

On Demand Loans Real Time Service: Essential User Feature by the Banks in Society 5

Elizabeth Koumpan¹, Ram Ravishankar², and Periasamy Girirajan³

¹IBM Consulting- ON L3R 9Z7, Canada

²IBM Consulting –CA ,92626-7221, USA

³IBM Consulting- KA, 98800-19759, India

ABSTRACT

Investing for a Sustainable Future is driving client buying behaviors and corporate strategies. We are at the transition between the 3rd Industrial Revolution (computer/internet-based information), and the 4th (driven by digital transformation, AI, IoT, Blockchain), emerging into the 5th Industrial Revolution (Cebit, 2021). This transition drives connection of business to purpose, democratizing technology for consumers with ease of use and integration of cyberspace with physical space. In the Financial Services industry, “Buy Now, Pay Later” (BNPL) is one of the strongest trends (Insider Intelligence, 2022), that redefines processes around instant credit, digital payments, embedded lending, and e-commerce. It expands into innovative product bundling concepts, such as “Home buyer ecosystem” (Housingwire.com, 2022), where home mortgage bundled with BNPL for home appliances / consumer goods. BNPL type process naturally evolves into digital frictionless user experience, replicated across channels, expanding into services, tailored to behavioral patterns, personalized shopping recommendations, offerings on interest-bearing financing and over-the-top payments with any merchant via smartphone apps, QR codes, and virtual cards, making a range of goods and services more affordable (McKinsey, 2021), With BNPL, retailers minimize the risk of capital management during a period of huge economic uncertainty and worldwide lockdowns. In this study we describe what are BNPL benefits and key areas to change:

- BNPL offering is part of the value chain/customer journey
- Sustainability is essential

We describe the architecture, next moves and essential need to formulate BNPL strategy for business that intersect payments, lending, and e-commerce.

Keywords: Ecosystems, AI, BNPL, Business models, Society 5, FSS

INTRODUCTION

The ongoing Covid-19 has been a major catalyst accelerating the digital transformation of industries, the virtual way people work, learn, buy and how businesses interact with their consumers, partners. As much of life shifted to digital channels over in-person interactions, the most profound change is happening in financial industry. The use of digital channels for embedded

finance products, demands new level of data gathering, sharing, bringing intelligence for automated management, and optimization of the entire social and organizational systems (IBIS World, 2020).

Winners in this market will be companies that combine strong consumer and merchant relationships into a composite cross-industry business process and *continuously bring in the right elements of technologies that translates to solutions with robust value proposition towards potentially new set of business models.*

BNPL is an example of how the combination of cross-industry business processes with technology can help democratize the lending systems to broader and deeper reach to several layers of social structure, ensuring financial inclusion of all customers, including groups for whom BNPL can be the only option (FintechFutures, 2021).

Increasing buy of non-essential products, such as fashion, electronics, introduce a growing concern about overconsumption (MDPI, 2020), and has an impact on environment sustainability. By enabling new financial BNPL credit schemes, we can influence customer behaviour by suggesting alternative options, based on supplier practices, offering additional credits from the local suppliers. BNPL micro-loans will reward consumers with better pricing for making the right choice.

Furthermore, BNPL is an apt process not only because it touches several layers of human life, but also it brings a global scale that tests the ability of technology.

The advancement in Data and AI technologies in particular helps to strengthens relationship between consumers and merchants. Powerful insights generated from the data exhaust can provide merchant partners with valuable data to understand:

- Who their customers are, and their target customer segments?
- The types of products customers prefer and where they shop
- Enable quick decisions and influence customer selection with sustainable choices as part of BNPL process (United Nation, 2018)
- Trading and micro-lending

In the future, digital wallets (Electron.org, 2020), will enable both individuals and businesses to control their participation in the new ecosystems based on their preferences, augmented by ecosystem-centric loyalty schemes, providing the foundation for new engagement models.

People, Jobs, Economic Inclusion and Sustainability will be at the heart of everything. Banks need to turn BNPL into an opportunity, by applying technology and optimize, automate, and even monetize by applying exponential technologies like BPA (Business process automation) and AI. They should leverage their huge base of retail customers with variety of credit products, and many of established banking providers that have merchant acquiring services.

KEY CHANGES AND INNOVATION

The BNPL trend is an exemplar of multi-industry process confluence. By integrating key steps supporting the consumer buying and lending processes

within the retail and financial services industries, the BNPL trend fuels innovation. Banks and retail giants are working together to apply Cloud and AI technologies to innovate effectively (Bay and Company, 2021).

There are multiple use cases cutting across consumers and merchants, evolving into digital user experience and building direct relationships between consumers and merchants. That is why Banking industry and Retail industry need to work together in creating solutions to enable brands offer financial products to their existing customers, and to influence consumer choices. BNPL with no interest and adjustable dynamic payment schedules will be sustainable alternative for consumers, making their life more affordable.

Particularly, application of AI technology to (a) generate personalized insights, (b) provide merchant partners with valuable real-time data about their customers, (c) understand their target customer segments, (d) help send targeted marketing, (e) tailor the offerings to customer needs. Thus, AI will help in richer customer experience, growing sales, new customers, lower costs, enabling to control ecosystem participation, based on the preferences.

The Core of the BNPL Process - Customer Journey

By spreading payments for a purchase over a period of time—marketers can influence consumers' likelihood not just to buy (Synchrony, 2021), but to buy products based on the merchant reputational index (PWC ESG Reputational Risk, 2022). Sustainability is getting more and more important across all industries, taking into consideration how an organization operates in the ecological, social and economic environment. Many people, especially young, do their best to be more environmentally friendly, and buy products from the brands they see as 'diverse and green'. But consumers don't always know how sustainable are the practices of the suppliers that provide the products they are interested in, or re-sellers who offer such products. Reality can be opposite, where some of the brands that seems attractive from socially aware standpoint, may have disastrous impacts on the environment, or where the sellers/merchants may not follow ethical practices.

BNPL practice with AI help could raise awareness around sustainability and overconsumption, and accelerate the demand for more sustainable choices, promoting more measured behavior among the consumers, who will avoid usage of the brand that is not up to ethical standards.

New business models are developing, to offer shopping, payments, financing, and banking products in a single platform. The banks will need to assess ways in which they can present themselves within purchase journeys and ideally at point of sale.

The BNPL Process Explained Through an Example Use Case

BNPL providers are expanding to aggregate e-commerce offerings in a single interface, working with any merchant online/ or instore, - in person, deploying a direct-to-consumer proposition. One of the challenges remains, that BNPL companies unable to piece together customers' cumulative balances across providers. Data sharing is one of the issues and it should become more inclusive of thin-file customers, including ones with a limited credit history.

Open banking regulations enable BNPL companies to help customers build their credit profiles, including consumers with no credit file, or a thin one, to access the broader credit ecosystem. BNPL economic model consist of three main parties: end customer, merchant, and acquirer. The customer pays no interest or fee. Instead of a typical service fee, BNPL providers-acquirers, seek to charge merchants an affiliate commission or an interchange fee.

If merchants can reduce interchange fees by driving purchases from debit and credit cards to other forms of payments, they'll do what they can to make that happen. Banks are not service providers (i.e., advice, guidance, monitoring), interested in developing partnership with merchants for new sources of revenue (real time loans) to offset reductions in payment processing fees. Real-time lending has the potential to bridge one of the key differences between API banking and using a credit card (which is a pre-approved real-time loan and payment method combined). API Banking + Real-time loan may even be a necessary ecosystem pairing to allow APIs to threaten the dominance of card-based payments in any meaningful way.

Let's Look at the Example Below – a Near Real Time Scenario

BNPL Provider, one of the financial institutions/banks may have a signed partnership with different merchants, including large resales, direct manufacturers, as well with online commerce, like Amazon.

- The user selects BNPL option while shopping (online or in person) for appliances at one of the partner merchants (example - Miele showroom). The request to approve \$9500 is sent to the bank.
- BNPL platform will do all required validation, including user credit check, fraud scan, customer authentication, status, merchant reputational and risk score, etc. During this step usage of AI became crucial to create insights, based on the historical data, that will be used for all future process decision making.
- Calculated BNPL option and special offer will be based on the merchant business and product manufacture sustainability, other partnerships and products purchased + customer interests, weather, season, and other contextual aspects.
- There is a probability that user may be rejected, but otherwise, the consumer will be presented with the BNPL option with tailored terms and conditions and few special offers based on sustainability choices to select. The user selects the options, confirms, and acknowledges, and sign the agreement.
- The BNPL platform receives the acknowledgment, release the money to the merchant, getting the fee, that will be calculated based on the partnership, purchase products, and other conditions.
- Platform will set up payment schedule with the customer to automatically send notifications/or withdraw monthly payments/or etc...
- Platform will connect with other partners based on the <extra value proposition option> selected by the customer and receive the % of the fee based on selection. Such capabilities help to promote more sustainable products and brands.

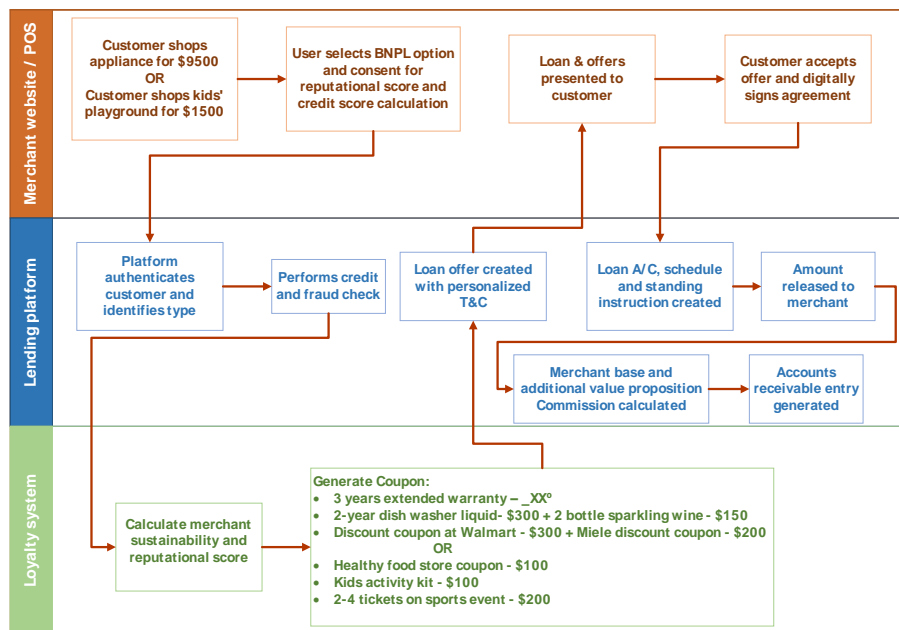


Figure 1: Use case (customer engagement outcome).

Architecture

The technical architecture to implement the BNPL process needs to be dynamic, respecting the privacy boundaries of retail and financial ecosystem and being scalable to bring in additional financial institutions as well retail chains rapidly on board. The architecture should also support a high throughput fast response system to make real-time loan decision for the customer waiting at the point of sale. The system must be able to dynamically scale up and down to cater to unpredictable seasonal loads without impacting the transactional performance in the regulated payments.

The overall BNPL architecture is built on the following key principles:

- Cloud-native type architecture with microservices and APIs for flexible build and deployment
- Multi-cloud hybrid architecture for horizontal scalability
- Co-exist and interoperate with traditional back-end systems to support a seamless transaction with Systems of Record.
- Applied-AI model for decisioning to approve/reject and providing BNPL terms & conditions happens in real-time.
- All components of the architecture are horizontally scalable with multizone/multi-region availability
- Application components/services deployed as containers enabling portability

The key building blocks of the architecture are as follows.

1. Systems of Engagement

The engagement platform is “eyes” of the overall architecture where integration at glass happens with the e-commerce portal. This layer is built on

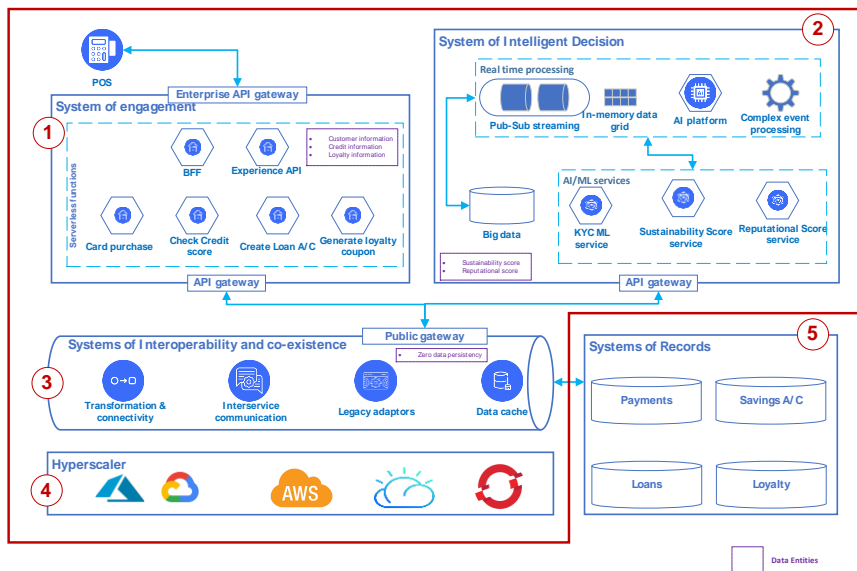


Figure 2: A cloud-native and AI-centric architecture.

cloud native architecture using BIAN standard microservices supporting key business functions:

- Card purchase
- Check credit score
- Create loan account
- Create loyalty coupon

The platform handles the key business processes and the necessary micro-services orchestration in a composable manner, realized with data from external agencies, systems of record, and the machine learning models. BNPL is a use case which has an unpredictable workload due to the seasonal spikes, typical in e-commerce world.

2. Systems of Intelligent Decisions

The data fabric performs two functions and acts as the “Ears” and “Brain” of the overall architecture. The data generated at the engagement layer are funneled into the data fabric through high-throughput event and data streaming techniques. The machine learning models are built through the training algorithms using data accumulated in the Big Data platform. The complex event processing sub-system performs the necessary pattern matching algorithms. The subsequent reputational score and the sustainability index are calculated using the AI services and passed back to the system of engagement platform. This aggregated score is used to make the critical real-time lending decisions as well generate the specific extra offers to the customer based on the loyalty platform recommendations.

3. Systems of interoperability and Co-existence

This fabric is equipped with necessary adaptors, routing algorithms, protocol conversation, to enable data access to the existing legacy systems.

The bi-directional data synchronization is the most critical part to manage the data integrity across the ecosystem. Parts of the data management is done through Command Query Responsibility Segregation (CQRS) data management pattern with techniques such as in-memory data grid available at the cloud side.

These capabilities are established in modern cloud containerized platform, horizontally scalable and available on multiple regions and multiple zones.

4. System of Records

Systems or records are the golden source of information with the bank primarily comprising of customer data, account details and loyalty data. In most banks the systems or record will have multiple access mechanisms due to the technical nature of the system and the systems of co-existence and interoperability helps in this regard to manage the data integrity and consistency within the system or record.

CONCLUSION

Today, BNPL influences consumers' choices of products and providers by becoming a shopping destination, helping merchants to make sales, and became masters of the customer journey (CKGSB, 2013), To achieve long-term growth, lenders of all kinds will need to address three core changes in consumer experience related to borrowing:

1. Product-agnostic delivery of credit, *influencing sustainable choice*.
2. Integration and *engagement across the entire purchase journey*.
3. Habituation to subsidized credit and *enhanced value*.

Integration and engagement across the entire purchase journey - will become a big differentiator. BNPL is about owning the customer relationship, not just facilitating a one-off transaction *with data sharing and infusing AI being most crucial to support this*. Competing will require players to assess which is the right business model to focus on, which verticals to prioritize, and how to go to market.

ACKNOWLEDGMENT

We would like to acknowledge *Harish Bharti and Tanmay Ambre*, key IBM BNPL SME for review and comments. We are very grateful to IBM organizational leaders who work together every day to raise the awareness and importance of BNPL aspect and technologies highlighted in this document.

REFERENCES

- Bay and Company. (2021). '*Buy Now, Pay Later moves center stage with consumers and Regulators*'. Available from: <https://www.bain.com/insights/center-stage-with-consumers-and-regulators-bnpl-report-2021/> [accessed March 2022].
- Cebit. Society 5.0. (2021). *Japan's digitization* [online]. Available from: <http://www.cebit.de/en/news-trends/news/society-5-0-japans-digitization-779> [accessed April 2022].

- CKGSB. (2013). *The Thinker Interview with Philip Kotler, the Father of Marketing*. Available from: <https://english.ckgsb.edu.cn/knowledges/philip-kotler-interview-four-ps-marketing/> [accessed March 2022].
- Electron.org (2020). ‘Buy Now Pay later’ options drive digital wallet adoption’. Available from: <https://www.electran.org/publication/transactiontrends/buy-now-pay-later-options-drive-digital-wallet-adoption/> [accessed April 2022].
- Finextra. (2021). ‘BNPL expected to double market share in UK e-commerce within the next four years’. Available from: <https://www.finextra.com/newsarticle/37540/bnpl-expected-to-double-market-share-in-uk-e-commerce-within-the-next-four-years> [accessed April 2022].
- FintechFutures. (2021). ‘Can open banking make BNPL more sustainable?’ Available from: <https://www.fintechfutures.com/2021/12/can-open-banking-make-bnpl-more-sustainable/> [accessed March 2022].
- Housingwire.com (2022), *Pay later platforms: A superhero for housing ecosystems?* Available from: <https://www.housingwire.com/articles/pay-later-platforms-a-superhero-for-the-housing-ecosystem/> [March 2022]
- IBIS World. (2020). *Buy Now - Pay later - a new Retail dynamic Has Everybodys Attention*. Available from: <https://www.ibisworld.com/blog/buy-now-pay-later-a-new-retail-dynamic-has-everyones-attention/61/1131/> [accessed March 2022].
- Insider Intelligence. (2022), *Buy Now pay later report: Market trends in the ecommerce financing, consumer credit and BNPL industry*. Available from: <https://www.insiderintelligence.com/insights/buy-now-pay-later-ecommerce-financing-consumer-credit/> [accessed March 2022].
- McKinsey. (2021). ‘Buy Now, pay later: Five business models to compete’. Available from: <https://www.mckinsey.com/industries/financial-services/our-insights/buy-now-pay-later-five-business-models-to-compete> [accessed April 2022].
- MDPI (2020). *Click to buy: The impact of retail credit on over consumption in the online environment*. Available from: <https://www.mdpi.com/2071-1050/12/18/7322/htm> [accessed March 2022].
- PWC (2019). *FCA addresses harms in the ‘Buy now pay later’ market*. Available from: <https://www.pwc.co.uk/financial-services/assets/pdf/fca-addresses-harms-in-the-buy-now-pay-later-market.pdf> [accessed March 2022].
- PWC ESG. (2018). *Reputational Risk*. Available from: <https://pwc.to/3HO000D> [accessed 2022].
- Synchrony. (2021). *Economic Evolution: Five trends primed to Disrupt payments*. Available from: <https://gosyf.com/3najYsK> [accessed March 2022].
- United Nation. (2018). *Sustainable Development*. Available from: <https://sdgs.un.org/goals> [accessed April 2022].