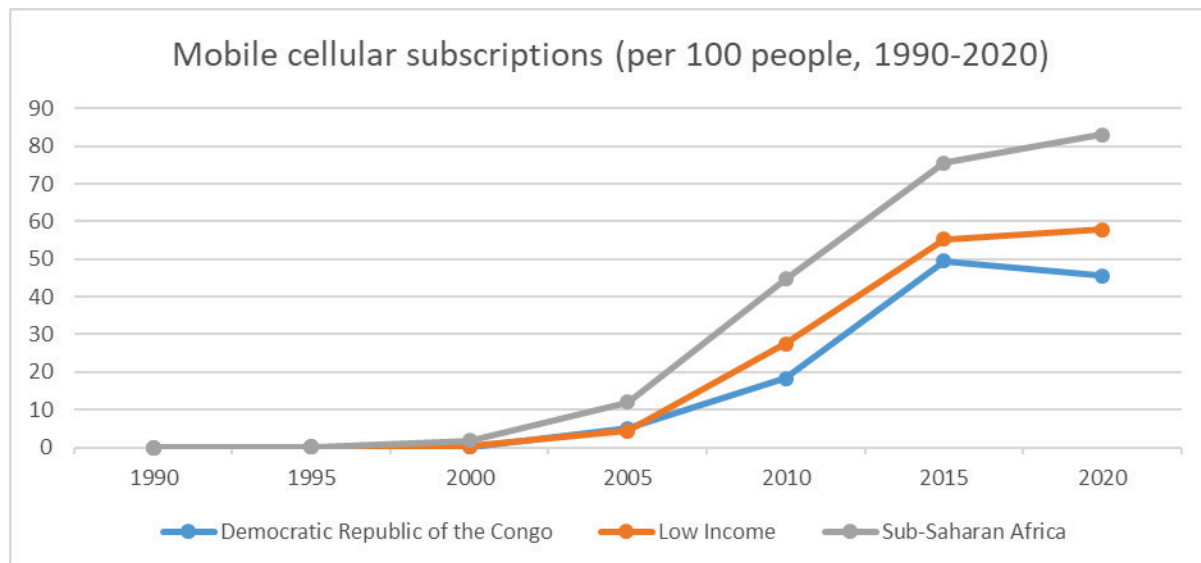
Source: Rawbank Company Documents.

**Exhibit 3** Number of Clicks to Create an Account

Source: Rawbank Company Documents.

**Exhibit 4** How to Open an Illico Cash Account

Source: Created by casewriter from Rawbank company documents. **Exhibit 5a** Mobile Cellular Subscriptions (per 100 people, 1990-2020).

**Exhibit 5A** Mobile cellular subscriptions (per 100 people, 1990-2020)

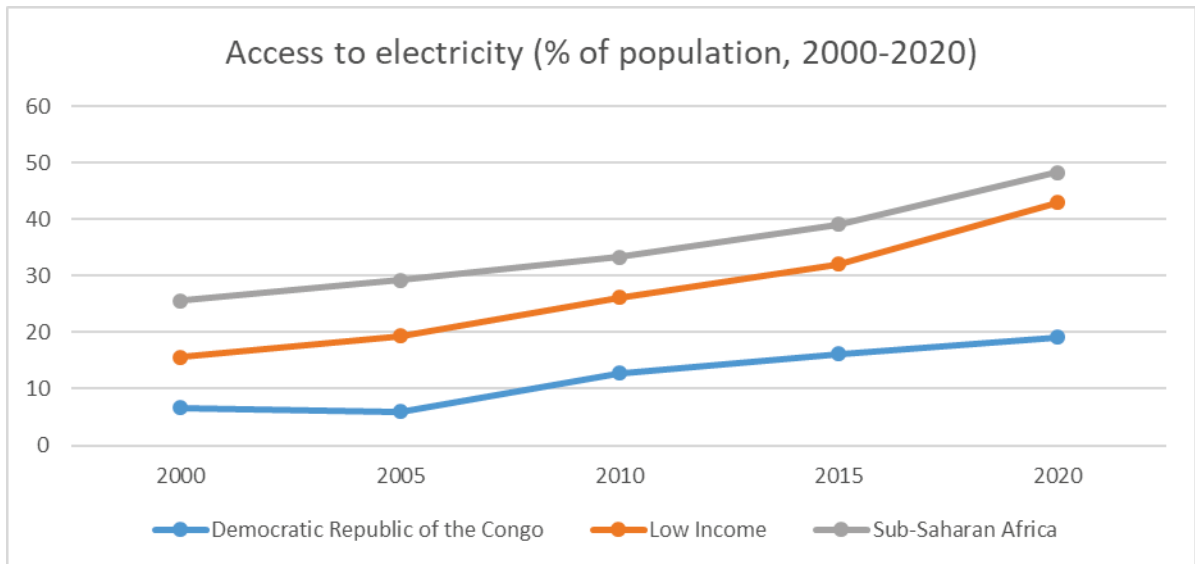
Source: Created by casewriter from the World Bank, World Development Indicators.

**Exhibit 5b** Account ownership at a financial institution or with a mobile-money-service provider (% of population ages 15+)

Country	2011	2014	2017
Congo, Dem. Rep.	3.7	17.5	25.8

Source: The World Bank, World Development Indicators.

Note: Global Findex data exclude parts of several provinces (Eastern Kasai, Equateur, Katanga, North Kivu, Orientale, and South Kivu) and all of Western Kasai province for security reasons. The excluded areas represent about 34 percent of the estimated population.

**Exhibit 6** Access to electricity (% of population, 2000-2020)

Source: Created by casewriter from the World Bank, World Development Indicators

**Exhibit 7** Kilometers of road network in DRC by category of road

Category of Road	Kilometers	Percent of national roads
Paved roads	2,250	1.3%
Unpaved roads	15,000	8.8%
Tracks	43,000	25.1%
Country roads	21,000	12.3%
Local roads	90,000	52.5%
<b>TOTAL</b>	<b>171,250</b>	<b>100%</b>

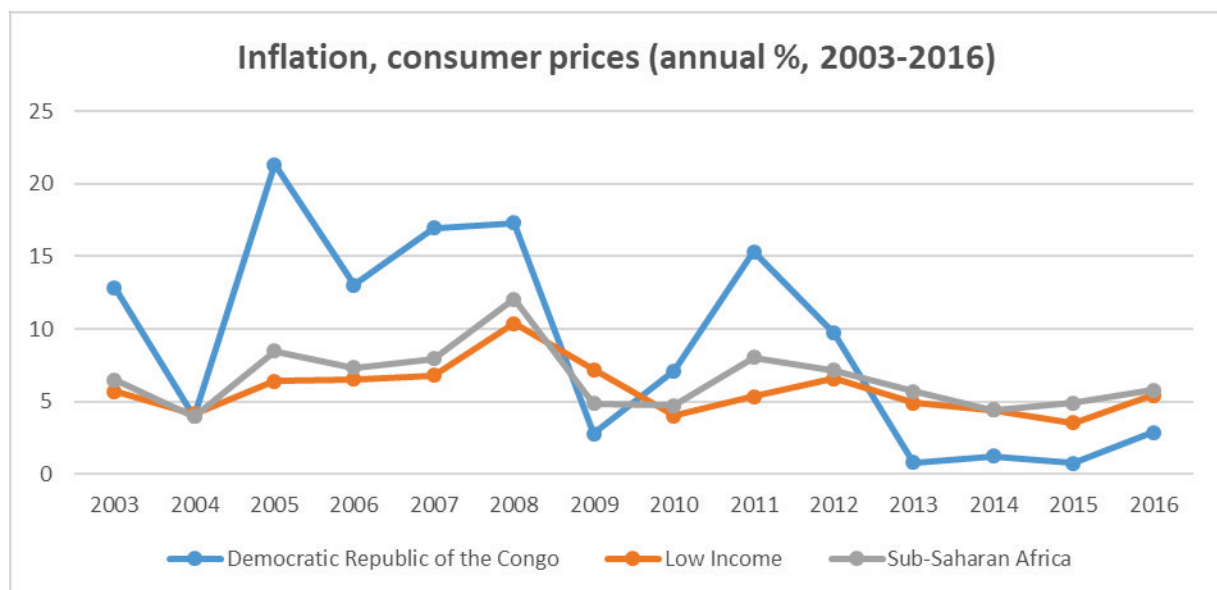
Source: UN Joint Logistics Centre, "DRC Snapshot: Roads in the DRC", 2005, <https://reliefweb.int/sites/reliefweb.int/files/resources/296FAADD2CD1C4EF852571B5005CD59C-unjlc-cod-24jul.pdf>, accessed December 6, 2021.

**Exhibit 8** UN Human Development Index Ranking of the DRC (#175)

-	Rank	Country	HDI value (2019)	Life expectancy at birth (years) SDG 3	Expected years of schooling (years) SDG 4.3	Mean years of schooling (years) SDG 4.6	Gross national income (GNI) per capita (PPP \$) SDG 8.5
	170	Sudan	0.510	65.3	7.9	3.8	3,829
	172	Gambia	0.496	62.1	9.9	3.9	2,168
	173	Ethiopia	0.485	66.6	8.8	2.9	2,207
	174	Malawi	0.483	64.3	11.2	4.7	1,035
	175	Congo (Democratic Republic of the)	0.480	60.7	9.7	6.8	1,063
	175	Guinea-Bissau	0.480	58.3	10.6	3.6	1,996
	175	Liberia	0.480	64.1	9.6	4.8	1,258
	178	Guinea	0.477	61.6	9.4	2.8	2,405
	179	Yemen	0.470	66.1	8.8	3.2	1,594
	180	Eritrea	0.459	66.3	5.0	3.9	2,793

Source: Human Development Report Office 2020. • Created with Datawrapper

Source: UN Human Development Programme, Human Development Report Office, "Latest Human Development Index Ranking," 2020, <http://hdr.undp.org/en/content/latest-human-development-index-ranking>, accessed December 6, 2021.

**Exhibit 9** Consumer Price Inflation (annual %; 2003-2016)

Source: Created by casewriter from the World Bank, World Development Indicators.

**Exhibit 10** Currency Conversion Rate from USD to CDF (Dec. 2011 - Dec. 2021)

Source: "USD to CDF Chart," [xe.com/currencycharts/?from=USD&to=CDF&view=10Y](https://xe.com/currencycharts/?from=USD&to=CDF&view=10Y), accessed December 6, 2021.

**Exhibit 11** Cluster Analysis of Culture's Effect in Preferences for Cash

Cluster	Preference for Cash	Collectivist-Individualistic Characteristics	Uncertainty Avoidance Characteristics
Cluster 1	2.40	37.01	87.35
Cluster 2	2.40	82.49	38.61
Cluster 3	2.50	64.36	64.85
Cluster 4	1.83	34.21	35.07
<b>TOTAL</b>	<b>2.39</b>	<b>58.39</b>	<b>62.15</b>

Source: Created by casewriter from Lieven, Theo. "They still want to have cash - A case of psychological ownership," *Journal of Business Research*, (2021): 22, <https://ssrn.com/abstract=3888666>, accessed December 6, 2021.

Note: Cluster 1 contains the following countries: Argenia, Bulgaria, Spain, Japan, Korea, Mexico, and Russia. Cluster 2 contains Australia, Canada, Denmark, Sweden, Great Britain, and the U.S. Cluster 3 contains Austria, Switzerland, Czech, Germany, Finland, France, Italy, Norway, and Slovakia. Cluster 4 contains India and the People's Republic of China. Preference for a world with cash corresponds to between 2.4 and 2.5.

**Exhibit 12A** Preferences for a World with Cash Money Versus a Cashless World

Region	Sample Size (Respondents)	I would prefer a cashless world.	I would prefer a world where I can also pay with cash.	It does not really matter to me.
Anglo-American	1625	20.1%	54.0%	25.9%
South America	787	27.2%	63.3%	9.5%
Scandinavia	1642	12.9%	66.3%	20.8%
Central Europe	1218	10.4%	81.7%	7.9%
Southwestern Europe	1169	18.9%	57.1%	24.0%
Eastern Europe	1606	23.2%	59.2%	17.6%
Asia	1646	31.0%	40.1%	28.9%
<b>TOTAL</b>	<b>9693</b>	<b>20.5%</b>	<b>59.2%</b>	<b>20.4%</b>

Source: Created by casewriter from Lieven, Theo. "They still want to have cash – A case of psychological ownership," Journal of Business Research, (2021): 22, <https://ssrn.com/abstract=3888666>, accessed December 6, 2021.

Note: The following regions include the following countries: Anglo-America (USA, UK, Canada, Australia), South America (Argentina, Mexico), Scandinavia (Denmark, Finland, Norway, Sweden), Central Europe (Austria, Germany, Switzerland), Southwestern Europe (France, Italy, Spain), Eastern Europe (Bulgaria, Czechia, Russia, Slovakia), and Asia (the People's Republic of China, India, Japan, Republic of Korea).

**Exhibit 12B** Preferences for Whether Cash Could Be Removed From the Market Entirely

Region	Sample Size (Respondents)	All coins and bills could be removed.	Some bills could be removed.	No cash could be removed.
Anglo-American	1625	18.7%	40.9%	40.4%
South America	787	14.5%	62.5%	23.0%
Scandinavia	1642	11.6%	48.7%	39.6%
Central Europe	1218	7.5%	47.7%	44.8%
Southwestern Europe	1169	14.5%	60.1%	25.4%
Eastern Europe	1606	8.0%	58.0%	34.0%
Asia	1646	16.8%	62.5%	20.7%
<b>TOTAL</b>	<b>9693</b>	<b>13.2%</b>	<b>53.7%</b>	<b>33.2%</b>

Source: Created by casewriter from Lieven, Theo. "They still want to have cash – A case of psychological ownership," Journal of Business Research, (2021): 22, <https://ssrn.com/abstract=3888666>, accessed December 6, 2021.

Note: The following regions include the following countries: Anglo-America (USA, UK, Canada, Australia), South America (Argentina, Mexico), Scandinavia (Denmark, Finland, Norway, Sweden), Central Europe (Austria, Germany, Switzerland), Southwestern Europe (France, Italy, Spain), Eastern Europe (Bulgaria, Czechia, Russia, Slovakia), and Asia (the People's Republic of China, India, Japan, Republic of Korea).