From:	"Anderson, Clinton" <Clinton.Anderson@sabre.com>
Sent:	Wed, 12 Apr 2017 07:36:11 -0500 (CDT)
To:	"Menke, Sean" <Sean.Menke@sabre.com>; "Jones, Hugh" <Hugh@sabre.com>; "Jones, Wade" <Wade.Jones@sabre.com>; "Alt, Alex" <Alex.Alt@sabre.com>; "Robinson, Bill" <Bill.Robinson@sabre.com>; "Samuel, John"<John.Samuel@sabre.com>; "Simonson, Rick" <Rick.Simonson@sabre.com>; "Gonzalez, Rachel" <Rachel.Gonzalez@sabre.com>; "Boyle, Chris"<Chris.Boyle@sabre.com>; "Kellner, Larry" <larry.kellner@sabre.com>
Cc:	"Wagner, Shelby" <Shelby.Wagner@sabre.com>; "Harden, Helen"<Helen.Harden@sabre.com>; "Pierce-Mayo, Bridget"<Bridget.Pierce-Mayo@sabre.com>
Subject:	Materials for product strategy update
Attachments:	20170405 Product Strategy SteerCo 1 vF.PPTX

Please find attached the materials for our product strategy discussion later this morning.

Thanks,

Clinton

CLINTON ANDERSON | SVP Strategy and Business Development | Sabre | [redacted] a: clinton.anderson@sabre.com

EXHIBIT
PENGAD 800-631-6989
Menke #4
Lit
11/21/19

PLAINTIFF EXHIBIT
PX237

[redacted]

Sabre Product Strategy Project
Steering Committee 1

April 12, 2017

Sabre

[redacted]

Agenda

1. **Project scope and timeline**
2. **Executive summary**
3. **Summary of interviews**
4. **Product theme loops**
   - Next Generation Retailing (NGR): Offer management
   - Next Generation Distribution (NGD): Channel management
   - Next Generation Service & Support
5. **Relationship between product strategy and technology architecture strategy**
6. **Next steps**

[redacted]

Transformation framework: potential pace and sequence

Initiatives in progress			For later consideration		
Sabre product strategy	**Technology full potential**	**P&T org realignment**	**Product mgmt./ development**	**Commercial capability**	**Go-to-market model**
• Determine future product needs • Define product priorities • Develop strategy for emerging technologies/ business models	• Improve operational reliability • Modernize our infrastructure • Create scale efficiencies with common services/APIs/ platforms/tools	• Design and implement future P&T organization	• Dev framework (flexible/fit for purpose) • Design for modularity • Use common components • Best practice product mgmt. • "Productize" our portfolio	• Proactive sales/ marketing • Effective sales enablement • Prioritized products/ accts • Strategic resource allocation • Efficient sales ops	• Define which products, which customers • Design and implement go-to-market model
February - June	*On-going*	*On-going*	*TBD*	*TBD*	*TBD*

[redacted]

Sabre product strategy: Key project activities

Phase 1	Phase 2	Phase 3
1 Conduct primary research and analysis on customer needs/market evolution	**2 Deep-dive on market evolution and potential impact to Sabre**	**3 Develop Sabre Playbook (prioritization/ sequencing)**

Phase 1

- Develop hypotheses related to emerging technologies, products, capabilities, models, such as:
  - Personalization
  - Retailing and merchandizing
  - Next gen distribution
  - Automated service/ support
- High level POV on customer need, product requirements, technologies, business models, economic impact, etc.
- Conduct ~ 30 internal interviews
- Conduct ~ 30 – 40 external interviews with suppliers and agencies

Phase 2

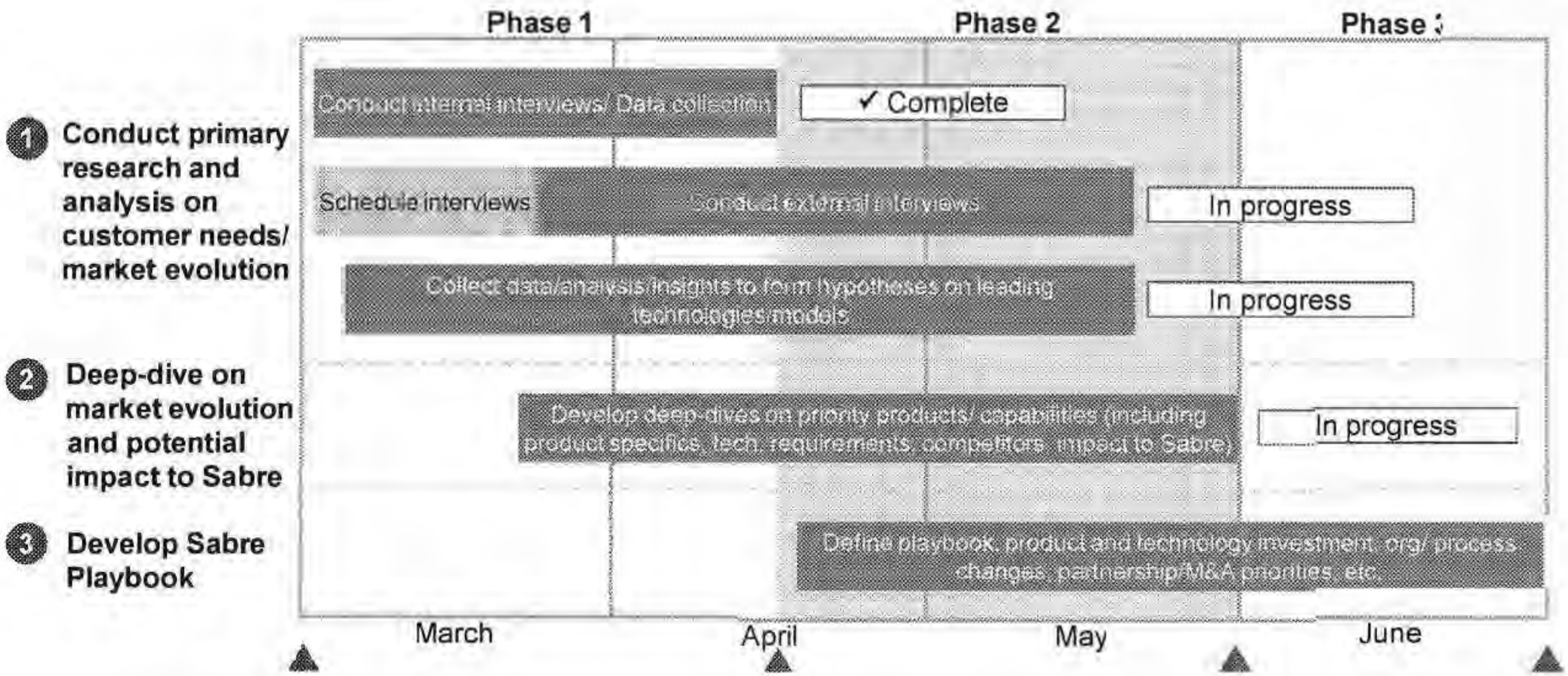
- Develop deep-dive perspective for identified high priority opportunities around:
  - Product specifics
  - Technology requirements
  - Existing competitors
  - Fit with Sabre portfolio
  - Implications for Sabre's business/economic model
- Develop economic model (price points, margin structure, investment, estimated return)

Phase 3

- Based on the products/ capabilities we choose to pursue, define specifics around:
  - Products'/capabilities' development/investment plans
  - Technology/ investment requirements
  - Necessary process/ org changes
  - Partnership/M&A
  - Investment/sequence/timing

[redacted]

Sabre product strategy: Project timeline



▲ SteerCo meeting

[redacted]

Executive summary

- The Product Strategy effort is focused on identifying next generation capabilities and enabling technology that Sabre should prioritize for investment in the next 2 – 5 years
- Primary and secondary research/interview have highlighted future product opportunities for Sabre with the highest priority areas being:
  - Next Generation Retailing – Offer Management: Migrate shopping response from a legacy filing-based process to a more dynamic response based on characteristics of shopping activity, customer/persona preferences, supply and demand dynamics, and the competitive environment
  - Next Generation Distribution: Extend and gain greater control over the benefits of Next Generation Retailing across all channels by delivering consistent customer experiences and capabilities across POSs
  - Frictionless travel: a) Enable traveler engagement and service across channels, devices and point of sale, and b) Connected systems and applications
- Migrating to a new retailing/distribution model creates certain risks for Sabre; however, if we can help suppliers deliver a consistent experience across channels, while continuing to deliver the benefits of indirect reach, the "GDS" will remain valuable in the future
- The most contentious element of the new model is content flexibility. Giving suppliers full content flexibility threatens the value of the marketplace. That said, if Sabre does not partner with suppliers to define a new model, suppliers will pursue direct connection and seek to bypass the GDS
- Sabre and Amadeus are well positioned in the market to deliver these next generation products (due to their deep and broad industry capabilities and the reality that not all customers will adopt new capabilities, leading to a world of "duality" in which next generation capabilities must be delivered in parallel with legacy capabilities)
- Although Sabre has some nascent product offerings in these spaces, we are not viewed as a thought leader in the industry on these topics nor are we a current vendor of choice for these emerging products
- Our key next steps are to continue external validation of our hypotheses with customers, to develop more detailed product specifications and cost requirements, and to frame up potential commercial models relevant to these product offerings
- The goal at the end of this Product Strategy effort this summer is to have a "playbook" for product investments that will benefit all Sabre business units with an eye to commercializing those capabilities in the air space as a first step

[redacted]

Our product strategy team conducted 75+ interviews to gain a better understanding of product opportunities

BU	SME Name	Completed?
AS	Hugh Jones	
	Vinit Doshi	✓
	Suj Ramlogan	✓
	Greg Gilchrist	
	Darren Rickey	
	Sasha Kuksenko	✓
	Dino Gelmetti	✓
	Stan Boyer	
	Hari Subramanian	✓
	Mike Reyes	✓
	Rodrigo Celis	✓
	Rick Dietert	✓
	Chris Donnellon	✓
	Kate McClendon	✓
	Mike Preiser	
	Pramod Jain	✓
SHS	Sarah Kennedy	✓
	Hani Joakim	
	Eben Hewitt	
	Balaji Krishnamurthy	✓
	JessicaWood	✓
	Fred Veliyev	✓
	Chris Donnellon	✓
	David Meltzer	✓

BU	SME Name	Completed?
SHS	Frank Trampert	
	Richard Wiegman	✓
	St. John Murphy	✓
	Robert Dawson	
	Brian Jorgenson	✓
	Alex Ali	✓
TN	Chad Tibor	✓
	Alessandro Ciancimino	
	Hoong Meu Ho	✓
	Jason Toothman	✓
	Dave Moore	✓
	Justin Ricketts	✓
	Dustin Downing	✓
	Brett Burgess	
	Dirk Guenther	
	Becky French	✓
	Jon Reeves	✓
	Rebecca Robinson	
	Randal Beasley	
	Gary Millward	✓
	Steve Gilon	✓
	Jay Jones	
	Stacy Mullen	

BU	SME Name	Completed?
	Lindsey Parker	
	Emma Wilson	✓
	Miguel Gonzalez	✓
	Jerome Thil	✓
	John Elleson	
	Florian Tinnus	✓
TN	Constantine Bellas	
	Sean Arena	
	Allison Colquhoun	
	Julian Macegno	
	Shelly Terry	✓
	Kathy Morgan	✓
	Traci Mercer	
	Chris Wading	✓
	Wade Jones	
P&T	John Samuel	
	Ben Vinod	
	Richard Ratliff	
	Ben Newell	
	Mark McSpadden	
Legal	Robin Everly	
Corp	Marilyn Townsend	
	Chris Boyle	

Airlines

BU	Company	Interviewees
Airline	[illegible]	
	[illegible]	[illegible]
	[illegible]	[illegible]
	[illegible]	
	[illegible]	[illegible]
	[illegible]	[illegible]
	[illegible]	
	[illegible]	[illegible]
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	[illegible]	[illegible]
	[illegible]	
	[illegible]	[illegible]
	Qantas	Rainer Bauer
	[illegible]	[illegible]
	[illegible]	[illegible]
	[illegible]	[illegible]
	[illegible]	[illegible]
	[illegible]	[illegible]
	[illegible]	[illegible]

Hoteliers

BU	Company	Interviewees
Hotels	[illegible]	
	[illegible]	
	[illegible]	
	[illegible]	
	[illegible]	
	[illegible]	
	[illegible]	
	[illegible]	
	[illegible]	
	[illegible]	
	[illegible]	
	[illegible]	
	[illegible]	
	[illegible]	
	[illegible]	
	La Quinta	Vivek Shara - CIO Jim Cary - CMO

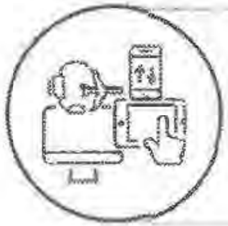
Corporate/Agencies and Other

BU	Company	Interviewees
Corporate/ Agency	Cisco	Susan Lichtenstein – Director of Global Travel Rob Fitbacky – Director of Finance
	GE	
	[illegible]	
	[illegible]	
	[illegible]	
	[illegible]	
	[illegible]	
	CWT	Vince Chirico – VP Global Technology Partners Blaine Stanga – NA/A Technology Partners Dale Eastlund – CWT Online Booking Tools
	BCD	TBD
	[illegible]	
	[illegible]	
	[illegible]	
	[illegible]	
	[illegible]	
Other	Hopper	Fred Lalonde - CEO
	[illegible]	
	[illegible]	
	[illegible]	
	[illegible]	
	[illegible]	
	[illegible]	
	T2RL	Richard Clarke

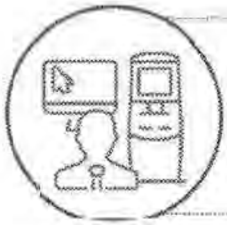
[redacted]

Interviews with internal experts and customers have highlighted three critical themes

Provide highly relevant offers to travelers based on the information that suppliers know about them and their trips (next generation retailing)



Provide the ability to display products the way suppliers want to consistently across channels and let suppliers choose which channel to display their content in (next generation distribution)



Ensure simple, seamless booking and service experiences for the traveler and the service provider across the trip (frictionless travel)

[redacted]

Interview highlights: Next generation retailing

"We want to be able to reach out to customers with a ***unique product offering and show that offer in the way that we want it displayed****. We also want to* ***reach our customer across the entire trip****."*

- Markus Binkert, Revenue management, LHG

"Next gen retailing and distribution? Yes, these are capabilities that we want in the future."

- Robin Hayes, CEO, JetBlue

"I believe that the airlines have wanted to figure out how they ***engage better and sell more and service more****."*

- Hugh Jones, President, AS

"We need to think about inventory differently. ***We should be stocking 'ingredients' so that we can build different products****, not just stocking products"*

- Wade Jones, SVP TN

[redacted]

Interview highlights: Frictionless operations

"We recognize that [offering custom bundles at unique prices] will add complexity ..., which means we ***need to connect the airline's operations to deliver frictionless travel****."*

- Mark Nasr, Loyalty/CRM, Air Canada

*"****Fragmentation and modularization of airline IT capabilities*** *is taking place. Airlines want to stitch together best-in-class vendors"*

- Vinit Doshi, SVP AS

"We need to understand end-to-end agency capability needs and develop product to meet those needs"

- John Elieson, SVP TN

"There are ***opportunities*** *to talk* ***about bots and automation...as they relate to operational issues****."*

- Darren Ricky, AA Account Director

[redacted]

Interview highlights: Customer experience

"We want to ***reach our customer across the entire trip*** *whether that's* ***from a computer, kiosk or phone*** *and* ***we want this for a business traveler in a lounge or a family at a play station in the airport****."*

\- Markus Binkert, Revenue management, LHR

"The real ***battle for the hotel is around ownership of the traveler*** *and building their loyalty."*

\- Alex Alt, President, SHS

"At an alliance level, hotels see a big opportunity in loyalty. They are ***investing in CRM and guest profile management****."*

\- Sarah Kennedy, SHS VP Marketing

*"****Chatbots and AI*** *are interesting for hoteliers as* ***part of guest experience enhancement****."*

\- Brian Jorgensen, SVP SHS, Product Management

[redacted]

Translating these themes into our product strategy would suggest three product priorities

Theme	Needs	Rationale for investigating further
Next generation retailing	**Offer management**	• Immediate need –airline customers are requesting assistance; agencies are looking for guidance
	Channel mgmt./ next gen distribution	• Competitors are already developing solution; we need to determine if this is an area that Sabre must win in
	Order management	• Longer-term, rather than near-in, priority for customers • Consideration of this project, but not area of focus
Frictionless operations	Connected airline	• Area for AS focus, rather than pan-Sabre focus
	End-to-end agency product suite	• Area for TN focus, rather than a pan-Sabre opportunity
	Next gen service and support	• Pan-Sabre opportunity • Opportunity to become market-leader in NGSS
Customer experience	CRM / loyalty / profiles	• Area for SHS focus, as it relates to hotels • Consideration for other clients, but a lower priority than distribution

[redacted]

Agenda

Next Generation Retailing (NGR): Offer management

Next Generation Distribution (NGD): Channel management

Next Generation Service & Support

Relationship between product strategy and technology architecture strategy

[redacted]

Next Generation Retailing – Offer Management

Emerging insights to date

- Travel suppliers are evolving their approach to retailing and merchandising inspired by successful online models focused on how to:
  - make the right offer (Who's buying? Preferences? What's their value?)
  - at the right place (Where and how is product made available?)
  - at the right time (What are market conditions? Will product perish?)
- This evolution requires technology that more directly connects buyers with customized, dynamic offers from the supplier
- Sabre and Amadeus are uniquely positioned to enable next generation retailing given our mix of solutions to service agencies, corporations, airlines, and hoteliers
- However, Sabre is not perceived as offering or proactively investing in a full range of capabilities to support next generation offers
- Strong opportunity exists to create pan-Sabre solutions to evolve hotel and air. While starting with air is important, all platform investments must consider longer term retailing and merchandising opportunities across the trip

Remaining questions

- If we start with a pan-Sabre product focus on air, how common are the technologies for hotel and other suppliers of travel and services?
- Should Sabre invest to enable next generation capabilities?
- Will the rest of the ecosystem of technology providers, agencies and corporations enable the suppliers' retailing visions?
- How evolved will retailing and offer management actually become? What solutions will ultimately matter?
- Will the investment by Sabre and suppliers generate attractive returns?
- How long will a transition take to unfold? Will all players be supporting dual traditional/next gen solutions indefinitely?
- What are the opportunities for Amadeus and Sabre to create unique value for the ecosystem given our technology mixes?

[redacted]

Speaker Notes for Slide 14

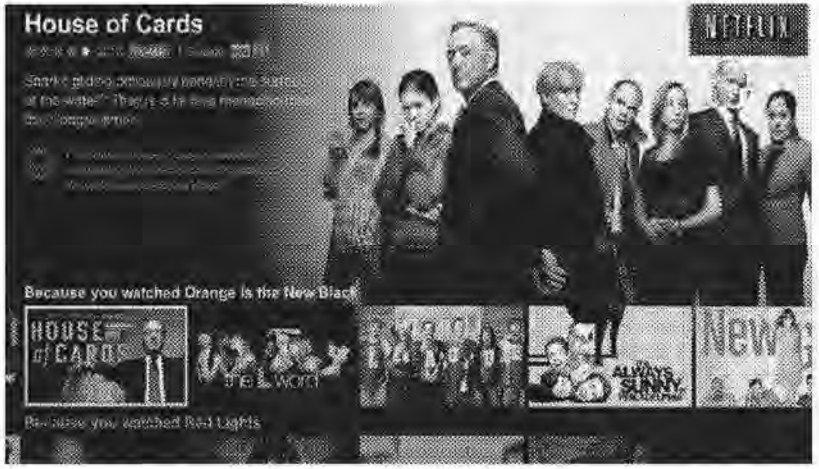
[redacted]

Suppliers desire to migrate shopping and distribution from a filing-based system to a more dynamic and modern eCommerce-like platform

Today, travel retailing is tied to an inflexible process

- Inflexible
- Structured
- Filing driven

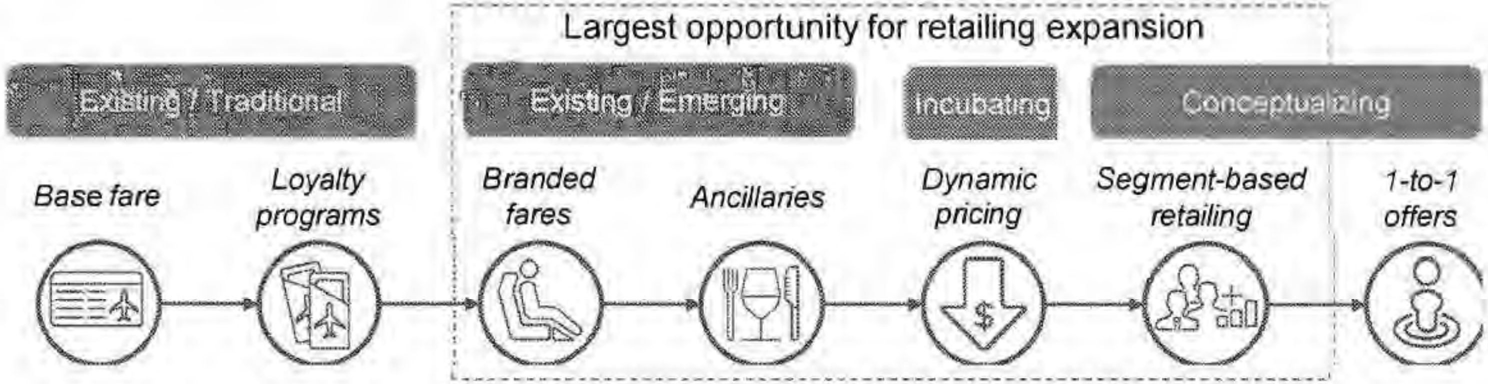
In the future, suppliers are looking for a modern eCommerce and channel management experience



- Intelligent
- Dynamic
- Custom

[redacted]

To continue growing, leading airlines will likely adopt increasingly sophisticated retailing models, which will be supported via direct and indirect channels



- Customer agnostic
- Dependency on market data / ATPCO / OAG
- Revenue management

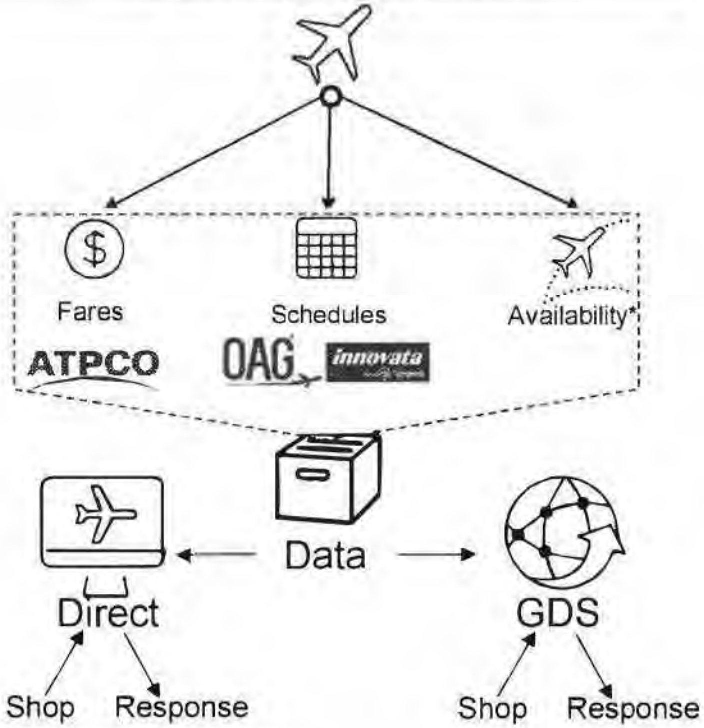
Direct & Indirect channels

- Customer centric
- Dependency on traveler data / opaque market data
- Retail/offer management

[redacted]

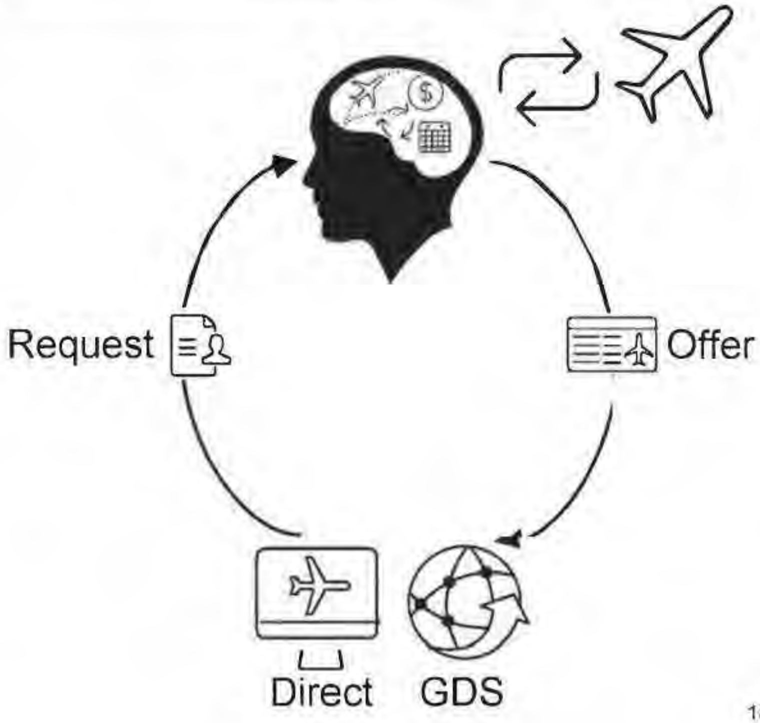
To respond to direct and indirect shopping, airlines have relied on a filing system where fare rules, inventory, and availability are pushed to 3rd parties

Today, itinerary creation requires interaction with 3rd party sources



Note: *Availability may be pulled (cache dependent)

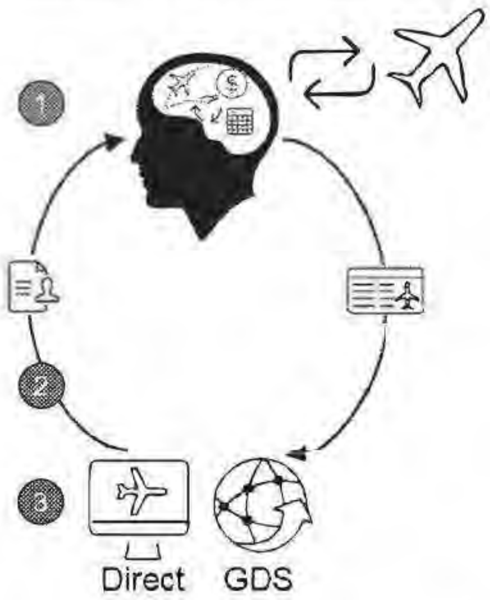
In the future, airlines will control the flow of offer creation



[redacted]

Sabre has opportunities to be a relevant player in next gen retailing

In the future, airlines want to control the flow of offer creation



[1] An airline API (application programming interface) is the hook into the airline IT system to access well-defined data or services
[2] XML (extensible mark-up language) defines a set of rules for encoding documents and emphasizes usability across the internet

1 Offer Creation

- Shopping & pricing engine: calculates optimal pricing, flight schedules, and availability based on request
- Combines applicable personalized ancillary or bundled offerings to the traveler
- Key players: Sabre Dynamic Retailer/Flight Promotions, Farelogix, Triometric, Datalex, Switchfly, Amadeus e-Retail platform, Indra

2 Connectivity

- Direct connection from GDS to airline APIs[1] done via XML[2]
- NDC is an XML messaging schema
- Key players: Sabre, Amadeus, Travelport, Concur (direct connect), DCSplus, Skyscanner, Farelogix

3 Offer Aggregation / Offer Display

- Delivers offers with rich-content displays
- GDS determines the path for connectivity routing: next-gen retailing vs. traditional shopping
- Layers in value-add agency capabilities
- Key players: GDS (e.g. Sabre, Amadeus, Travelport), CBTs (e.g. Concur, GetThere), Aggregators (e.g. Farelogix, Travelfusion, Ypsilon)

[redacted]

Suppliers expect various benefits from the capabilities that next generation retailing would enable

Enabled capability	Expected benefits to supplier
1 ***Dynamic base fare pricing and availability***	• Improved yield • Optimize price and load trade-off • Improved conversion rates
2 ***Dynamic offer management***	• Increased sale and profits from ancillaries / branded fares • Improved conversion rates
3 ***Convey the value of their offering***	• Improved conversion rates • Improved yield and load factors
4 ***Faster new product time to market***	• Improved conversion rates
5 ***Dynamic asset utilization***	• Align customer demand with metal
6 ***Content flexibility***	• Lower distribution costs due to selective choice of channel at the tail end of the booking curve

[redacted]

Aggregation still matters: next gen distribution offers multiple opportunities for distribution providers to support airlines

GDSs will likely remain relevant as aggregators and technology partners because:

- **Travelers** will continue to **value shopping**
- **Airlines benefit from price transparency** due to public fare filing
- **Complexity** of shopping, transacting, and servicing **creates a barrier** to new entrants
- $ Scale of tech **investment** for both airlines and tech providers **limits speed of implementation**

Resulting in a world of duality between next gen and current distribution systems:

Airline direct R&M / distribution
Offer suite of solutions for airlines who want to manage the full process

Next gen GDS distribution
Provide APIs to enable bundled offers, dynamic pricing, and rich content

Traditional GDS
Continue to provide standard GDS connectivity

[redacted]

Sabre (TN+AS) manages a significant portion of industry transactions, but the overlap in AS+TN volume is small; NGD success thru Sabre will require alignment with other technology providers

[redacted]

[redacted]

Sabre can be a technology partner for airlines requiring different levels of participation

Services/APIs

- *Services to assist in-house custom development*
- *e.g. airline utilizes Sabre services to develop R&M capabilities*

Example customers

[redacted]

Top 5 airlines

Existing product capabilities

- Pass frequent flyer to airline [redacted] seat pricing)

Distribution impacts

All channels

AS Product

- *Provide off-the-shelf product functionality for the PSS: bundle creation, dynamic pricing, connectivity*

Example customers

[redacted]

Top 6 - 50 airlines

Existing product capabilities

- Dynamic pricing
- Flight promotions

Distribution impacts

All channels

TN Product

- *Provide hosted next gen retailing capabilities through the Sabre GDS platform*

Example customers

[redacted]

Top 50+ airlines

Existing product capabilities

- Rich content in new SRW

Distribution impacts

Sabre GDS only

[redacted]

Agenda

Next Generation Retailing (NGR): Offer management

Next Generation Distribution (NGD): Channel management

Next Generation Service & Support

Relationship between product strategy and technology architecture strategy

[redacted]

Next Generation Distribution – Channel Management

Emerging insights to date

- Next generation distribution is the means by which suppliers seeks to realize the benefits of a new retailing model
  - Ability to control the offer presented to the buyer
  - Convey points of differentiation in their product/service offering
  - Consistent customer experience across POS outlets
  - Alignment of cost/value across distribution channels
- Migrating to a new distribution model creates certain risks for Sabre, but also represents potential opportunities
- If we can help airlines deliver a consistent experience across channels, while continuing to deliver the benefits of indirect reach, the "GDS" will remain valuable in the future
- The most contentious element of the new model is content flexibility. Giving suppliers full content flexibility threatens the value of the marketplace
- However, if Sabre does not partner with suppliers to deliver a new model, airlines will continue to pursue direct connect opportunities and seek to bypass the GDS
- Creating next generation capabilities, while evolving our distribution model at the right pace/sequence, will be the key to Sabre's success

Remaining questions

- What is our vision for an evolving distribution model? Can we find the right balance between the needs of suppliers and agencies/corporations/travelers?
- Are we willing to flex on full content agreements? What are the consequences of enabling less than full content?
- Will airlines ever want more GDS participation as a valuable and high ROI channel? What would that require?
- How are competitors impacting the market? How does their role differ from our potential competitive advantage?
- What are the right investments and commercial models? What is the best pace/sequence of investment and supplier engagement to deliver a successful outcome for Sabre?
- Should we partner with Amadeus to refine technical standards to increase the ease of adoption for value chain participants?

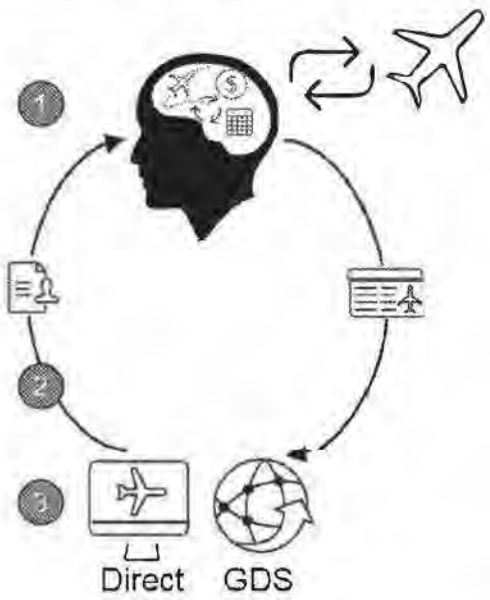
[redacted]

Speaker Notes for Slide 24

[redacted]

Sabre has opportunities to be a relevant player in next gen retailing

In the future, airlines want to control the flow of offer creation



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[redacted]

Other players in the industry have been actively pursuing next gen distribution technologies

IATA

"IATA NDC would amount to ***GDS on steroids***

Eric Leopold, IATA Director of Passenger Services
October 2012

"The challenge the industry faces is to extend [airline] control across agency and other third-party channels…NDC is about ***growing revenues****.*

Aleks Popovich, IATA SVP of Industry & Financial Services
December 2012

IATA has distributed a survey to technology partners to solidify interest in new NDC standards

Technology providers

1) Existing GDSs evolving for NDC

amadeus

- High-level of NDC involvement and comms
- Rumored to starting non-FCA with carriers

Travelport

- First GDS to become Level 1 and 2 certified

2) New tech providers supporting suppliers with pursuit of NDC

FARELOGIX

3) Growth of non-GDS content aggregators

Ctrip 携程旅行 travelfusion skyscanner

4) Concur driving supplier direct bookings

TRIPLINK UNITED

[redacted]

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Speaker Notes for Slide 26

Level 1 – Basic – Basic shopping ancillaries post booking
Level 2 – Offer Management - Extensive use of offer management API, Air Shopping required
Level 3 – Offer and Order Management – Extensive use of Offer and Order Management API

[redacted]

At Sabre we have invested in XML connectivity, primarily for ancillaries for FSCs and end-to-end offers for LCCs

[redacted]

[redacted]

A small but important group of carriers are driving the conversation around next gen distribution

Current/underway XML implementations	In-discussion regarding next gen retailing implementations

[redacted]

[redacted]

Key airline renewal dates [redacted]

[redacted]

[redacted]

[redacted]

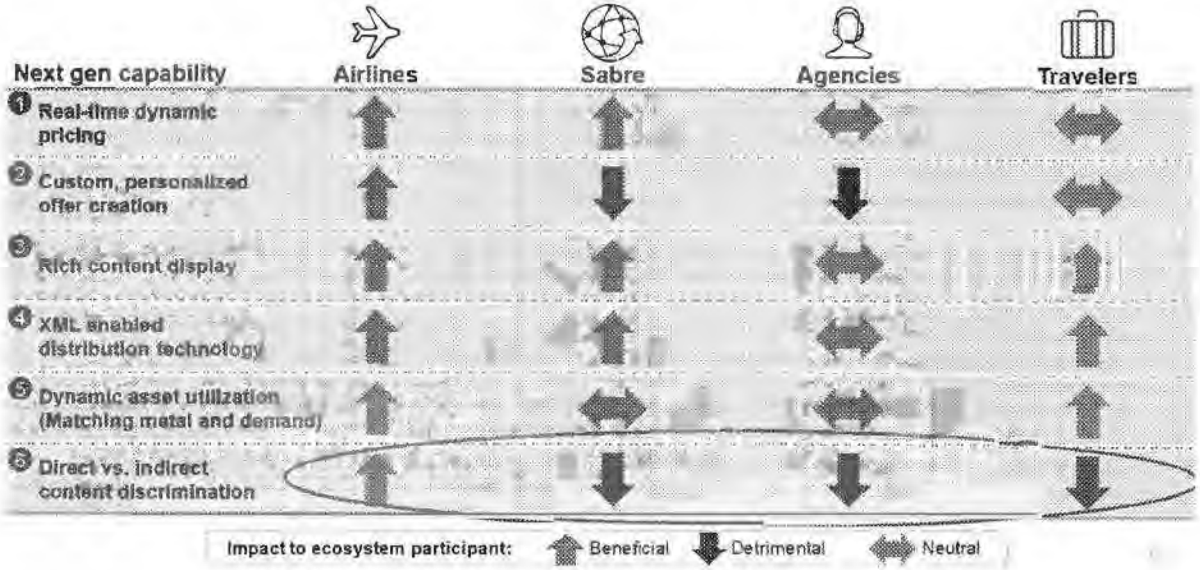
[redacted]

It is expected that payer, airline discrimination rights, price (booking fee), and connectivity will be the areas of greatest focus for the carriers

[redacted]

[redacted]

There is a tension between what suppliers are asking for and what agencies/corporations/travelers prefer



Content discrimination creates potential friction

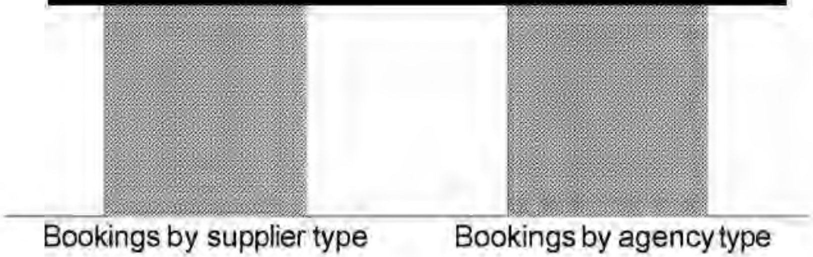
- Airlines want to display differentiated bundled and a la care products; currently pushing GDS providers for great content flexibility
- Agencies are highly invested in full content and have been willing to pay to get it (e.g., giving up incentives for full content under opt-in program)

[redacted]

"Full content" has been a key part of the GDS value, but [redacted] and there are pressures on the cost of distribution with many carriers

Full Content

[redacted]



Sources
-List of full content suppliers manually provided by Sabre contracts team. [redacted]
-Supplier booking volume based on FY 2016 Sabre bookings
-Opt in agency booking volume based on FY 2016 Sabre bookings, [redacted] *total bookings with* [redacted] *bookings from agencies that have opted in (actual bookings from opt-in content representing* [redacted] *bookings)*

Cost of Indirect Distribution

TTM Cost of distribution

[redacted]

[redacted]

[redacted]

[redacted] SABR-001003762

[redacted]

[redacted]

[redacted]

[redacted]

Air Canada withheld lower fare class Tango fares, growth in PBs, GDS booking share, Sabre bookings, and Sabre revenue once Tango fares added in 2013-2014

- In May 2006 Air Canada stopped providing Tango fares to Sabre in POS Canada (≈20% of volume)
  - AC's derived Latitude and Flight Pass products introduced later in 2006, not available in Sabre
- Sabre suppressed high yield fares and de-preferenced Air Canada in its displays outside Canada and EU POS from May-Nov 2006
- Air Canada provided all Tango content to Sabre in 2013-2014

[redacted]

Lufthansa Group defaults to PCA and introduces surcharge, leads to slight dip in Sabre bookings but [redacted]

- On Sept. 1, 2015 Lufthansa Group began imposing a surcharge in the fare of €16/bkg on GDS bookings
  - Lufthansa Group includes Lufthansa, Swiss, Austrian and Brussels

[redacted]

Several potential commercial "plays" are available to pursue

[redacted]

[redacted]

Agenda

Next Generation Retailing (NGR): Offer management

Next Generation Distribution (NGD): Channel management

Next Generation Service & Support

Relationship between product strategy and technology architecture strategy

[redacted]

Next Gen Service & Support

Emerging insights

Automation and AI will play a significant role in service

- **78%** of US travelers prefer self-service[1]
- **900M+** people are on Facebook messenger

Many customers, partners, and new entrants are already experimenting in this space

- CWT, Mandarin Oriental, Concur, Expedia, Lufthansa, Lola
- With avg. **profit margins of 6%-8%,** most agencies will likely seek third party solutions[2]

Sabre's core product offerings likely will be required to include these capabilities. Potential for Sabre to help develop travel-specific applications, not core tech

Benefits would be broadly applicable across stakeholders

- **60% - 80%** of travel agent work contains technically automatable activities[3]
- **~70%** of total corporate agency costs attributed to labor[4]

Implications

Sabre customers primed for automation. Customers with high labor costs and repeatable workflows (e.g., travel agencies) are prime candidates for automation-led transformation

The market is moving quickly. Sabre should continue sizing the opportunity, assessing commercial models and potential investments to keep pace, or risk falling behind

Partner with tech provider to deliver Sabre's travel expertise. Creating convenient, automated, "smart" solutions will require Sabre to develop new technical capabilities, skills and partnerships

Pan-Sabre benefits. Messaging is a new, powerful, "always on" channel that has applicability across both Sabre's customer base and internal operations. Thoughtful customer segmentation will accelerate speed to market

Sources
1 The Digital Business Traveler, Sabre & GBTA, June 2016
2 2014 Benchmarking Research Highlights, ASTA (American Society of Travel Agent) and Travel Market
3 McKinsey Global Institute, A Future that Works: Automation, Employment and Productivity, January 2017
4 TN Consulting, Understanding Agencies presentation.

[redacted]

Speaker Notes for Slide 39

[redacted]

Why now? Current trends related to people, technology and business create an opportunity to accelerate adoption of automated solutions

People

- Changing demographics and behaviors, (e.g., Millennials nearly 50% of workforce)
- Millennials prefer chat / social media vs. phone for service
- Usage of messaging apps has surpassed social networking apps

Technology

- Proliferation of mobile devices
- Leading tech companies investing billions in AI, (e.g., Microsoft, IBM Watson, Amazon Alexa, Google)
- Messaging platforms now open to developers and commerce-enabled

Business

- Focus on controlling costs, including service-related expenses
- Interest in increasing productivity of workforce
- Desire to increase traveler engagement and loyalty

Sources:
- Kleiner Perkins 2016 Internet Trends Report
- Business Intelligence
- McKinsey Global Institute, *A Future that Works: Automation, Employment and Productivity*, January 2017
- McKinsey & Company "Winning the expectations game in customer care", September 2016
- Interviews with internal Sabre stakeholders

[redacted]

Travel incumbents are developing bots via new partnerships with leading technology companies; start-ups are proliferating

Agencies

FLIGHT CENTRE

CONNEXIONS — *Active sales pursuit to win from TravelPort*

Expedia

Carlson Wagonlit Travel

Airlines

Alaska Airlines

KLM

Lufthansa

Hoteliers

HYATT

Hilton

OBTs

Concur + hipmunk

Start-ups

lola

mezi

Tech Companies

Facebook

Microsoft

amazon

Google

Apple

IBM Watson

next IT

ARTIFICIAL SOLUTIONS

[24]7

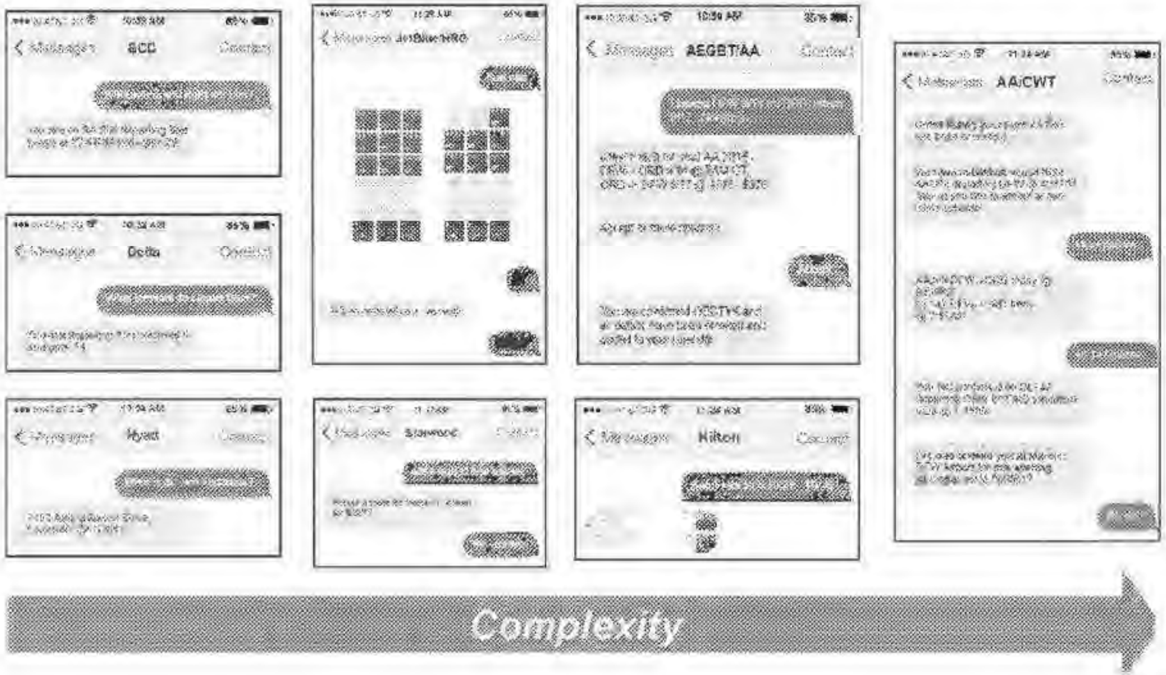
[redacted]

SABR-001003772

ILLUSTRATIVE

Opportunity to deliver NGSS through the same channels, across suppliers, agencies and corporations

	Question and answer	Voluntary re-accommodation	Original booking	Involuntary re-accommodation
Sabre Travel Network				
Sabre Airline Solutions				
Sabre Hospitality Solutions				



Benefits

1. Reduced costs with better booking support
2. Increased cross-sell and upsell opportunities
3. Improved traveler engagement post-booking

[redacted]

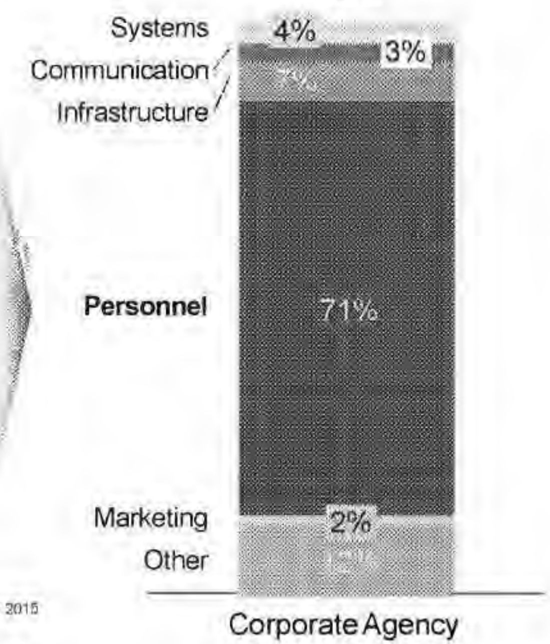
SABR-001003773

Automation and AI will potentially impact all areas within the travel ecosystem, but present a clear opportunity to reduce labor costs for travel agencies

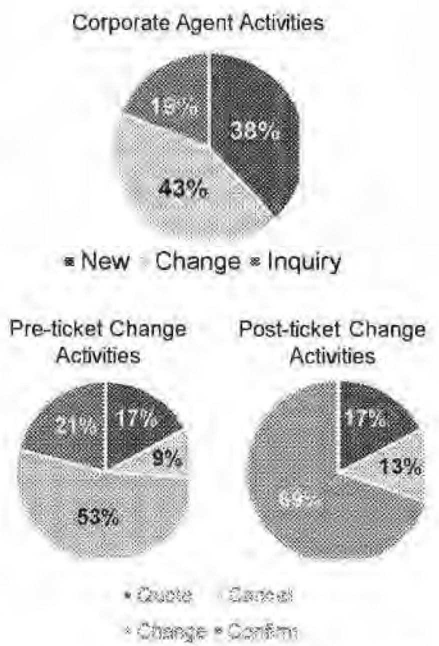
Corporations want to reduce travel spend via digital channels

- Corporate travel managers are prioritizing cost savings and traveler experience for next 3+ years[1]
- Fees paid by a corporation for an online booking (~$11) are ~1/3 of an offline booking fee (~$32)[4]
- Best-in-class online adoption rates are ~85%.[2] Typical CBT adoption hovers around ~60%[3]

Labor is an agency's largest cost[5]



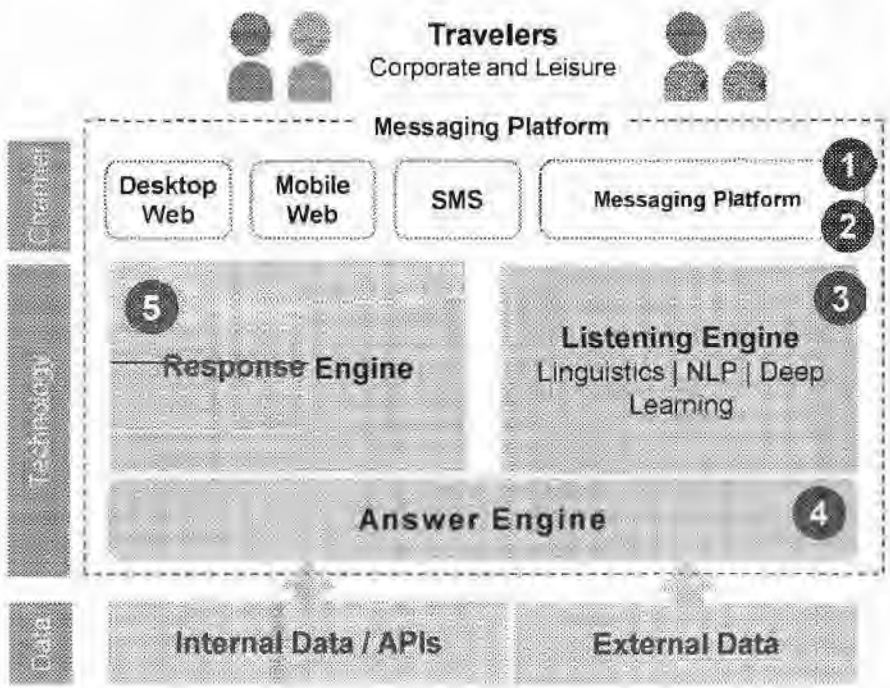
Many agent tasks can be automated[5]



Sources:
1. TMCs Today and Tomorrow, GBTA, November 2015
2. GetThere Benchmark Report, 2015
3. Sabre TN GDS Booking Data
4. 2016 Traveler Experience Interviews & Strategy Work
5. TN Consulting Team, Understanding Agencies Presentation

[redacted]

A messaging solution comprises multiple components



Description of Components

1 Channel
Connectivity and API integrations into channels

2 User Authentication and Payment
Matches "channel user" to "system user"

3 Listening Engine
Turns what is said into a request for data or action – Natural Language Processing (NLP)

4 Answer Engine
Fetches data or performs action based on inputs from the Listening Engine

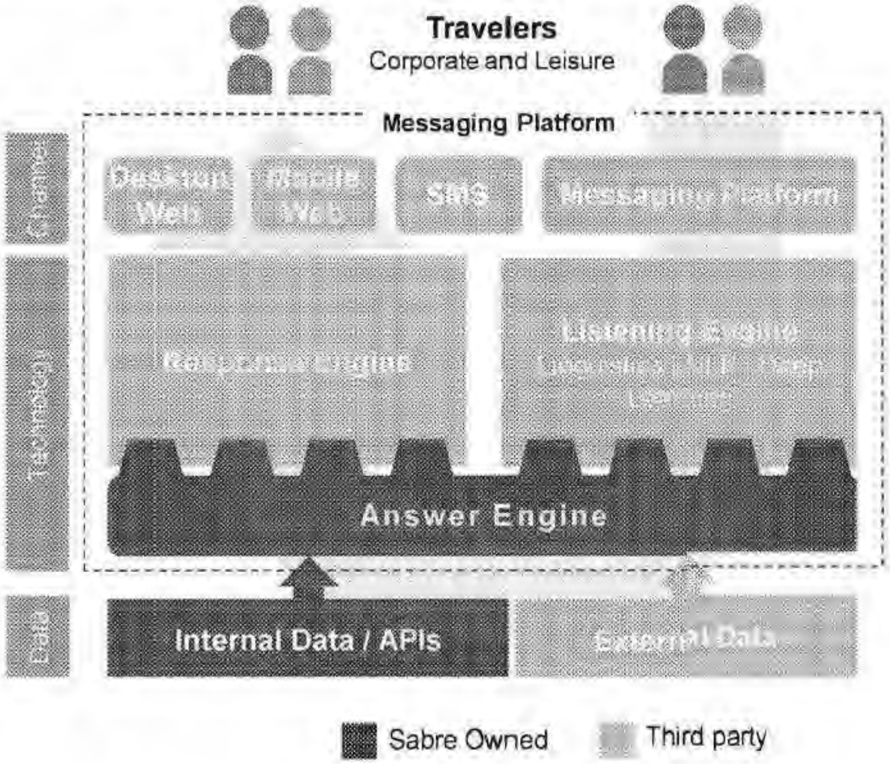
5 Response Engine
Takes data or result of action from Answer Engine and creates a response that the channel will accept

[redacted]

Speaker Notes for Slide 44

Automation will continue to play a critical role in support, especially as travelers continue to push for self-service and AI offers more capability for a lower cost

Sabre has a right to play, but will require support from key partners in order to offer a robust solution



Providers	Approach
twilio, slack, kik	• Partner for reach
Microsoft, IBM Watson, amazon alexa, next IT, Artificial Solutions	• Partner for AI tech • Sabre "trains" tech
Sabre	• Own answer library
Sabre, The Weather Channel	• Own / partner APIs

[redacted]

Agenda

Next Generation Retailing (NGR): Offer management

Next Generation Distribution (NGD): Channel management

Next Generation Service & Support

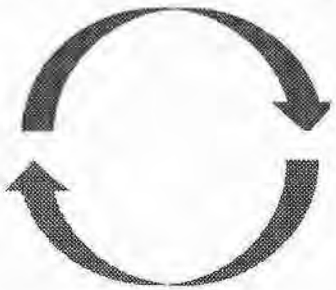
Relationship between product strategy and technology architecture strategy

[redacted]

Product strategy will inform technical architecture strategy

What?

Product Strategy



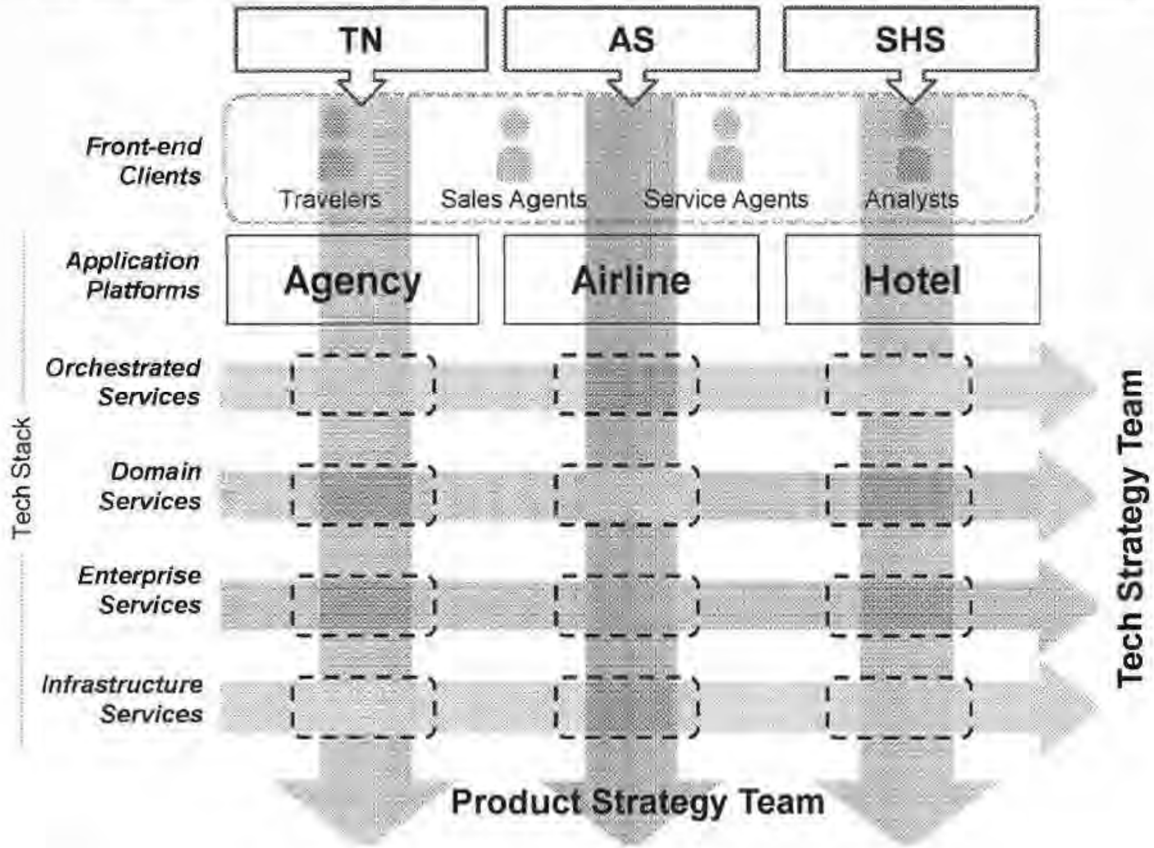
Architecture Strategy

How?

Product Strategy project should inform development of supporting Architecture Strategy

[redacted]

Product Strategy team will partner with Tech Strategy team to understand key work intersection points and identify roadmap implications



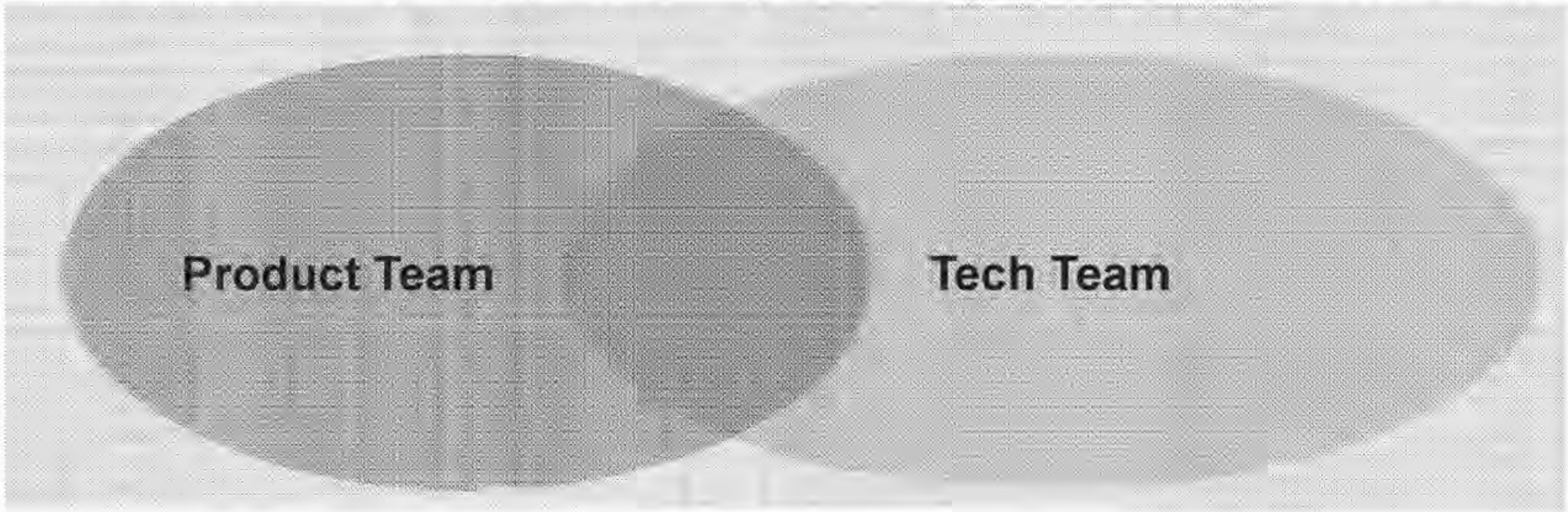
Collaboration Activities

- Map desired future state capabilities to necessary supporting technologies
- Identify where technologies can span BUs or require BU-specific deployments
- Conduct current/future state gap analysis to inform roadmap planning

[redacted]

Goal is to enhance communication, foster sense of shared ownership of our future and reinforce idea of "One Sabre"

Services	Capabilities	Supporting Technologies	Roadmap Planning



[redacted]

Next steps

- Continue conducting external customer interviews
- Develop deep dive and roadmap for next generation distribution
- Conduct deep dive on next generation retailing
- Assemble competitive intelligence on 3rd party technology providers
- Interface with P&T on technology strategy

[redacted]

Speaker Notes for Slide 50

[redacted]

Key questions to address

1. To what degree are the priority product areas aligned with existing Sabre product road maps?
2. What are the economic opportunities, models and commercial risks of the primary product themes?
3. How confident are we that we have the right to win in the priority product areas and will they generate adequate return?
4. What are the competitive risks we face?
5. How do we practically align product strategy with technology strategy?
6. What level of investment would be required to develop next generation capabilities?
7. What capability gaps exist?
8. How can we drive standards and identify partnerships with key players to decrease costs and increase success?
9. How do we think about M&A to help accelerate progress/close gaps?
10. What is the right sequence and pace to move forward?

[redacted]

Speaker Notes for Slide 51

[redacted]

Appendix

Sabre

All XML connections are relatively expensive to implement due to immature standards; FSCs transitioning to XML with ancillaries first

[redacted]

[redacted]

[redacted]

[redacted]

XML activation costs are dependent upon the maturity of airline IT tech, investment in next-gen technology could reduce cost per activation

Activation and maintenance costs

	XML activation cost estimate (over 5 years)	
Number of activations	10	30(4)
Cost / activation (Low)(1)	[redacted]	[redacted]
Cost / activation (High)(2)	[redacted]	[redacted]
Total cost (Low)	[redacted]	[redacted]
Total cost (High)	[redacted]	[redacted]
Expected maintenance costs(3)	[redacted]	[redacted]
Total	[redacted]	[redacted]

Proposed development costs(5)

NDC feature set	Development time	Cost
Full NDC messaging support (No interline)	Year 1	[redacted]
Full NDC messaging support (Including interline)	Year 3	[redacted]
Full ONE Order Support	Year 5	[redacted]
5-Year total		[redacted]

(1) 2017 activations of carriers for Flight Centre [redacted]
(2) 2016 activation of [redacted] and 2014 activation of [redacted] ancillaries (seats)
(3) Maintenance costs for API updates expected to be [redacted] (similar to rail projects)
(4) There are 27 carriers active with IATA NDC currently. Per internal SMEs, this number is the expected number of carriers anticipated to adopt NDC over the next five years – an additional 10-20 may follow later
(5) Estimate includes AS, TN and connectivity development costs

Speaker Notes for Slide 54

XML shop latency: [redacted] seconds
ATPCO content latency: ?????

[redacted]

Current discussions and activity with airlines about API distribution technology

Basic XML / Next Gen Distribution

- [redacted]
  - Wants ability to sell ancillaries and ancillary bundles via APIs
  - Paid seats available in Sabre
  - Currently excluding base fares from discussion (i.e. no dynamic pricing, offers)
  - Strategy is to compete via evolved bundling and ancillaries
  - Leveraging NDC standards for their latest API

- [redacted]
  - Wants ability to sell ancillaries, starting with paid seats
  - Paid seats not currently available in Sabre, on 2017 plan
  - Want to drive upsell of ancillaries
  - Not utilizing NDC standards for their latest API

Note: Primary source Kathy Morgan interview

Next Gen XML / Retailing

- [redacted]
  - Group's strategy is still developing
  - Wants to sell base fares and ancillaries via API
  - Wants API distribution model to enable all aspects of offer and order management (includes - PNR, exchanges, ticketing, fulfillment) within the airline technology
  - Leveraging NDC standards for their API
  - Plans to build in-house
  - [redacted]/ Sabre tech workshop planned for April to define scope
- [redacted]
  - Similar to [redacted]
  - Primary tech partner is Farelogix, using NDC standards
- [redacted]
  - Similar to [redacted]
  - Primary tech partner is Farelogix, who uses NDC standards
  - [redacted]/FLX/Sabre tech workshop on 3/30 to define scope
- [redacted]
  - Strategy is less aggressive; open to phased approach
  - Wants to own shopping response. Less concerned about owning the order management (e.g. ticketing, exchanges)
  - Choosing between Farelogix and Amadeus for tech

[redacted]

Speaker Notes for Slide 55

With which airlines are we having discussions around next gen distribution (NDC / XML connectivity for base fares or ancillaries – and the visions of dynamic offers, etc into the future)
What are we saying to those carriers?
What are they asking for?
Are we building any new technology to support these opportunities?

NDC Tech Providers Market Overview

Provider	Est Revenue	Latest Market Intel
Amadeus	N/A	Amadeus is not an NDC certified aggregator, but are continuing to work on NDC implementations in other areas. Going live with NDC implementation at Finnair this year, having already implemented Avianca
Datalex	$55M	Considered one of the most mature and advanced products available. Announced collaboration with IBM and rumored to have large deal with Lufthansa
DCSplus	N/A	Have announced NDC API integrations into agency desktop product. Only NDC connection with Emirates
Farelogix	$25M	Offer suite of NDC products around offer creation, creating a nearly complete offer management system
HPE	N/A	Only product "NDC Adapter" integrates multiple partners with various NDC standards. Not many use cases yet but could be useful with broader NDC adoption
Hitit	N/A	Crane PSS solution certified as Level 3 NDC capable with both offer and order management functionality
IBS	$95M	Going live with NDC compliant PSS with Sun Express later this year. Have imbedded NDC messaging standards into core framework of PSS
Indra	N/A	Have "NDC module" within IBE for Iberia Express
JR Technologies	N/A	Have announced release of NDC capable "Airline Retailing Platform," not yet live
Maureva	N/A	Have upgraded NDC certification from Level 2 to Level 3
OpenJaw	$20M	Level 3 certified, no implementations with customers
SITA	$180M	PSS is Level 3 NDC certified. Also Level three certified for NDC message hub product – no known implementations
Travelport	N/A	Level 1 certified as an IT vendor, but no known implementations
TP Connects	N/A	Offer merchandising, content management, and NDC API connectivity products. Have implementations at RotanaJet and Saudi Arabian Airlines
Vayant	$10M	Offer Level two certified offer management solutions, one adopted by British Airways

[redacted]

The cost and time for an XML activation does not lie in the connectivity technology but aligning the many parties involved in the workflow

	Component piece	Representative players
A change to this…	Communications standard	IATA
Requires changes to these…	Airline business users	UNITED
	Airline IT / 3rd Party Vendors	FARELOGIX
	Airline PSS vendor	navitaire
	GDS	Sabre
	Agency IT	Global Business Travel
	Agency IT vendor	Cornerstone; CONCUR

Fully enabling NGD and NGR requires investment and alignment across organizations that compete and have misaligned objectives

Source: T2RL Current Status Of IATA NDC and ONE Order 1/2017

[redacted]

Speaker Notes for Slide 57

Point on the "standard" not really being standard – each implementation requires customization. This drives the cost of the implementations. Need this to happen to simplify the activation process or the CAPEX $ issue becomes a significant problem (with no added revenue In rail – we keep up with the XML specs of the big suppliers [redacted] hours for each). [redacted] of initial investment is the rule of thumb for maintenance (IEEE standard).

Redacted

[redacted]

To create direct connections capturing majority of indirect volume, each airline needs [redacted] agency connections, each agency needs [redacted] airline connections

To reach [redacted] of indirect bkgs, an airline would need to connect with [redacted] agencies

For agencies to reach greater than half of their content, OTAs and TMCs would need to connect with [redacted] airlines on average

[redacted]

[redacted]

[redacted]

[redacted]

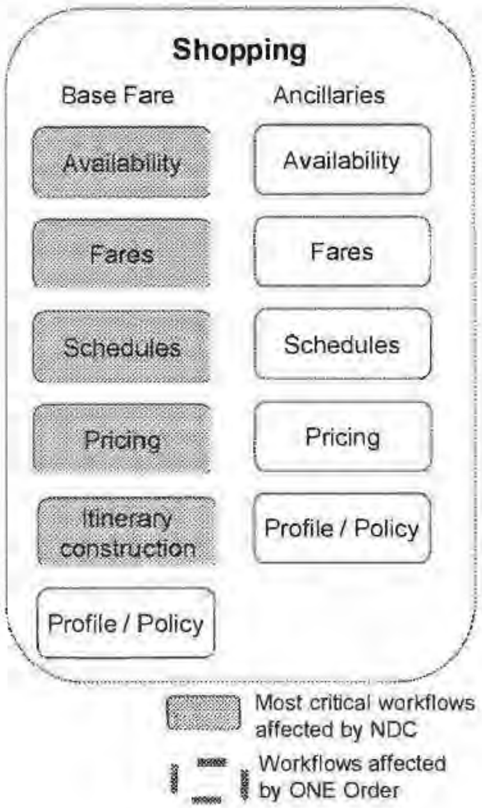
[redacted]

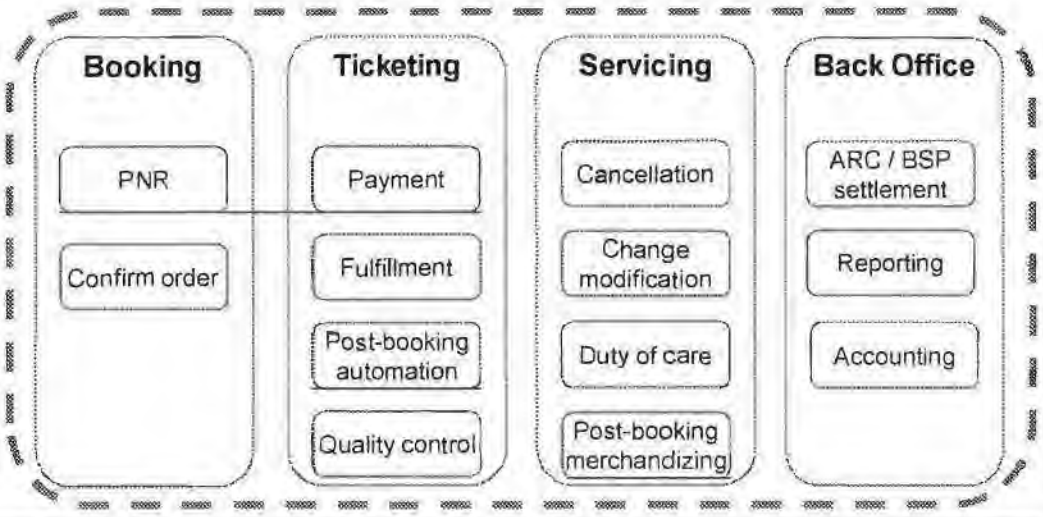
[redacted]

[redacted]

[redacted]

NDC, as stated, would shift offer creation to the airline; ONE Order would impact agency booking, ticketing, servicing, and back office





- Content is a strategic point of control
- Personalized offers do not fit under traditional definitions of full content.
- Airlines will likely seek to gain greater control over content prior to NGD technology implementation

[redacted]

Complete adoption of the NDC standard by suppliers would create significant threats and some opportunities for Sabre

Threats

- Value of GDS could be decreased if the shopping / offer algorithms are housed outside of the GDS
- XML standards with defined APIs open the door for new entrant aggregators
- Potential to threaten agency business model, lowering the GDS' value as a high-value customer aggregator

Opportunities

[redacted]

[redacted]

Historically the airline industry adopts new technologies slowly; lack of mandated adoption of NDC implies that the dual world could exist indefinitely

E-ticketing example – 14 years from initial deployment to full adoption

1994: UA issues e-tickets

2004 – IATA issues target for 100% e-ticket adoption

2008: e-tickets 100% adopted

NDC inhibitors

- 1/2014 – Conditions added to IATA Resolution 787 (NDC) that clarify the optional nature of the standard
- Conventional wisdom among SMEs within Sabre is that ~20 FSCs have the capability / desire to implement NDC with a similar number of LCCs – who already operate in an XML environment

Source: IATA, http://www.iata.org/pressroom/pr/Pages/2014-01-22-01.aspx

[redacted]

Airline messaging: Communication between airlines and CRS or GDS systems

1960's — Teletype (TTY)

- 7/8-character messages created in the early 1960's and standardized by IATA
- Used widely throughout the travel ecosystem and is tied to many legacy systems
- Derived from physical teletypewriter messages with printers which have been electronically retrofitted for the internet era
- Messages are primarily communicated over private networks: ARCINC and SITA
- **ASM (ad-hoc schedule message):** interline teletype message for the transmission of a deviation from the basic schedule, such as an addition

1980's — EDIFACT

- An upgraded international messaging standard developed by the United Nations in 1987
- Data is highly structured to reduce message size because messaging costs were expensive
- As messaging costs reduced, the size of the message became the constraint which lead to XML's larger, more flexible structure

1990's — XML (Extensible Markup Language)

- Internet based messaging language that provides a more simple and flexible format than EDIFACT
- XML makes it easier, faster, and cheaper to communicate fare information (graphics, ancillaries, amenities, seat maps) than programming in EDIFACT
- Most airlines deliver products on their direct channel through XML

[redacted]

CC1

XML vs. EDIFACT message size example – size traded-off for flexibility

EDIFACT example

A name and address (NAD) segment, containing customer ID and customer address, expressed in EDIFACT syntax:

```
NAD+BY+CST9955::91++Candy Inc+Sirup street 15+Sugar Town++55555'
```

64 characters

Data is structure bound by location in the message

XML converted EDIFACT example

The same information content in an XML/EDIFACT instance file:

```
<S_NAD>
  <D_3035>BY</D_3035>
  <C_C082><D_3039>CST9955</D_3039><D_3055>91</D_3055></C_C082>
  <C_C080><D_3036>Candy Inc</D_3036></C_C080>
  <C_C059><D_3042>Sirup street 15</D_3042></C_C059>
  <D_3164>Sugar Town</D_3164>
  <D_3251>55555</D_3251>
</S_NAD>
```

247 characters

Data is not structure bound by location, but identified by tags – increasing the message size

Source: GXS EDIFACT and XML Tutorials

[redacted]

SABR-001003805

Slide 80

CC1 Croupe, Christopher, 3/22/2017

[redacted]