Where Will Technology Take Our Industry and the Businesses of our Clients?
Technology KEYNOTE

TABLE OF CONTENTS

01 Chapter ONE
DISRUPTIONS RELEVANT TO THE BIS INDUSTRY

02 Chapter TWO
INNOVATIVE TECHNOLOGIES THAT UNLOCK NEW OPPORTUNITIES & VALUE

03 Chapter THREE
FINAL THOUGHTS & IDEAS RECOMMENDATIONS TO THE BIIA (members)
INNOVATION ≠ DISRUPTION

Disruptors are innovators, but not all innovators are disruptors.

Disruption displaces an existing market, industry, or technology and...

produces something new and more efficient and worthwhile.

It is at once destructive and creative.

Dr. Clay Christiansen
Professor, Harvard Business School;
Author, “Innovator’s Dilemma”
CASE in POINT: Some of the greatest product disruptions are motivated by personal stories when entrepreneurial ideas come as a solution to a common problem or a pain-point.


"I got more and more pissed off," says Milne, shelling out 4% of sales in interchange fees for his first business, a maker of speakers.

He turned a vexation into a new business that would make sending money a cheap and easy proposition.

Dwolla, an online and mobile payment system, lets users pay for things via e-mail, text message or social networks like Twitter.

Consumers love the service. Merchants pay just 25 cents in fees for amounts over $10, instead of up to 1.9% of a transaction, plus a quarter, as Visa charges.

Ben Milne
Founder, Dwolla
Age: 30
Headquarters: Des Moines, Iowa
Founded: 2009
Website: dwolla.com
Social: LinkedIn, Twitter, Facebook

Fast Fact:
$40 million is the average amount Dwolla processes per month.

Archetype:
Frank McNamara
Invented Diners Club, the first credit card
CASE in POINT: Product Disruption (Shika, Kenya)

Mobile app | Instant Credit | Automatic Fund Disbursement

**company**
AlternativeCircle

**mission**
On a mission to provide financial access through technology to over 200 million people globally.

**solution**
Shika

**what it does**

**how it works...**

01 National ID Number
Government Database (instant verification)

02 Mobile Phone Number
Telecom Provider (instant verification)

03 Name
Government Database (instant verification)

04 Date of Birth
Government Database (instant verification)

**Source:** Interview and materials received from Alternative Circles, owner of the Shika brand.

Shika (verb) to get; to catch

**CASE in POINT: Product Disruption (Shika, Kenya)**

- **Credit Tiers | Credit Risk Algorithm Logic**

### Illustration: Credit Scoring Tiers (Shika, Kenya)

- **LEVEL 5** (Level 5)
  - Repeat customer with a positive repayment track record, rich transaction data, positive behavior, indicating lowest possible risk.

- **LEVEL 4** (Level 4)
  - First time user/borrower with existing & positive data from the credit bureau.

- **LEVEL 3** (Level 3)
  - No credit history, richer transaction data from mobile wallet, red flags.

- **LEVEL 2** (Level 2)
  - No credit history, minimal transaction data from mobile wallet, no major red flags.

- **LEVEL 1** (Level 1, automatic rejection)
  - Negative credit history or prior attempted fraud.

### Source:
Interview and materials received from Alternative Circles, owner of the Shika brand.

### Approval Rate
- **LEVEL 5**: 40%
- **LEVEL 3**: ~0.01%

### Fees Paid by Customer
- **LEVEL 5**: <15%
- **LEVEL 3**: ~0.01%

### Credit Limit
- **LEVEL 5**: USD $500
- **LEVEL 2**: USD $500

### NPL Ratio
- **LEVEL 5**: 0.7%
- **LEVEL 3**: 0.7%

### Max Term
- **LEVEL 5**: 30 days
- **LEVEL 3**: 30 days

### Transaction Cost
- **LEVEL 5**: ~0.01%
- **LEVEL 3**: ~0.01%
**CASE in POINT:** Product Disruption (Shika, Kenya)

**Partnership Model**

**EXCLUSIVE PARTNER / SHAREHOLDER**

**CREDITINFO**
(credit bureau)

---

**KENYAN FINTech Startup**

Alternative Circle raises $1.1m funding

**Source:** Interview and materials received from Alternative Circles, owner of the Shika brand.

---

**SHIKA**

**MARKETING ADMIN, OPS & CR. RISK**

**BANKS**

**WORKING CAPITAL & UW RISK**

**REVENUE SHARING**

40 / 60

---

Kenyan fintech startup Alternative Circle has raised US$1.1 million in funding from international credit risk management company Creditinfo Group to help it achieve a wider geographical footprint.

Alternative Circle will in July launch its mobile-based credit facility app Shika, which allows users to access mobile loans and uses a decision engine to identify creditworthy borrowers.
CASE in POINT: Market disruptions may occur when there is a void, unfilled by incumbents

SHADOW BANKING

Definition: Financial intermediaries or activities involved in credit intermediation outside the regular banking system.

ABOUT CHINA (2014)

- 79% Have a bank account
- 36% Borrowed funds last year
- 10% Borrowed from formal FI's (banks)
- 25% Borrowed from family / friends

WHY IS FORMAL LENDING SO LOW?

- National consumer credit database is still young (since 2006) and not robust
- Credit system has limited coverage; PBOC has data on 2/3 of population, of which only 30% have credit history
- Chinese consumers are still largely cash-based and not debt-oriented; but, this is rapidly changing...
- FinTechs are starting to capture the lending market.

#1. CHINA
USD $2,738 billion
- ~35-50% of the GDP;
- 3rd largest globally (after USA & UK);
- >20% annual growth
- 2X faster than bank credit

#2. AUSTRALIA
USD $230 billion
#3. INDIA
USD $190 billion
#4. HONG KONG
USD $103 billion
#5. INDONESIA
USD $41 billion


Shadow banking can serve a useful purpose, because it:

- broadens access to credit (i.e. financial inclusion, especially in emerging economies)
- improves the efficiency of the financial system (i.e. through market liquidity & risk sharing)
- provides an alternative when banks decide to lend less.
CASE in POINT: Market disruptions in China...

WHO ARE THE FINTECHs that are exploiting the credit gap in China with fast & easy online loans and proprietary credit scoring models?

INVESTORS:
- CK Hutchison’s TOM Group,
- Khazanah Nasional Bhd. (Malaysian sovereign wealth fund),
- ING Bank,
- Sequoia Capital and
- Guangdong Technology Financial Group (provincial gov’t fund).

With our proprietary risk management technology, we effectively analyze unstructured mobile big data within seconds to make credit decisions for individual borrowers.

Source: Techinasia.com, "How fintech startups are using big data to solve China’s huge credit gap", 2 October, 2017.

Source: Techinasia.com, "How fintech startups are using big data to solve China’s huge credit gap", 2 October, 2017.
CASE in POINT: Business model disruptions can redefine entire value-chains that may introduce previously unknown players and diminish the role of the incumbents. Case: PayPal

How It Works Independently (now)

- PayPal lends to merchants between 8% to 18% of their annual sales turnover (only via PayPal)
  - Credit limit is up to 2 months’ worth of sales turnover (considered as standard working capital), hence limited to 18% of annual sales;
  - PayPal uses self-imposed restrictions and policy (e.g. risk reserves) related to balances.
- Credit application is initiated by the merchant online;
  - If approved, money is deposited between 10 to 60 minutes (considered industry best practice) and is immediately accessible;
- There is no need for KYC, since PayPal lends only to its existing merchants with a proven history.

Source: PayPal, interviews with executives tasked with partnership development and strategy.

Proprietary Credit Risk Scoring Model

- PayPal uses about 1,000 variables about the merchant to assess risk. Chief among them are the following qualification criteria:
  - Minimum of 1 year history with PayPal;
  - At least USD $20,000 in annual sales turnover through PayPal during 12 month prior and sales trajectory (12-month forecast);
  - Financial health of the merchant’s business (using both in-house and merchant-reported data); *
  - Comparative performance vis-à-vis peers in the same category (i.e. similar merchants);
  - Operational health (e.g. chargebacks)
  - Number of repeat buyers;
  - Concentration of risk, e.g. number of buyers, inventory diversity, dependence on one-off variables;

* NOTE: In a few, rare occasions, e.g. in the case of large merchants, PayPal may require audited financial statements.
CASE in POINT: Business model disruptions... (continued)

PayPal

Unique Advantages & Challenges

ADVANTAGES

› Independent Credit Risk Scoring (i.e. use of in-house data, based on past transaction history & inventory)
› Efficient Debt Collection
› Flexibility & Convenience
  - Flexible, user-assigned payback period (e.g. 6, 9 or 12 mo.)
  - Merchant can choose to pay back daily, weekly, monthly;
  - Automatic deduction of installment payments;

CHALLENGES:

1. Capital Deployment (e.g. merchant and consumer loan underwriting)
2. Regulatory and Compliance Requirements (e.g. lending licenses are required in each jurisdiction)
3. Reaching Global Scale (i.e. inadequate resources)

Solution

Begin partnering with Banks

(who have the capital, but don’t have the kind of reach that PayPal has)

Source: PayPal, interviews with executives tasked with partnership development and strategy.
PayPal Creates a Unique **Win-Win Situation** For Itself and Its Partners

**How It Will Work With Bank Partners?**

- The Marketplace (i.e. PayPal) creates the credit rating score and passes it to the partner bank, along with:
  - Yes/No (is the applicant creditworthy?)
  - Loan Assignment (what is the amount of the loan?)
  - Term of Loan (what is the payback period?)
- The Bank offers the balance sheet as a loan;
- The Marketplace receives a “bounty” (i.e. a fixed fee, e.g. 2%, for loan generation/brokerage)

**Key Benefits To Both Sides:**

- The Bank *substantially* reduces the cost of KYC (~$200/client); expands client base; improves portfolio risk.
- The Marketplace gains the necessary capital to scale in each market; avoids substantial amount of credit risk.

**Source:** PayPal, interviews with executives tasked with partnership development and strategy.
PayPal lends to merchants between 8% to 18% of their annual sales turnover (via PayPal)

- Credit limit is up to 2 months’ worth of sales turnover (considered as standard working capital), hence limited to 18% of annual sales turnover.
- PayPal uses self-imposed restrictions and policy (e.g. risk reserves) related to balances.
- Credit application is initiated by the merchant online.
- If approved, money is deposited between 10 to 60 minutes (considered industry best practice) and is immediately accessible.
- There is no need for KYC, since PayPal lends only to its existing merchants with a proven history.

Source: PayPal, interviews with executives tasked with partnership development and strategy.

The Marketplace (i.e. PayPal) creates the credit rating score and passes it to the partner bank, along with:

- Yes/No (is the applicant creditworthy?)
- Loan Assignment (what is the amount of the loan?)
- Term of Loan (what is the payback period?)

The Bank offers the balance sheet as a loan;

- The Marketplace receives a “bounty” (i.e. a fixed fee, e.g. 2%, for loan generation/brokerage).

Key Benefits To Both Sides:

- The Bank substantially reduces the cost of KYC (~$200/client); expands client base; improves portfolio risk.
- The Marketplace gains the necessary capital to scale in each market; avoids substantial amount of credit risk.
**IN SUM...**

There is no point in defending the status quo, when the whole sector is under siege by disruption.
IN SUM...

There is no point in defending the status quo, when the whole sector is under siege by disruption.

EMBRACE NEW TECHNOLOGIES AND PARTNERSHIPS & COLLABORATE LIKE NEVER BEFORE
Chapter TWO

INNOVATIVE TECHNOLOGIES THAT UNLOCK NEW OPPORTUNITIES & VALUE

USE CASES & EXAMPLES

FinTech & InfoTech Solutions that are re-shaping the industry landscape
The First Blockchain POC for KYC Completed by 3 Banks: OCBC Bank, HSBC, Mitsubishi UFJ Financial Group (MUFG)

KYC blockchain was used to collect, validate, secure and share customer information on a permissioned ledger.

Banks are able to store secured digital records of the validation process, thereby streamlining auditing & regulatory reporting.

The new KYC utility eliminates the need for multiple form-filling by customers at different banks.

THE PLATFORM...

- Remained stable even with a high volume of information flow;
- Maintained confidentiality by allowing access only with legitimate authentication;
- Demonstrated significant uptime during operation & was resistant to tampering attempts.

NOTE: The trial project was supported by the industry regulator, Info-communications Media Development Authority (IDMA), with technical developing & testing by Bluzelle, a specialist technology start-up based in Singapore, and cyber-resiliency & TRM advisory support from KPMG.
Blockchain-powered KYC Utility in Action
OCBC Bank, HSBC, Mitsubishi UFJ Financial Group (MUFG)

what it does...

- Verifiable proof of existence
- Instant audit trail
- Built in synchronization of data
- Decentralized db is 100% tamper proof

how it works...

- Governing body validates technology
- Members are given public/private keys
- System connects to government networks
- Ledger provides legitimate records to members / banks

Source: Bluzelle, the technology company responsible for the development of the pilot KYC utility; www.bluzelle.com.
1. A bank updates email address to the shared ledger

2. Look up the hash for the encrypted data in Ethereum

3. Decrypt data

Source: Bluzelle, the technology company responsible for the development of the pilot KYC utility; www.bluzelle.com.
The Interactive Advertising Bureau (IAB) Launches a Special Working Group to Study Blockchain and Develop Use Cases

**About IAB**

- Founded in 1946 and Headquartered in NYC
- Represents 650 leading media and technology companies, which
- Fields critical research on interactive advertising
- Educates brands, agencies, and the wider business community on the importance of digital marketing.

The ability to keep a **fully verifiable and immutable ledger** or database available to all members of a **particular group** or market makes blockchain an **attractive tool** to address challenges as diverse as payment processing or fraud prevention.

Such a fundamental technology should not be **ignored**, it should be embraced, and this is why we are forming this group.”

*Source: IAB, “Blockchain for Advertising”, 09/18/2017*
**CASE IN POINT:** What Is IAB’s Objective?

**A B O U T  T H E  I A B  T E C H  L A B**

- A nonprofit research and development consortium, incl:
  - Digital publishers
  - Ad Technology (AdTech) firms
  - Marketers
  - Agencies

**MISSION**

- To investigate the application of blockchain technology,
- To address challenges in the digital advertising space,
- To develop standards and best practices for the use of blockchain.

**CURRENT STATUS**

- Developing education content for blockchain technology & its use in advertising
- Setting priorities for business use cases and required technology standards and best practices.

**INITIAL FOCUS**

- Financial Transactions & Billings
- Discrepancy Reconciliation
- Validation of Advertising Resources and Assets
- Fraud Detection & Prevention

**LAUNCHED SOLUTIONS...**

- AdChain
- Adex
- Amino
- Faktor
- NYIAx
- Rebel AI
- The Basic Attention Token (BAT)

**NOTE:** Refer to Appendix for the full list and descriptions.
Equifax Hack Raises New Questions About Trust & Fairness of The Existing Credit-Reporting Model

Senators Rip Credit-Reporting Model in Wake of Equifax Breach

Ex-Equifax CEO faces questions about how the company handled the breach and whether an industry overhaul is needed

Quotes & Thoughts from the Senate Banking Committee Hearing...

“Why consumers don’t have the option to “opt in” before companies like Equifax are allowed to access their data?”

“You have my information, you don’t pay me for it, you don’t have my permission.”

“You can’t run your business without me. My data is the product you sell.”

Sen. John Kennedy (R., La.)

“Consumers have more control over their personal medical data; why similar standards shouldn’t be applied to financial information?”

Sen. Heidi Heitkamp (D., N.D.)

“You can’t run your business without me. My data is the product you sell.”

Sen. John Kennedy (R., La.)

“Consumers don’t choose to share their data with these firms nor do they receive compensation for it, even though companies like Equifax profit by gathering it and selling it to lenders and other companies.” – WSJ
**KEY RECOMMENDATIONS**

**Forrester | BIAA 2017 Biennial Conference**

1. **Create a Joint Taskforce on Blockchain**
   - Similar to IAB Tech Lab’s “Blockchain Working Group”, this taskforce would identify use-cases benefiting the industry.
   - It could serve to educate the rest of the community & provide.
   - It could also coordinate the R&D efforts and pilot projects.

2. **Explore Alternative Partnership Models**
   - Observe and learn from FinTechs and collaborate with new data partners...

3. **Show Regulators & Consumers That You Can Innovate**
   - Continue to build trust and confidence with governments and consumers [mission critical]

4. **Launch POC’s**
   - Collaborate, experiment, test, and launch joint pilot solutions [MVPs].
Thank You

Tom Mouhsian
Principal Analyst (CX)
tmouhsian@forrester.com

Forrester Singapore Pte. Ltd.
PWC Building
8 Cross Street #27-01
Singapore 048424
www.forrester.com
- **AdChain** is an open protocol on Ethereum’s public blockchain. Its stated goal is to allow for building of decentralized applications, specifically for use in the digital advertising ecosystem.

- **Adex** is a decentralized ad exchange that utilizes Ethereum to address problems like fraud, privacy, and consent in the digital advertising space.

- **Amino** combines technologies from blockchain, payments, and adtech to bring transparency, integrity, and auditability to online advertising.

- **Ethereum** is a blockchain-based, publicly available open source distributed computing platform that provides a decentralized virtual machine and its own cryptocurrency tokens called “ether”. These attributes make Ethereum an attractive base for the generation of smart contracts and serves as the foundation of other applications.

- **Faktor** is a blockchain-based identity management platform that can be utilized by publishers, advertisers, and individual users.

- **Hyperledger** is an umbrella project of open source blockchain initiatives that was started and managed by the Linux Foundation.

- **NYIAX**, a guaranteed media contract exchange, bridges the space between the financial and digital advertising ecosystems utilizing blockchain in partnership with NASDAQ.

- **Rebel AI** secures digital advertising and protects publisher identity and brand spend using machine learning, blockchain, and encryption technologies.

- **The Basic Attention Token (BAT)** utilizes the Ethereum blockchain to create a token that can be used to obtain a variety of advertising and attention-based services on a purpose-built platform.
RESEARCH SOURCES

2. Interview and materials received from Alternative Circles, owner of the Shika brand.
3. International Monetary Fund (IMF), Shadow banking is boon, bane for financial system, 1 October, 2014.
7. PayPal, interviews with executives tasked with partnership development and strategy.