

# NEXT GENERATION DISTRIBUTION MESSAGING RECOMMENDATION

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## About HTNG

Hospitality Technology Next Generation (HTNG) is a non-profit association with a mission to foster, through collaboration and partnership, the development of next-generation systems and solutions that will enable hoteliers and their technology vendors to do business globally in the 21st century. HTNG is recognized as the leading voice of the global hospitality community, articulating the technology requirements of hotel companies of all sizes to the vendor community. HTNG facilitates the development of technology models for hospitality that will foster innovation, improve the guest experience, increase the effectiveness and efficiency of hotels, and create a healthy ecosystem of technology suppliers.

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## DOCUMENT PURPOSE

### INDUSTRY STATE REGARDING DISTRIBUTION

Hotel distribution universe is once again evolving at a pace similar to the early years of online travel. Driven by consumer demand for personalized experiences, massive technological innovation, and competition, now is a time where change is constant. Accommodating and embracing this constant state of change has to become the normal state of existence for hoteliers, distributors and technology organizations. Being proactive almost has a new meaning...

As it was many years ago, companies from several travel markets came together to collaborate and develop standards that would be used to communicate between businesses. This collaboration resulted in the formation of several organizations dedicated to moving forward many things travel related. The effort and output of these groups of talented professionals perpetuated the cycle of consumer demand and technological innovation. These messaging standards simplified B2B data communications in a manner that enhanced consumer experiences and drove additional revenues and efficiencies. It also created a more competitive world, making revenue management somewhat of a science.

In the last decade, mobile technologies have been a catalyst for change in how the consumer interacts with hotel and travel companies. The days where the majority of consumers would call a travel agent or hotel brand contact center to find accommodations are gone. The days where family members sit in front of the computer surfing the internet planning their next vacation are also beginning to erode. Today, we look to our mobile devices to figure out our travel plans; sometimes last minute, expecting instant gratification. What comes tomorrow? What else could there be? We're headed toward a world where "the system" knows what the consumer wants before they even ask for it. Our devices will soon be powered by artificial intelligence (AI) and machine learning technologies, so they will continue to get better and better at predicting what we want to do, where we want to go, and how we want to consume it.

The technologies used for distribution and message communications continue to change and evolve at staggering rates. AI and machine learning technologies have moved from science fiction to reality and cloud services are no longer bleeding edge. API tools, from design to management, are making it easier and faster to connect. Here are some questions to consider while reviewing the findings:

- What value does developing and publishing standards bring to the industry?
- Is it time for another evolutionary step in how we look at standards?

- Is it time to transform how we collaborate to develop standards?
- How does what we do impact being able to support the next evolutionary step in hospitality and travel product consumption?

HTNG's Next Generation Distribution Workgroup explores the perspectives of many industry leaders and experts on these topics.

## CHARTER REVIEW

### BUSINESS PROBLEM

HTNG and the OpenTravel Alliance are mainstays of hotel and travel messaging, offering widely adopted message standards for operations and bookings. These are offered across a diverse ecosystem of partners as well as internally within many companies. Currently, new standards are emerging. OpenTravel is developing its 2.0 Object Model, addressing travel-wide distribution messaging while in the air space, under the umbrella of International Air Transport Association (IATA), airlines have been collaborating to define a new standard for airline distribution, the New Distribution Capability (NDC). NDC and OpenTravel 2.0 both introduce the notion of "Offers and Orders" that brings the industry closer to a world of true retailing. This will be done by enabling a richer booking experience and greater opportunities for cross-selling and up-selling, resulting in increased value. These and other standard efforts, both open source and proprietary, are creating potential impacts on travelers, the hotel industry and the ecosystem.

### PROPOSED SOLUTION

This workgroup will identify and examine both open source and proprietary standards, including OpenTravel's 2.0 Object Model and IATA's NDC, and offer a point of view with potential benefits, impacts and alignment opportunities. The group will leverage a data-driven approach to providing the recommendations. The existing HTNG distribution specifications will not change as a result of this workgroup, but the outcome of this workgroup will address needs beyond those filled by the current specifications.

## THE APPROACH

The Next Generation Distribution Messaging Workgroup (NGDM) will take the following steps:

- Reach out to organizations to better understand what standards are being developed, what standards are being used and what proprietary messaging is in use. To do this, the workgroup will:
  - Compile a list of organizations for outreach
  - Complete outreach
  - Collect, organize and analyze the data
  
- Create a questionnaire for HTNG, OpenTravel and IATA to answer and use those results to better understand the scope, level of completeness and technical features of their new specifications. To do this, the workgroup will:
  - Ask each organization to complete the questionnaire based on their latest specifications:
    - HTNG – Lightweight Messaging
    - OpenTravel – 2.0 Object Model
    - IATA – New Distribution Capability
  - Develop weighing for each item in the questionnaire, so that items that are deemed to be more important are weighed more heavily than those deemed to be less important.
  - Apply the weighing to each completed questionnaire and compile scores for each organization.
  - Create a Pugh Matrix to identify the level of importance that each vertical places on being able to book products for each other vertical.
  - Analyze and draw conclusions from the weighted results of the survey.
  - Develop and publish recommendations from these conclusions as an end deliverable.

## ORGANIZATIONS IN SCOPE

### OVERVIEW

The NGDM Team made the decision to focus on three standards, HTNG's Lightweight Messaging, OpenTravel's 2.0 Object Model and IATA's New Distribution Capability (NDC)

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because these standards are the leaders and most widely adopted in the travel industry. It was decided that the propriety standards of organizations that were part of the initial outreach, would be reviewed in more detail if gaps were identified in the open standards. As each of the open standards were reviewed, the team looked at their offering from the perspective of how the needs of the travel consumer are addressed.

## HTNG

Hospitality Technology Next Generation (HTNG) fosters through collaboration and partnership among hospitality professionals and technology providers, the development of next-generation solutions that enable them to do business globally.

HTNG workgroups develop specifications, white papers and webinars among other deliverables. Since the organization was founded fifteen years ago, HTNG standards have primarily focused on messaging for the hotel industry, in the areas of distribution and on property technology, with an emphasis on the latter. HTNG's hotel distribution messages are largely built on top of OpenTravel 1.0 Standards. With a recent name change from Hotel Technology Next Generation to Hospitality Technology Next Generation, this focus will now expand to other hospitality verticals as well.

HTNG began development of Lightweight Messaging to show implementers how the XML messages could be transformed into JSON messages, and did so by first creating the HTNG Symmetric JSON to XML Conversion Framework. The Lightweight Messaging Workgroup is also creating an object matrix and sample messages in both XML and JSON. The object matrix is loosely based on OpenTravel standards. This effort is focused on the shop and book messages and is nearing completion.

## OPENTRAVEL ALLIANCE

OpenTravel Alliance's mission is to engineer specifications to ensure traveler and supplier information flow smoothly throughout travel, tourism and hospitality. OpenTravel creates, expands and drives adoption of open specifications for the electronic exchange of business information among all sectors of the travel industry.

OpenTravel focuses on distribution messaging across all verticals of the travel industry including, but not limited to, Hotel, Air, Car Rental, Cruise, Ground Transportation, Golf, Rail, Activities and Travel Insurance. The 1.0 Message Suite is widely adopted within the travel

industry and the development of the 2.0 Object Model continues with some areas published, some in progress and others awaiting development. The 2.0 Object Model currently can be generated in XML or JSON and the associates, WSDLs and Swagger, can also be generated from the OpenTravel Model–Development Environment (OTM–DE), OpenTravel’s open source tool.

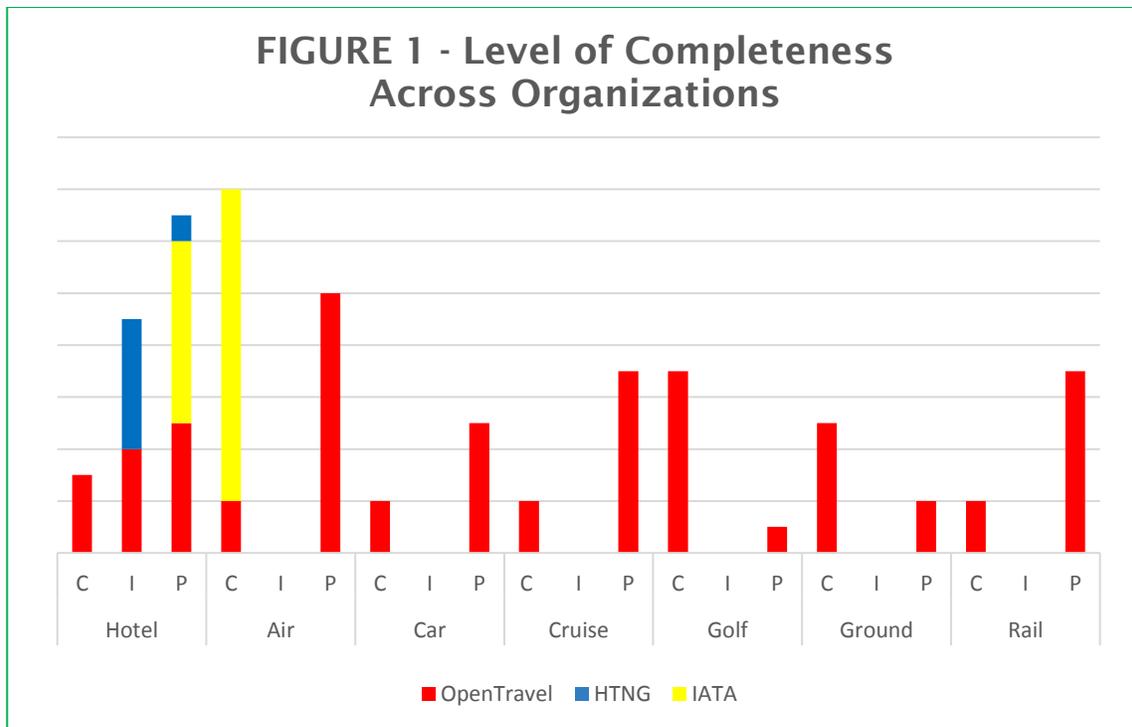
## IATA

International Air Transport Association (IATA) is the trade association for the world’s airlines, supporting many areas of aviation activity and helping formulate industry policy on critical aviation issues. IATA develops and maintains global commercial standards upon which the air transport industry is built. These standards aim to assist airlines by simplifying processes and increasing passenger convenience both while reducing costs and improving efficiency.

As part of New Distribution Capability (NDC) program, IATA developed a suite of XML messages supporting the distribution of airline offers and associated order management. These messages are already being implemented. One of IATA’s major priorities for 2017 is to achieve implementation by 45 airlines.

## LEVEL OF COMPLETENESS

The diagram below shows the progress of each standard at the writing of this document. The vertical axis shows the cumulative focus by organization while the horizontal axis identifies the functionality by level of completeness where C = Complete, I = In Progress and P=Planned. The data is displayed for each organization by industry vertical in Figure 1.



C – Complete    I – In Progress    P – Planned

## FUTURE FOCUS OF THE ORGANIZATIONS

### HTNG

HTNG’s focus remains in the hospitality industry. A decision on how to move forward with lightweight messaging is dependent on the results of this workgroup.

### OPENTRAVEL ALLIANCE

OpenTravel is committed to moving forward with building out the 2.0 Object Model across all verticals. The prioritization of what is developed is dependent upon their members’ needs and is driven by their Roadmap Committee. From the hotel perspective, messages to perform the search, availability and reservation functions are nearing completion. Request for Proposal (RFP) messaging allows a meeting planner to request proposals for meeting space and sleeping rooms, and has the ability to create and manage guest profiles across all verticals. Outside of the hotel arena, OpenTravel has published messages for Golf and Ground Transportation, having the higher level reservation structure built and allowing for orders across one or more verticals to be managed in a single reservation.

## IATA

Aside from the published NDC XML messages, IATA is currently moving the message functionality to the Airline Integrated Data Model (AIDM). AIDM is designed to serve as a common point of reference to store industry-agreed vocabulary, data definitions and their relationships, and is used by all new message development projects since 2016. The AIDM will allow for the messages to be generated in either XML or JSON.

## ORGANIZATION INTERSECTS/OVERLAPS

OpenTravel covers distribution in all sectors of the travel industry. HTNG Lightweight Messages overlap with some of the hotel functionality being developed by OpenTravel. There is also overlap between the IATA NDC messages and the OpenTravel 2.0 development plans for air messaging. IATA's NDC and HTNG's messages do not overlap with each other.

## STANDARDS DEFINITION GAPS

### PERSPECTIVE FROM A HOSPITALITY (HTNG) VIEW

HTNG has held a strong focus on hotels from both the distribution and technology aspects, but there is interest and opportunity from members to allow expansion of cross vertical bookings into areas such as car rental, golf and spa. HTNG has a strong membership base and represents many organizations within the hotel industry and is able to represent that perspective very well. As members' interests grow in being able to sell ancillaries and cross vertical products, it is important for HTNG to represent their members' needs in these areas as well.

### PERSPECTIVE FROM A NON-HOSPITALITY, OTHER TRAVEL VERTICAL VIEW

A common theme today revolves around the consumer driven marketplace. The ability to meet a customer's needs across verticals allows for a seamless end-to-end experience. The Pugh Matrix in Figure 2 shows the importance of one travel vertical to another. Here you can see what the desire for booking across verticals looks like within each travel sector. For instance, in row number one, "hotel," you will see that hotels believe the ability to book "Car Rental," "Ground Transportation" and "Golf" from a hotel-initiated reservation, plays a high role of importance while "Air" and "Rail" play a medium level of importance and "Cruise" a lower level of importance.

So, this tells us if someone books a hotel reservation, there is a greater likelihood they would be interested in also booking car rental, ground transportation and golf than air or rail and perhaps, they may be even less likely to want to book a cruise. There is a desire among hoteliers to be able to fulfill the cross vertical bookings to meet the needs of the consumer.

## FIGURE 2 - Vertical to Vertical Analysis

*Date of Analysis:* 5/12/2017      *Analyst:* NGDM Team

Key Criteria for Comparison		Hotel	Air	Rail	Car Rental	Cruise	Ground Transportation	Golf		High 1	Medium 0	Low -1
	Hotel		0	0	1	-1	1	1		3	2	1
2	Air	1		1	1	-1	1	-1		4	0	2
3	Rail	0	-1		0	-1	0	-1		0	3	3
4	Car Rental	0	-1	-1		-1	-1	0		0	2	4
5	Cruise	1	1	0	0		1	-1		3	2	1
6	Ground Transportation	-1	-1	-1	-1	-1		-1		0	0	6
7	Golf	1	-1	-1	1	-1	-1			2	0	4

## RECOMMENDATION

### SUMMARY

As established in the business problem statement, many industry company participants have contributed significant investments of time and resources in developing, maintaining and

utilizing both open and proprietary distribution messaging standards in the travel and lifestyle verticals. These things are done to drive more revenue through simplifying connectivity between partners and shortening time to market on new products. Of course, there are other reasons that come into play as well. HTNG, OpenTravel Alliance and IATA all play a significant role in the travel and lifestyle industries. As shown in Figure 1, many areas are covered with little overlap. These findings inspire many conversations about how to move forward. One thing seems obvious: There are more opportunities to build on what has already been done. Our industry is evolving and changing in a manner very different from the recent and distant past. Our consumer, whether the actual consumer or the downstream business partner, also has expectations that are very different from the recent and distant past. Now, these organizations may need to evolve their work in a manner that may be different or even less traditional than in the past.

Messaging methodologies, protocols, tools and technologies have evolved significantly over the past decade. Now, the manner in which Application Programming Interfaces (APIs) are presented to technology consumers is drastically different than the last decade. Companies are opening their APIs, publicly driving innovation and entrepreneurial spirit. A few airlines are already doing this; British Airways and Lufthansa have opened up their APIs, providing message definitions and sample code. These definitions and codes are allowing developers to quickly create/integrate their applications to do a variety of diverse airline industry services. Other carriers have started following this direction as well. For these airlines, gone are the days of resource waste to create custom interfaces for each potential partner. Gone is some of the back and forth courting during business development. Finally, minimized is the complexity and overhead of managing connections, bandwidth and the security of connectivity. Tomorrow's connectivity methodology will be closer to signing up on Amazon instead of months of business and technology development. From a travel industry technology perspective, this happens by rethinking how APIs are presented to the world and the continued standardization of messaging.

One must ask: "Are we truly looking at how to approach messaging from the customer's perspective? To expand our thinking, are we just looking at the customer's needs from the perspective of "my" vertical?" The findings found in Figure 2 prove the need to look at things from the "other" perspectives more so now than ever. While the goal is to drive more revenue and increase yield, how to get there is what is changing. Looking at the consumer's view becomes more important. Looking at it frequently, if not in real-time, becomes a game changer. Knowing the consumer at the individual level becomes paramount. Is messaging being developed to accommodate this?

While this exercise was primarily focused on distribution messaging, we cannot have this conversation without also looking at the periphery. There are other places where messaging

exists. HTNG has held a significant focus on messaging at the hotel property level. Many of these property level services have their counterpart, or closely related service, in the distribution space. Certain property level amenities typically handled in the PMS/POS, such as SPA or Cabana rentals, would be opportunities for messaging across the distribution and property perspectives. While not part of this workgroup's charter, this topic may be an opportunity for a future workgroup to explore in detail what other message types should exist and who should be involved in researching and proposing future deliverables.

Another consideration is to embrace each organizations' strengths with a serious look at deep collaboration between them. Each is operated in slightly different ways as a result of their focus, business model and more.

There are both technology reasons and business reasons for these organizations to collaborate. There is little direct overlap in focus and strong peripheral relationships from a messaging perspective. So, bringing together the open source organizations would only strengthen their cause. Businesswise, there may be an opportunity for joint events, putting less strain on members for participation. This could improve the efficiency and pace of moving forward developments for open messaging standards. HTNG has already made inroads on this approach with other organizations.

## **WHAT SHOULD/COULD HTNG DO?**

The following are recommendations that were developed from the activities of the Next Generation Distribution Messaging Workgroup. These recommendations are a culmination of discussions, ideas and perspectives that HTNG should consider. Many viewpoints were expressed during the exercise and have been summarized in the following sections by the workgroup co-chairs:

### **COLLABORATE AND DEVELOP PARTNERSHIPS WITH OTHER STANDARDS ORGANIZATIONS WHERE MESSAGING AREAS OVERLAP**

In areas where there is messaging overlap, HTNG should consider a strong collaboration or partnership aimed at improving development and encouraging alignment to a single standard per vertical. This would also reduce the chances of misalignment and redundant efforts in the industry. Most importantly, there would be a greater potential for innovation due to alternate viewpoints being presented.

### **COLLABORATE AND DEVELOP PARTNERSHIPS WITH STANDARDS ORGANIZATIONS THAT SUPPORT MESSAGING FOR VERTICALS SHOWING INTEREST IN CROSS-SELLING TO/WITH HOSPITALITY COMPANIES**

As shown in the findings from Figure 2, certain verticals are interested in selling products from other verticals. Therefore, it makes sense that they should have input into the messaging associated with their vertical(s) of interest. HTNG could benefit by facilitating cross vertical workgroups, white papers, webinars and overall fostering cross vertical collaboration.

### **ALIGN, COLLABORATE, AND PARTNER WITH OPENTRAVEL ALLIANCE ON HOTEL DISTRIBUTION MESSAGING**

HTNG and OpenTravel are both working on hotel-focused distribution messaging and are doing so somewhat independent of each other. There is a need to create a partnership that allows members of both organizations to participate on relevant projects sponsored by one another. IATA has expressed an interest to collaborate with HTNG to facilitate the development (by HTNG) of hotel-focused distribution messages leveraging the same core concepts and structures already developed for airline distribution. An opportunity currently exists for all three organizations to collaborate on these initiatives.

### **CONTINUE TO POSITION ITSELF AND EVOLVE ITS FOCUS ON HOTEL PROPERTY LEVEL MESSAGING STANDARDS**

While not a direct focus of this exercise, it is essential to point out that HTNG's focus on property messaging has a relationship with distribution messaging. Continuing to embrace this focus, HTNG could develop workgroups that continue to bridge the gaps between property level messaging and distribution messaging. There are many products at the property level that may be included as sellable products as either part of a package or standalone through distribution systems.

## **EVALUATE OTHER TRAVEL OR LIFESTYLE RELATED VERTICALS TO DETERMINE IF STANDARDIZATION OPPORTUNITIES EXIST**

There are potential opportunities at both the property and distribution levels that should be considered for future development. Spa, hotel-specific events, activities, walking tours and other offerings may benefit from a standard set of messages provided within the portfolio of distribution and property level messaging. This would allow cross bookings and dynamic packaging to drive additional revenue. HTNG could create workgroups to brainstorm, prioritize and facilitate collaboration with other standards organizations.

## **FACILITATE ALIGNMENT AND ENCOURAGE OPENTRAVEL ALLIANCE AND IATA NDC TO COLLABORATE ON AIR AND HOTEL DISTRIBUTION MESSAGING**

While HTNG does not participate in the air messaging space and only to a certain degree in the hotel distribution messaging space, they could leverage this opportunity of cross organization collaboration to get things moving in a positive direction. Bringing these organizations together and participating in messaging development activities will provide others a perspective into HTNG's paradigm thus improving the understanding of the messaging used for a consumer's travel experience beginning to end.

## **DEVELOP AND FACILITATE AGREEMENTS WITH OPENTRAVEL ALLIANCE AND IATA NDC TO ALLOW MEMBERS TO PARTICIPATE IN EACH ORGANIZATIONS' EFFORTS**

Although there are some overlapping members between the organizations, each organization has a portion of membership who are not participants of the other organizations. There is an opportunity for HTNG, OpenTravel and IATA to develop and facilitate agreements to offer access to the other organizations' members. This would allow each organization to provide more value to their members and open further grounds of collaboration. Whether it be workgroups, conferences, or most any activity, this added exposure would inspire additional thought leadership and creativity aimed at improving the consumer experience.

## ENGAGE THE CONSUMER DIRECTLY

Appropriately engaging the customer would provide additional insight into the ways they want to consume hospitality, travel and other verticals' products and services. Through customer views, HTNG could drive additional innovation and better industry alignment of standards.

## ESTABLISH A FUNCTIONAL SANDBOX WHERE HTNG STANDARDS CAN BE EVALUATED USING REAL SYSTEMS

Recently, HTNG announced its creation of an API Registry aimed at enhancing technology innovation for travel and hospitality organizations. This recommendation suggests that live API functionality should be available for consumption on a test or "try before you buy" basis. This API functionality would leverage HTNG standards and would promote the use of them as well as the products that support them. A sandbox API system could be operated by HTNG, or by one or many of its vendor partners. Signing up to utilize these APIs could be simple and accomplished in minutes through the use of an API management platform. See <https://developer.ba.com> for an example of how this can be achieved.

## EVALUATE ITS VENDOR RELATIONSHIPS TO INCLUDE TECHNOLOGY PROVIDERS IN THE API DEVELOPMENT AND MANAGEMENT SPACE

HTNG should evaluate the technology landscape to identify providers of tools and services supporting API management and/or development. HTNG would benefit from this opportunity by expanding vendor partnership revenues. HTNG members would benefit by being exposed to additional technologies that could further enhance the API strategies, reducing time to market, increasing security and improving efficiency.

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