

Enterprise Planning Project



DOORDASH

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Slide & Notes :Pallavi - Introduction Story:

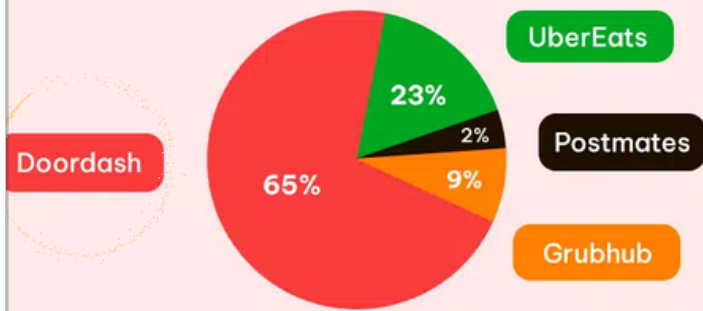
Let's go back to March 2020, when cities around the world were suddenly plunged into lockdown due to the COVID-19 pandemic. Restaurants found themselves facing a crisis: they could no longer serve customers in-house. At this critical juncture, a small family-owned restaurant in San Francisco was trying to figure out how to keep their kitchen running and their staff employed. They partnered with DoorDash, which enabled them to shift completely to takeout and delivery almost overnight.

This partnership not only kept the restaurant's doors open but also helped them reach new customers confined to their homes. The restaurant's owner, Maria, observed a surprising trend—orders were not just sustaining but actually increasing. She credits DoorDash for enabling her business to adapt quickly to the new circumstances, providing a vital lifeline when they needed it most.

This real scenario underscores the impact of DoorDash's business model, not just in facilitating food delivery, but in empowering local businesses to survive and thrive even during the most challenging times.

Agenda

USA Online Meal Delivery Market Share In 2023



Overview

Market Requirement

Service Requirement

Supplier Requirement

Value Proposition/ Business Model

Information System Architecture

Keys Functions of the system

ERP Integration

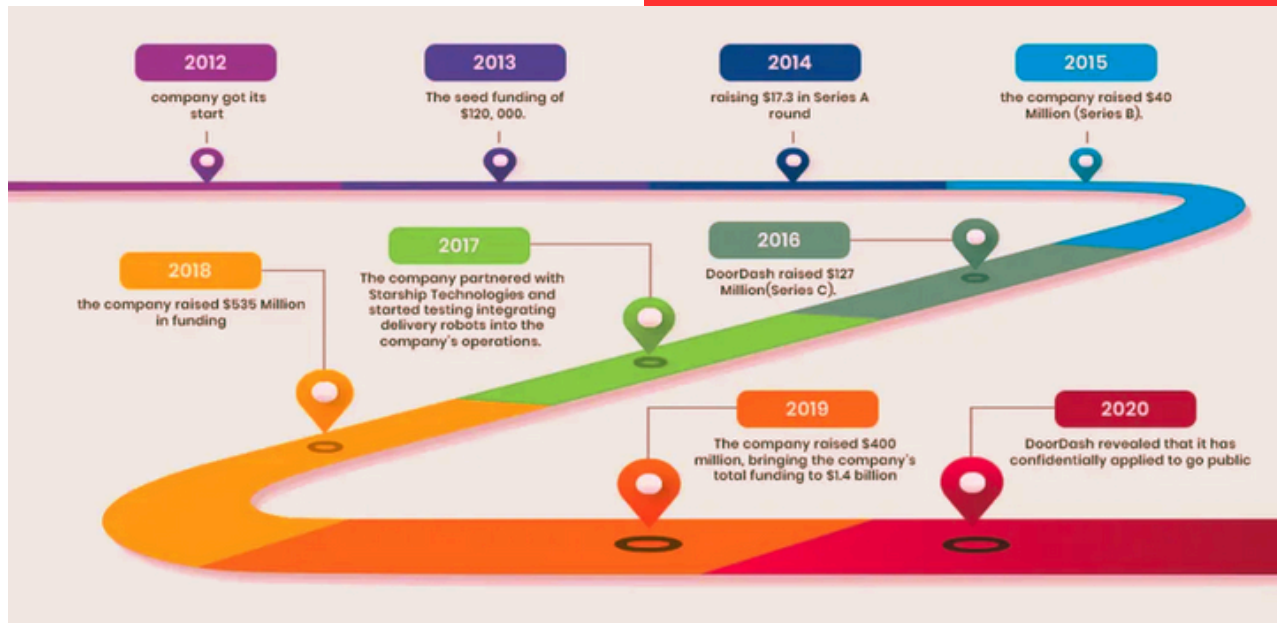
Vendors of The Information System

Service blueprint

References

Slide & Notes : Pallavi - With Maria's story setting our stage, Good Morning! We Group 2, will be discussing how Doordash's business model, its information system architecture and service blueprint have created a robust system that supports both the demand from consumers and the needs of local businesses across various landscapes.

Overview: Tracking DoorDash: A Growth Timeline



Pallavi - DoorDash began its journey in October 2012 when four Stanford students launched a simple website called PaloAltoDelivery.com. The initial success of this small experiment paved the way for the official founding of DoorDash in May 2013, a venture which quickly captured the interest of investors like Y Combinator, contributing seed funding of \$120,000.

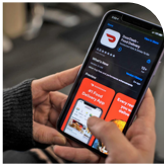
From these modest beginnings, DoorDash saw rapid expansion. By the end of 2013, just months after its official launch, DoorDash had raised \$2.4 million in a second seed round with notable investors like Khosla Ventures and Charles River Ventures. The growth trajectory continued steeply with a \$17.3 million Series A funding in 2014 led by Sequoia Capital, and by 2015, the company had reached a valuation of \$600 million after a \$40 million Series B funding round.

This expansion wasn't just financial; by 2015, DoorDash was operating in over 250 cities and had begun international operations in Toronto. Fast forward to 2018, DoorDash secured an additional \$785 million across multiple funding rounds, dramatically increasing its valuation to \$4 billion and surpassing GrubHub in market share by early 2019. By 2020, DoorDash had established itself as a leader in the delivery service industry, with a valuation soaring over \$13 billion and plans to go public.

Each funding round and strategic partnership not only expanded DoorDash's operational capabilities but also solidified its position as a central player in the evolution of how food is delivered in the digital age.

Market Requirement

Typically revolve around meeting the needs and expectations of both customers and businesses.



Convenience



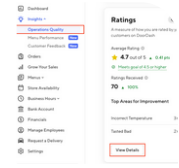
Variety



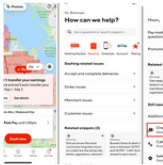
Reliability



Affordability



Quality Control



Customer Service



Safety



Technology



Partnerships



Adaptability

Slide & Notes : Pallavi - In the fast-paced world of food delivery, DoorDash strategically meets the complex needs of both customers and businesses. Central to their market requirement strategy is convenience, enabling customers to effortlessly order from a wide range of restaurants at the touch of a button. This is complemented by a variety of culinary options, ensuring that whether you're craving Thai, Italian, or traditional American dishes, DoorDash has you covered.

Reliability and affordability are also key. DoorDash ensures timely deliveries with an advanced logistics network, maintaining affordability through competitive pricing strategies. Quality control remains a cornerstone, as they continuously monitor service standards and restaurant partnerships to guarantee customer satisfaction.

Furthermore, DoorDash emphasizes robust customer service, prioritizing safety with secure technology and screening for delivery personnel. They adapt and innovate constantly, partnering with businesses to integrate the latest tech solutions, thereby enhancing user experiences and operational efficiency. Through these measures, DoorDash not only meets but exceeds market expectations, setting the stage for ongoing growth and customer loyalty."

Service Requirements

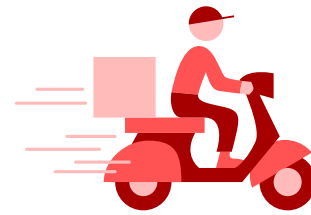
Delivering Quality, Choice, and Convenience in Every Order



User-Friendly Interface



Diverse Restaurant Selections



Adaptive Delivery Options



Feedback Mechanisms



Accessibility Features



Real-Time Order Tracking

Let's begin with the user-friendly interface. Doordash goal is to create an intuitive and responsive design that simplifies the ordering process. This is crucial because it ensures a seamless experience for all users, reducing barriers to placing orders. As a result, Doordash expect increased customer satisfaction and retention.

Next, Doordash also focuses on offering a diverse selection of restaurants and cuisines. This is designed to cater to the wide array of customer preferences and dietary needs, enhancing user engagement. By providing more choices, Doordash appeal to a broader audience, encouraging more frequent use of Doordash service.

Moving on to real-time order tracking, Doordash implement features that allow customers to track their orders from the restaurant to their doorstep. This increases transparency and trust, as customers appreciate being informed about the status of their delivery, reducing anxiety and improving their overall experience.

Adaptive delivery options are also key. Doordash offer various delivery methods, including contactless delivery, which is particularly important during health crises like the COVID-19 pandemic. These options meet different customer needs and preferences, showing Doordash flexibility and commitment to customer safety.

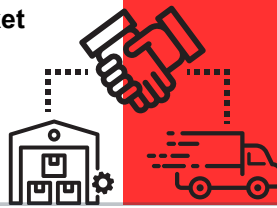
Regarding quality assurance, Doordash establish clear standards and protocols for there restaurant partners. This ensures that all food delivered through the platform meets expected safety and quality standards.

Feedback mechanisms are integrated into Doordash service to allow customers to rate their experience and provide specific feedback. This enables continuous improvement of there services and restaurant offerings based on direct customer insights, fostering a culture of excellence and customer-centricity.

Finally, Doordash ensure that there app is accessible to people with disabilities. Features like voice commands and screen readers not only expand there market reach but also adhere to ethical practices and potentially legal requirements, making the platform more inclusive for all user s.

Supplier Requirements

- **Strategic Partnerships with Local Restaurants:** Collaboration with a variety of local dining establishments as key content providers.
- **Logistical Support for Delivery:** DoorDash manages the logistics of food delivery, allowing restaurants to focus on their culinary expertise.
- **Mutual Growth Opportunities:** The platform design ensures mutual benefits by increasing restaurant visibility among DoorDash users.
- **Alignment with Market Demands:** Continually adapts and aligns supplier capabilities with changing customer preferences and market trends.
- **Enables a diverse menu offering that caters to the wide range of customer preferences.**
- **Assists restaurants that lack the resources to operate their own delivery systems, enhancing their operational efficiency.**
- **Extends restaurant reach to a wider customer base, which can lead to increased orders and revenue.**
- **Ensures that both the demands of customers and the capabilities of suppliers are in sync for optimal service delivery.**



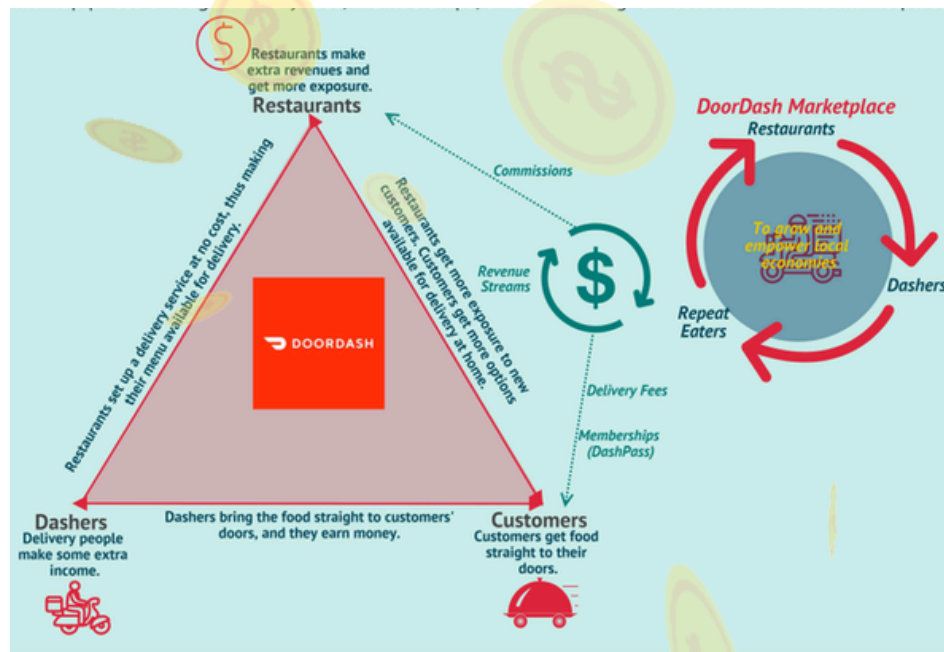
Doordash starts by forming strategic partnerships with a variety of local dining establishments, positioning them as key content providers. This collaboration enriches Doordash menu offerings, catering to a broad spectrum of customer preferences. DoorDash takes on the logistics of food delivery, which allows restaurants to concentrate on what they do best—their culinary expertise. This support is crucial for restaurants that lack the means to operate their own delivery systems, thus boosting their operational efficiency and enabling them to focus on quality and innovation in their culinary offerings. Doordash platform offers smaller establishments the opportunity to expand their market reach without the overhead associated with delivery logistics. This provision not only empowers local businesses economically but also enhances their sustainability and ability to compete in a broader market.

The design of Doordash platform ensures mutual benefits by significantly increasing restaurant visibility among DoorDash users. This strategic visibility extends the restaurant's reach to a wider customer base, potentially increasing their orders and revenue.

Doordash also continually adapt and align our supplier capabilities with changing customer preferences and market trends. This ensures that the offerings on there platform are always relevant and appealing, matching customer demands with supplier capabilities for optimal service delivery.

Lastly, Doordash support the growth and sustainability of local businesses through a robust partnership model. This contributes significantly to the local economy by boosting business for local restaurants, thus fostering community growth and development.

DoorDash Business Model In A Nutshell



Revenue Stream

Key Resources & Partners

Value Propositions

Customer Relations & Segments

Cost Structure

Channels

Key Activities

Slide & Notes : Pallavi - DoorDash operates on a platform business model, which essentially connects three main stakeholders: customers, restaurants, and delivery drivers known as Dashers. The primary way DoorDash makes money is through a combination of commission-based revenue, delivery and pickup fees, and subscription services like DashPass.

Firstly, DoorDash charges restaurants a percentage fee on each order placed through its platform. This commission model aligns DoorDash's interests with the restaurants, as both benefit from increased order volume.

Secondly, customers pay delivery fees, which vary depending on the time of day and demand. During peak times, DoorDash may implement surge pricing, which helps balance demand with the availability of Dashers.

Additionally, DoorDash offers a subscription service called DashPass. For a monthly fee, subscribers get reduced delivery fees and exclusive discounts, which not only fosters customer loyalty but also stabilizes revenue streams for DoorDash through consistent subscription fees.

DoorDash also generates revenue through promotional partnerships with restaurants and targeted advertising within their platform, expanding their reach and offering marketing solutions to their partners.

In summary, DoorDash's diverse revenue streams—from commissions, fees, subscriptions, and advertising—create a robust business model that supports continuous growth and adapts to

changing market dynamics.

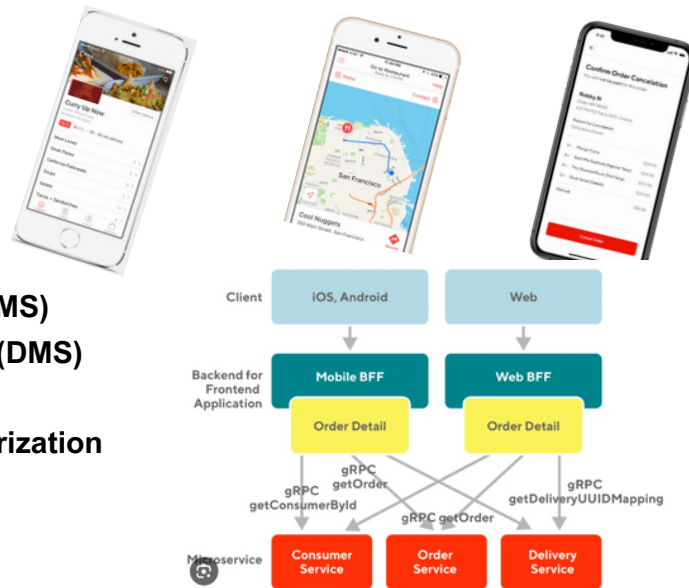
Information System Architecture

Frontend Applications

- Customer App
- Dasher App
- Merchant App

Backend Services

- Order Management System (OMS)
- Delivery Management System (DMS)
- Payment gateway
- User authentication and authorization
- Geolocation services
- Notification Service



Information System Architecture

Data Infrastructure

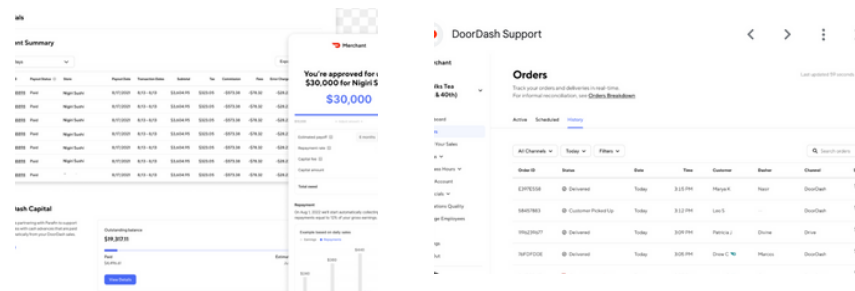
- Multi-DB environment
- BI and Warehouse

Security and compliance

- IAM and MFA for application access / Encryption/Security
- PCIDSS/SOX/GDPR

Third-party integrations

- Integrations with third-party services and platforms



What measures does DoorDash take to prevent fraud or misuse of the platform by dishonest entrepreneurs



Keys Functions of the system



How these services integrated together?

- Order Management System (OMS)
- Delivery Management System (DMS)
- Payment gateway
- User authentication and authorization
- Geolocation services
- Notification Service

Service-Oriented Architecture

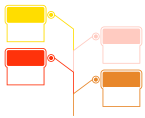


Microservices Architecture

Communication Patterns



REST API, Kafka, gRPC...



Event-Driven Architecture

After gaining a basic understanding of the services DoorDash offers and how their information system is designed, let's explore how these services integrate together and the key function of the m.

Firstly, let's talk about SOA, or Service-Oriented Architecture.

DoorDash employs a service-oriented architecture (SOA) approach, which emphasizes breaking down software into modular, independently deployable services. Think of SOA like building with Lego blocks; each service is like a Lego piece, performing a specific task and communicating with others through standard interfaces.

Next up is Microservices Architecture. DoorDash has undergone several architecture transitions. In this architecture, each backend service is implemented as a separate microservice. If SOA is like building with Lego blocks, then Microservices Architecture is akin to a team of Lego builders collaborating to construct something grand. Each builder works independently, yet coordinates seamlessly with others to create a cohesive structure.

Moving on to DoorDash's Communication Patterns, they utilize various communication patterns, such as REST API - the universal language that enables communication between services, Kafka - a central board where builders post messages about their progress and updates to the project, and gRPC - facilitating direct communication between remote Lego builders. These patterns enable data exchange and coordination between backend services.

Lastly is their Event-Driven Architecture (EDA). This principle enables real-time communication

and event processing between backend services. For example, in our Lego project, if we need to finish three parts - head, body, and tail - once the head is completed, we broadcast a message, allowing the body to start.

Keys Functions of the system



Example: DoorDash Inventory Management



- Need: handling write-heavy workloads, ensuring real-time data processing, and analytics.
- Goal: optimize inventory management and decision-making processes.
- Approach: microservices architecture.
- Tools: relational databases, data warehousing, and data security measures.



Real-time tracking and management of inventory levels.



Reducing stockouts and ensuring timely replenishment.



Automation streamlines order and supplier management for faster turnaround times.

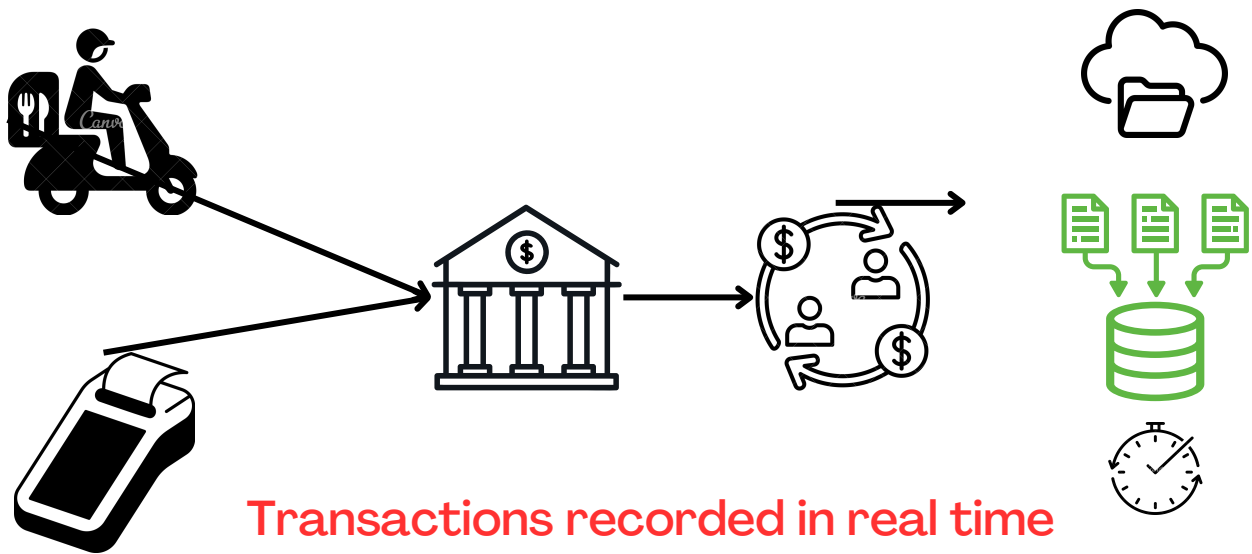
Reference: <https://doordash.engineering/2023/02/22/how-doordash-designed-a-successful-write-heavy-scalable-and-reliable-inventory-platform/>

Lets use the example of DoorDash inventory platform - how they designed the information system and what's the impact:

The challenge is to handle heavy workloads and real-time data processing. DoorDash's solution is to embrace the Microservices Architecture, which offers scalability and agility.

For advantages. Firstly, real-time tracking and management ensure precise inventory insights. Secondly, by reducing stockouts and streamlining replenishment, DoorDash maintains optimal stock levels. Lastly, automation enhances order and supplier management, leading to faster turnaround times.

ERP Intgration



Being a globally recognized brand and having a 24x7x365 operation, DoorDash has a complex ERP system that integrates with multiple technologies across the platform with multiple financial establishments receiving transactions from thousands of different providers.

These technology stacks allow DoorDash to seamlessly run their operations from anywhere in the world.

The ERP system is based in the cloud to avoid major downtime and their systems are reserved in AWS, AZURE, and Google Cloud (including some smaller cloud platforms as well).

The ERP System allows the company to integrate internal systems and external systems (vendors) to allow for authentication, permissions, and transactions.

The main platform to develop their proprietary code and process is done via Kotlin that integrates into SAP and other Databases.

The DB then works across multiple platforms using API and other authentication to ensure a seamless integration to record transactions in real time.

Vendors of The Information System



Vendors of The Information System



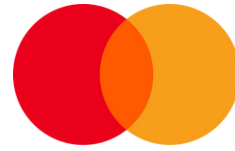
Kotlin

SAP Concur



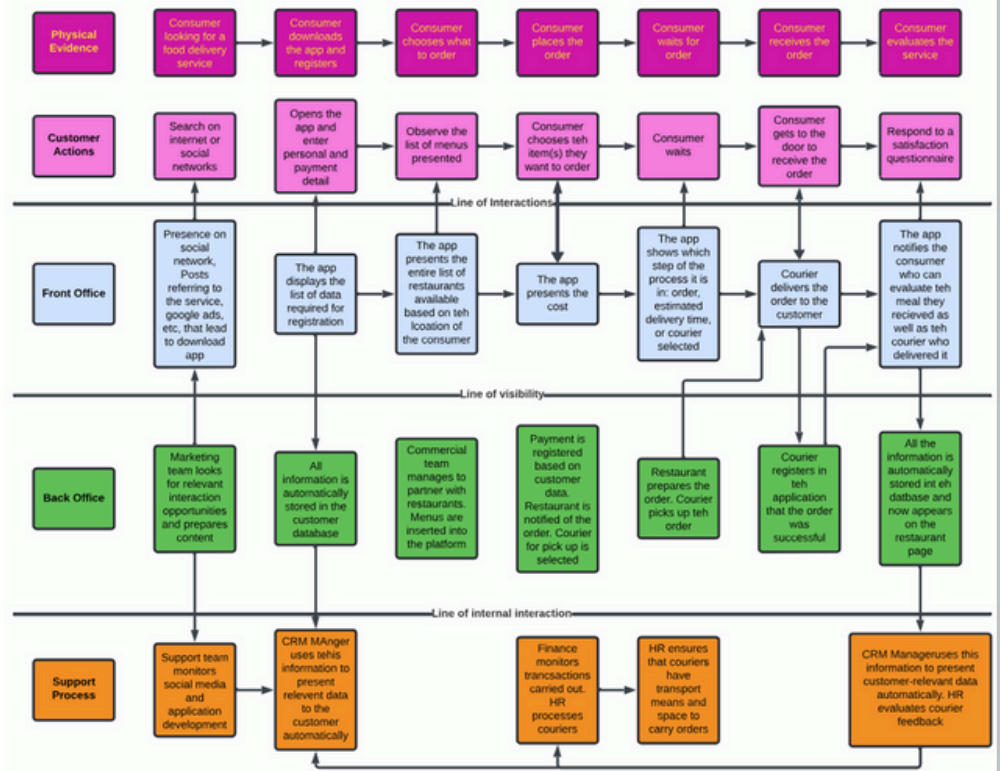
Square

VISA



mastercard

DoorDash Service Blueprint



In order to understand DoorDash's operations clearly, we will now take a look at their service blueprint. This consists of 5 different elements intertwined with each other for smooth operations. Factors closer towards the top reflect the external experience, and those towards the bottom row describe the internal experience. At the top, the physical actions of the customer journey are outlined by the evidence that is tracked through devices such as mobile phones and internet. This establishes the customers expectations. Next we have customer actions, which details the steps within the ordering and delivery process data. Such actions can be used by analysts and management to identify areas to improve on. Our next row is the front office or front stage, which is the direct interaction the customer has during their service journey. Social media presence, registration and order processes, and delivery details all play a role in the customers impression. Front office, although, would not be possible without Back office operations, which involve DoorDash's marketing, partnerships, and order operations to ensure successful delivery. Last, the support processes create the foundation for DoorDash, made possible by media and marketing managers, customer-relationship management, finance, human resources, and modes of internal interaction

Conclusions

- DoorDash's information system design prioritizes user experience, operational efficiency and scalability
- Robust platform that connects customers, restaurants and delivery drivers
- Real-time data processing, seamless integration of multiple stakeholders
- Area for potential enhancement include continuous monitoring for increasing transaction volumes and robust data security measures
- Future opportunities for innovation its systems and differentiate itself in competitive market landscape.
- DoorDash has established itself as a leader in the food delivery industry



In conclusion, DoorDash's information system design reflects a strategic approach to meeting the demands of the rapidly evolving food delivery industry. By prioritizing user experience, scalability, and operational efficiency, DoorDash has developed a robust platform that effectively connects customers, restaurants, and delivery drivers. The system's emphasis on real-time data processing, seamless integration underscores DoorDash's commitment to delivering value while maximizing efficiency. DoorDash can enhance the system by continuing monitoring increasing transaction volumes and robust data security measures. Future opportunities for innovation in DoorDash's systems will enable it to further differentiate itself in the competitive market landscape. Overall, DoorDash's information system design demonstrates a forward thinking approach to addressing the complexities of the food delivery ecosystem. DoorDash has established itself as a leader in the food delivery industry.

References:



- <https://fastercapital.com/topics/what-measures-does-doordash-take-to-protect-the-privacy-and-security-of-entrepreneurs%27-data-on-their-platform.html>
- <https://medium.com/partha-pratim-sanyal/system-design-doordash-a-prepared-food-delivery-service-bf44093388e2>
- <https://get.doordash.com/en-us/blog/how-does-doordash-work-for-restaurants>
- YouTube. (2023, November 21). Service blueprint report doordash. YouTube. <https://www.youtube.com/watch?v=j7Vm1yOGD4M>