Towards an interdisciplinary knowledge exchange model: Uniandes design school help to transform Avianca into a design driven company in the flight industry

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Universities and corporates, in Europe and the United States, have come to a win-win relationship to accomplish goals that serve research and industry. However, this is not a common situation in Latin America. Knowledge exchange and the co-creation of new projects by applying academic research to solve company problems does not happen naturally.

To bridge this gap, the Design School of Universidad de los Andes, together with Avianca, are exploring new formats to understand the knowledge transfer impact in an open innovation network aiming to create fluid channels between different stakeholders. The primary goal was to help Avianca to strengthen their innovation department by applying design methodologies. First, allowing design students to propose novel solutions for the traveller experience. Then, engaging Avianca employees to learn the design process. These explorations gave the opportunity to the university to apply design research and academic findings in a professional and commercial environment.

After one year of collaboration and ten prototypes tested at the airport, we can say that Avianca’s innovation mindset has evolved by implementing a user-centric perspective in the customer experience touch points, building prototypes and quickly iterate. Furthermore, this partnership helped Avianca’s employees to experience a design environment in which they were actively interacting in the innovation process.

Keywords: collaboration, university, industry, design methodologies, innovation

From traditional development to Open innovation collaboration

More universities and corporations in Europe and the United States, have come to establish a win-win relationship to accomplish goals that serve research and industry in terms of innovation. Cases like Stanford or MIT that uses academic research to propose novel solutions to company problems, or TU Delft and DTU who use participatory methodologies to exchange of knowledge between professionals and practitioners are a common and valuable practice. However, this is not the case for the Latin American context, in which companies prefer external consultancy as their first option, underestimating the universities input.

That was the case of Avianca. In the Colombian context, Avianca is the market leader in flight services in Latin America with 27,000 employees and 97 years of experience in the industry. A couple of years ago, they were struggling in a severe crisis that ended with a new CEO, Hernán Rincón, former president of Microsoft Latam. The decision to appoint a tech leader was to promote the transformation of Avianca into a digital company that operates flight services.
To pursue this quest, the new CEO established drastic changes to the organization model. One of them was to open an innovation department. The primary objective of that was to build an open network of partners who could add cross-disciplinary knowledge to the company to develop cutting edge projects for the aviation industry. By these initiatives, Avianca’s new vision aimed to foster a new organizational culture within the internal teams by promoting new ways of working through agile processes, rapid prototyping, and experimentation.

As a consequence of this initiative, the Design School of Universidad de los Andes was the first partner to explore new formats to understand the impact of knowledge transfer in an open innovation network aiming to create fluid channels between different stakeholders in order to build innovative service propositions (Gardien, Deckers & Christiaansen, 2014). The proposal consisted of a model called Pilot to scale, to define a medium-term vision for the collaboration. This model considers three steps to foster Avianca to become a design-driven organization: Seed, Grow and Spread (Figure 1).

![Figure 1 Pilot to scale model](image)

**Ready for take off**

The first collaborative pilot proposed by the Design School was to use a Service Design course as a platform to explore eight user experience challenges proposed by Avianca. The course was offered in the bachelor program to last year students that were going to work with the assessment and guidance of two design professors, experts in service design (Figure 2).

Twenty-seven students enrolled for the course and were divided in eight groups, one group per challenge. Their task was to perform an extensive design research, visualize and generate new opportunities of interventions, and validate and implement those solutions (Beckman & Barry, 2007). They had to work together with the land and flight experience department of Avianca to enhance the customer’s travel experience from top to bottom.

As proposed by Owen (1998) in any innovation process, the observation phase requires in-depth field research. In order to do that, the design teams needed access to some restricted areas to understand how the operational decisions were taken, how the front desk services were presented to customers, and how the overall perception of the experience was. The support, collaborations, and participation of Avianca employees were crucial for uncovering new opportunity areas in the front stage of the experience based on the research results.
Those opportunities were translated into solutions and validated by prototyping them in the real context. Every team launched a minimum viable product at the airport considering the insights and user needs uncovered in the research phase (Table 1). For Avianca this was entirely new. In most cases, the launch of a new product or service waited until the process was completed and there was no window for validations or iterations.

Table 1 Solutions and concept descriptions of the MVP.

<table>
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<tr>
<th>Name of the Challenge</th>
<th>Solution</th>
<th>Concept description</th>
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<tbody>
<tr>
<td>Improve the check in experience</td>
<td>CHILLOUT</td>
<td>CHILLOUT is based on Colombian families’ habits of waiting for their relatives at the other side of the barrier while they are checking in. This moment of waiting was perceived as a waste of time and was emotionally painful. CHILLOUT takes the customer place in the check-in queue and allows the traveller to spend the previous moments before the flight with his family in a cozy space. Once CHILLOUT arrives at the front desk, the customer is called to continue with the check-in process.</td>
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<tr>
<td>Improve the experience in the waiting areas</td>
<td>Complaining was never easier</td>
<td>A testimony booth located at the waiting area where passengers could talk about any topic, situation or problem. There is an immediate response to make the visitor to feel confident. Moreover, Avianca will collect all complain to apply the suggestions to make improvements in the services.</td>
</tr>
<tr>
<td>Improve the experience in the VIP areas</td>
<td>VIP on the go</td>
<td>Partnerships between Avianca and companies located at the airport to let Diamond VIP passengers enjoy their benefits even when they do not enter the VIP area. They will have access to this service from Avianca’s app.</td>
</tr>
<tr>
<td>Improve the boarding process</td>
<td>Colouring your day (Figure 3)</td>
<td>A boarding system that combines the current letter categorization with a colour code in the boarding pass. A lighting panel at the gate warns the passengers about their boarding moment. If the passenger...</td>
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boards in the wrong turn, the red light will represent it is an incorrect order.

<table>
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<tr>
<th>Build a memorable experience during the flight</th>
<th>The perfect moment</th>
<th>The in-flight experience takes advantage of the aerial sightseeing and the amazing destinations passed by to use the window to connect the passenger with positive emotions providing a memorable experience.</th>
</tr>
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<tbody>
<tr>
<td>Cope with 1-4 hours delay flights</td>
<td>The best host</td>
<td>A system to identify the interests and preferences of the passengers to deliver a more personalized and meaningful experience during a delayed flight. This system contains a direct channel of communication in the passenger’s smartphone to be updated about flight information. The passenger can choose the type of compensation that she prefers from a variety of services (food, book, hairdressers, massage...).</td>
</tr>
<tr>
<td>Deliver a satisfactory flight connection experience</td>
<td>Carla, closer to you</td>
<td>An artificial intelligence system embedded in Avianca’s app that helps passengers to get precise information through an augmented reality avatar who delivers a more personalized and familiar interaction.</td>
</tr>
<tr>
<td>Improve the luggage claiming process</td>
<td>Friendly luggage</td>
<td>It is a loyalty program with luggage based on values such as friendship, reciprocity, and support. The program provides luggage benefits to the users who apply best practices in the airport processes. The luggage would exit first at the destination, and it would be handled carefully in transportation.</td>
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These solutions were presented in a closing event to the Avianca staff team composed by two vice presidents, and several directors, including the director of El Dorado Airport in Bogotá. The design teams experienced how to showcase their work and how to respond to an audience of experts. Further implementations of these solutions are still in the project pipeline, but its development requires further internal ownership that was not in the scope of the objectives of the course.

Due to the success of this collaboration and the value output generated, Avianca’s innovation team and their Vice president of experience decided to roll out a new course. However, and taking into account the idea to
give continuity to the projects, they required the course to have specific characteristics. First, the process should provide more engagement from the Avianca team, more like a partnership relation rather than a commercial relationship. Second, the application of the methodologies should develop a installed capacity that would increase the innovation culture to the inside of the company. Finally, to validate the impact of the new knowledge, the brief was aimed to tackle organizational challenges.

For the Design School, this meant that the new course was embedded in the second stage of the Pilot to scale model: Grow. This time, Avianca was more interested in acquiring design thinking skills, rather than receiving solutions for their problems. They wanted to be part of the process and allow the people from the different departments to experience the design research approach. For the second pilot, we proposed Avianca to enroll four of their employees in one of the master courses of the Design School. The master cohort for that year was multidisciplinary and had little experience with design research methodologies, so at certain point, all were even. The idea was to have the employees to be part of the team, share the feedback, experience the phases of the project and ideate solutions for the challenges presented by their departments (Figure 4).

As suggested by Avianca, the main goal of this second collaboration was to generate process of knowledge exchange, rather than providing solutions to identified problems. Nevertheless, the design teams, including the Avianca employees, would have to propose novel solutions for the challenges. In one hand Avianca’s employees were engaged to learn the design process and apply it in practice; and on the other hand, master design students were able to face how design methodologies could be applied to systemic approaches. Moreover, undertaking these projects gave the opportunity to the Design School to apply academic research findings in a professional and commercial environment.

![Figure 4 Grow phase. Master design course](image)

Each Avianca employee was in charge of one of challenges selected for the course. Moreover, and as part of the design team, they had to perform certain design activities to move forward in the project. The design teams had to defined a research plan, deciding to use and apply different tools for data collecting, such as cultural probes (Gaver, Dunne & Pacenti, 1999), generative sessions (Sanders & Stappers, 2014) and participatory mappings (Buur & Matthews, 2008). After designing their collecting data tools (Table 2), the teams had to analyze the information that they gathered, in order to identify opportunities to intervene. Then, and as part of the course, we emphasize in the idea generation process (Figure 5). Usually for non-designers,
and sometimes for designers, that is the most frustrating phase. Finally, the teams had to validate their ideas in the real context.

**Table 2 Solutions and concept descriptions of the MVP.**

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Concept description</th>
<th>Design tools used</th>
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<tr>
<td><strong>Opportune information:</strong> How can we transfer the operational information through all relevant areas in a convenient and clear way to be available in every passenger touch point?</td>
<td>AICS: An electronic message system customized for travellers that contains information related to the flights irregularities and allows the traveller to be updated in real time. The system will centralize all the information and will help travellers to know what to do in case of a delay.</td>
<td>Drawing activities in interviews. Actor-interaction maps. Value proposition canvas. Role-play. Jumping obstacles (creative session). Emotional metrics. Technological probes.</td>
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<td><strong>Irregularities backstage:</strong> A centralized multi directional communication channel visible for all the information chain that improves the decision-making of the personal in charge of the flight services.</td>
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<tr>
<td><strong>Assistance services:</strong> How can we improve the passenger experience while delivering the assistance services (food, hotel and transport) in a operational irregularity?</td>
<td>Mobile bookstore: Entertainment system for waiting rooms that provides the traveller with options to kill some time while waits for the irregularities to be solved. Additionally, it is present to show the traveller that Avianca cares</td>
<td>Cultural probes. Generative sessions. Scenarios. Pain matrix. Personas. What if (ideation session). 10+10 (ideation session). Prototype. Paper prototype. Mockups</td>
</tr>
<tr>
<td><strong>Self management app:</strong> New menu for the Avianca app that allows the user to choose the best options related to his interests, pleasures and time availability once an irregularity or cancelation is presented.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cabin crew structure:</strong> How can we improve the current management and leadership model for the cabin crew?</td>
<td>CaroBot: A virtual assistant that provides useful information to the cabin crew about requirements, requests, and administrative processes. Support Troop: This support group’s main activity is to visit the cabin crew, according to a schedule to give them support and answer questions that are not part of the standard procedures or require a more delicate handling.</td>
<td>Empathy maps. Ideal leader activity. Technological probes. Wizard of oz. Video scenario.</td>
</tr>
<tr>
<td><strong>Effective communication:</strong> How can we improve the communication between Avianca and its cabin crew?</td>
<td>Moodbox: Set of cards to improve the communication between coordination and crewmembers to smooth things. There are two types of cards: practical tips and motivational reflections.</td>
<td>Technological probes. 5+5 (ideation session). What if (ideation session). Prototypes. Card sorting.</td>
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</tbody>
</table>
Figure 5. Master students and Avianca employees working together during the data collection phase.

The exercise was intended to be very practical, more than novel. We wanted to teach the course participants to learn by doing and experimenting. All the teams we exposed and force to create and implement their design tools and ideas. After each phase of the process, we came back to the key learning’s and how the teams overcame the difficulties. It was important that every member of the team experienced how to contribute by applying their previous knowledge combined with the new methodologies that were presented. For the Avianca employees the course was an eye-opener to alternative approaches to complex problems. For the master students was a challenge to manage the client expectations with the developments of the project. In the end, this processes required new time and dedication, planting the seed implied to mingle with relevant actors inside the company. Again, and as the first course, the validation of the solutions gave insightful information to Avianca and hopefully a new perspective to manage future projects.

Crew prepared for landing

The results of theses collaboration gave us insights towards the way to collaborate with a corporation from the academic side. From doing user research in site to prototyping and validating ideas, the learning that both organizations got were important to keep projecting the future alliance. This alliance is building a solid ground for the open innovation network to be developed further with new partners who could add different types of value to the aviation industry and help Avianca to maintain its leading position.

One primary element was the collaboration between employees and students. Employees were able to provide the inside view of the business experience and enlighten the students to come up with fresh perspectives and build new and reachable services. Also, having the employees enrolled in the design course helped the methodologies and new perspectives to sink in the company’s processes. Moreover, the role of Avianca’s employees in the corporate hierarchy helped to reach the right people to move faster in the design process. However, the directors did not have the time outside the lectures to contribute and generate a fluent collaboration with the squad. Therefore, the selection of intermediate roles to lead the squad would have been more appropriate to ensure a more successful team dynamic.

Another key element of the collaboration was the hands on and multidimensional approach (Gardien, Deckers & Christiaansen, 2014). From qualitative research from the airport to the office building, as well as prototyping simple but ready to test solutions, helped Avianca to increase the speed of their innovation process. Normally, we think about design thinking in the front end of the experience. However, this project worked also in the back stage with internal processes of flight irregularities and crew management. Considering several dimensions at the same time helped Avianca to connect the processes with the passenger and crew experiences and envisioning new opportunities of improvement. In case that after testing the solutions Avianca decides to build these ideas, they have the ownership of the low fidelity prototypes. The students signed an agreement to assign the rights of commercial use to Avianca at the beginning of the course.

Our biggest failure during the project was the exclusion of important stakeholders to the open innovation network in the beginning. The owner of El Dorado’s airport in Bogotá, OPAIN, was an obstacle in the process of field research and prototyping in context due to internal regulations. To avoid these problems, it is our responsibility to convince key stakeholders about the value of this kind of projects and the benefits that the
airport could gain from them such higher customer satisfaction, better passenger flow, more efficient processes...

In conclusion, to recreate the success of this initiative, firstly, it is vital to have in place the willingness to experiment with new formats to share knowledge and learn from each other. Secondly, the commitment of every party to the collaboration is essential to reach common goals; for example academia should have a deep service understanding of the clients’ highly regulated environment in both backstage and front stage, and the company should be willing to get their hands “dirty” for the low cost and fast iterative prototyping phase. Finally, as a collaboration that involves really young people, it is rather important to give them freedom to create fresh and innovative ideas, but also it is always a challenge to manage their fixation with technological solutions and let them understand the different layers required to design an efficient and memorable service experience.

References


