

Watson + Museums



Pinacoteca Museum: visual arts with an emphasis on Brazilian production. Sao Paulo, Brazil.



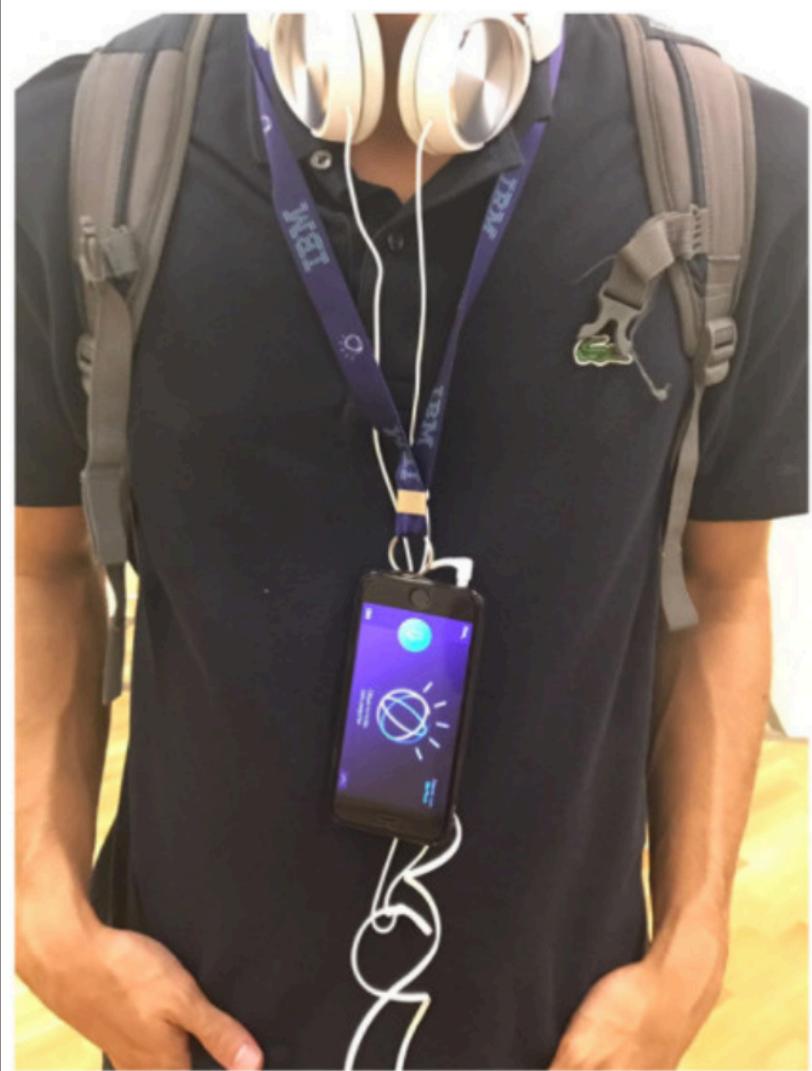
The Museum of Tomorrow: science museum. Rio de Janeiro, Brazil.

The Voice of Art: Pinacoteca, Sao Paulo, Brazil



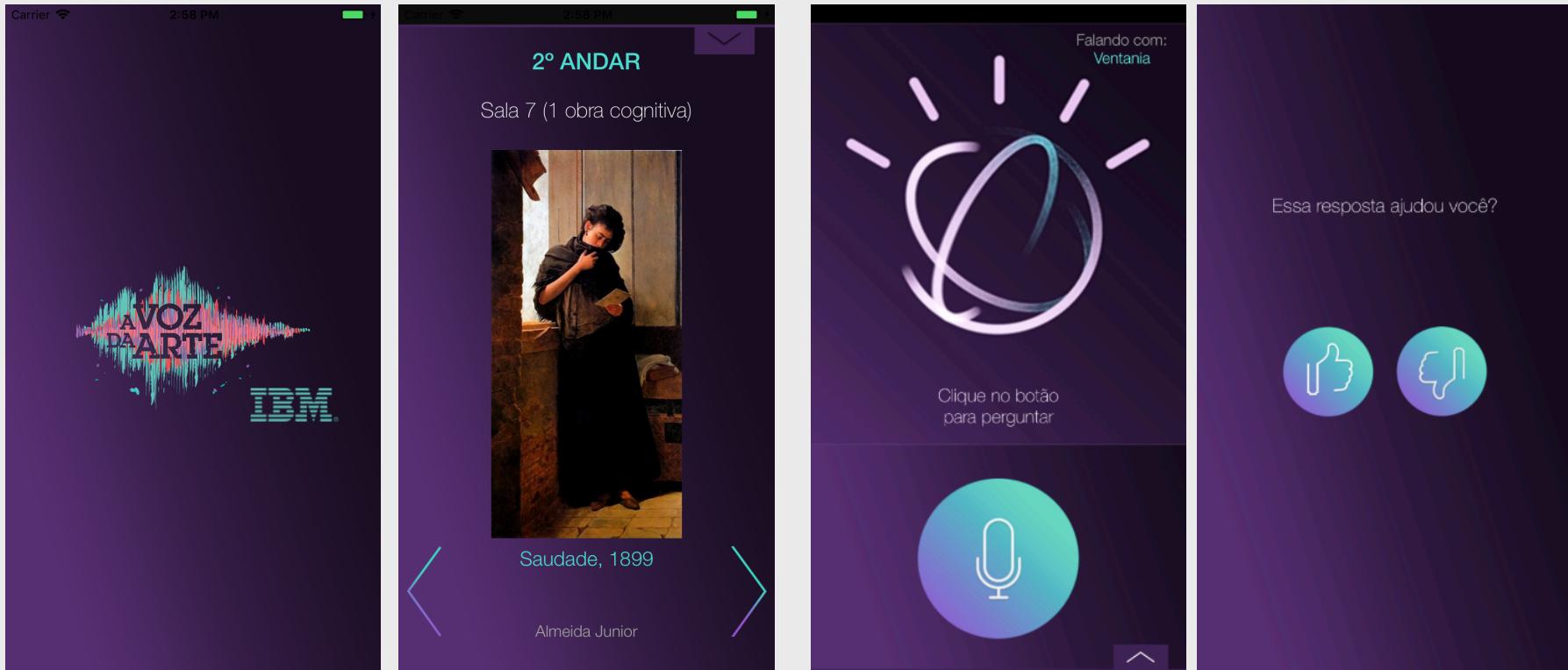
Visitor's Experience

- All visitors receive an equipment with cellphone and headset.
- This equipment **guides** visitors through the museum, and allow visitors to **talk** with pieces of art.



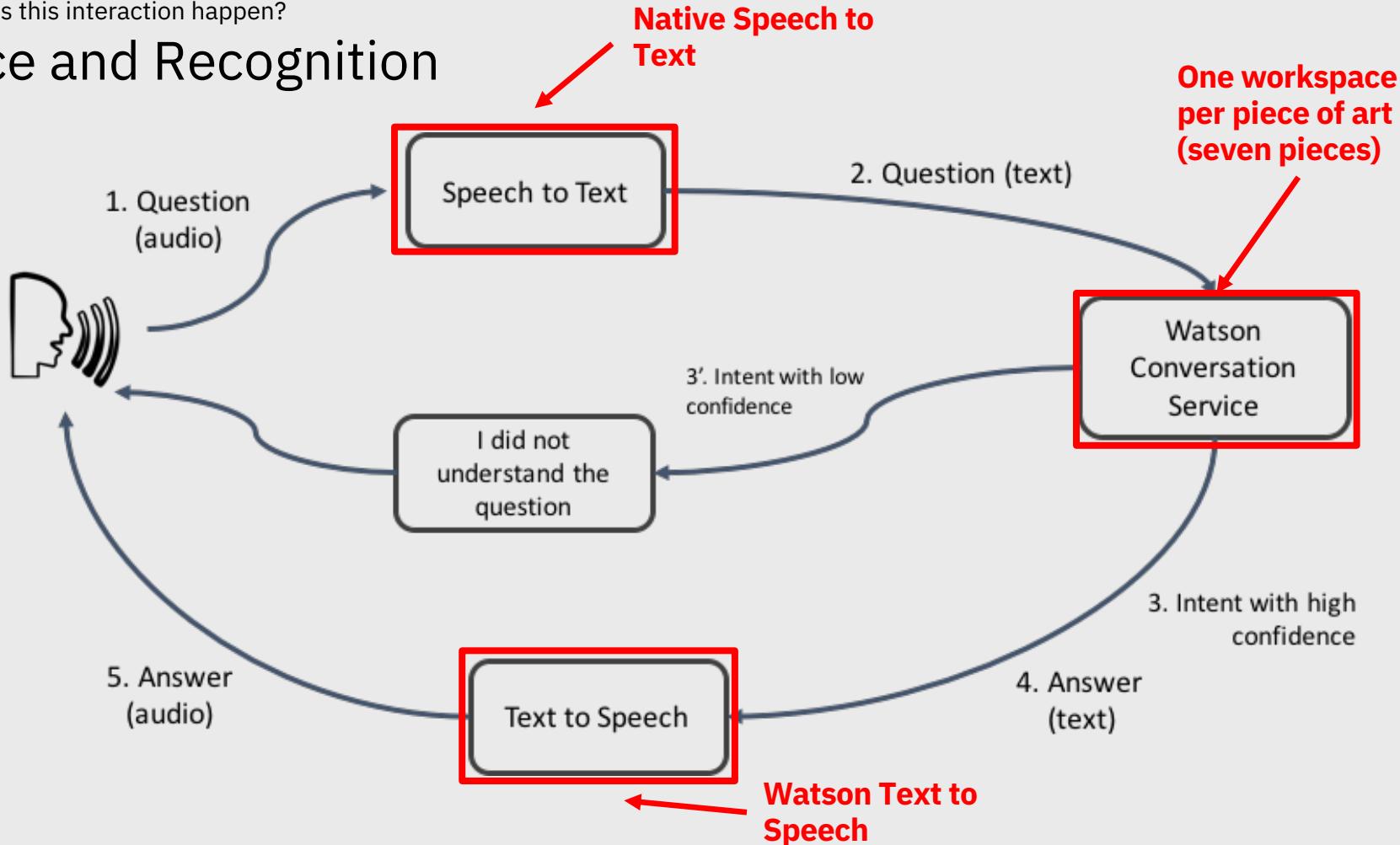


User Interface



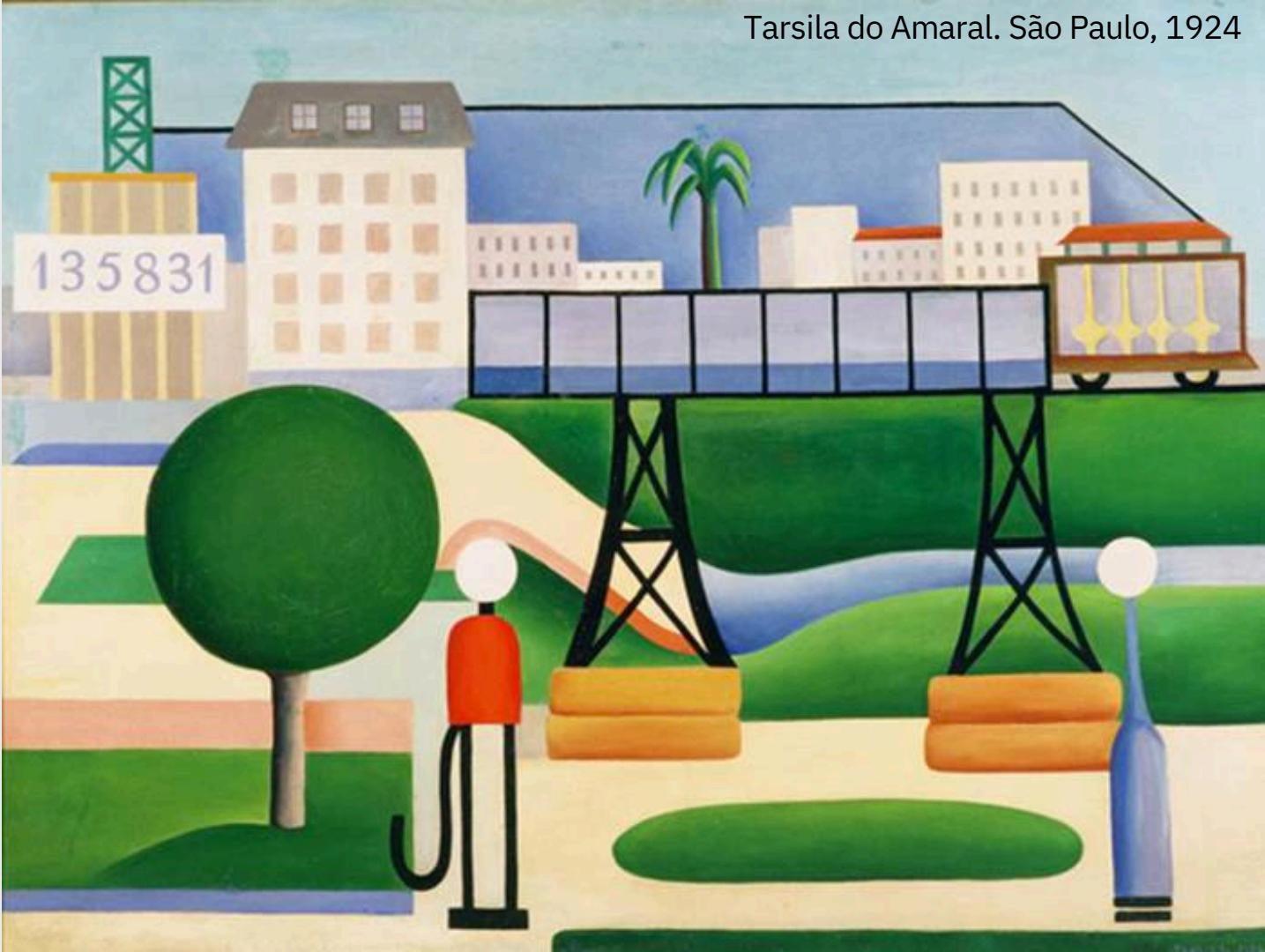
How does this interaction happen?

Voice and Recognition



The big **challenge**
is how to
implement a
system that can
understand every
question about
some works of art
and provide the
best answer to
most questions.

Tarsila do Amaral. São Paulo, 1924



Training

1

End Users ask questions
using the question
collector tool



Watson
Conversation
Service



Olá!

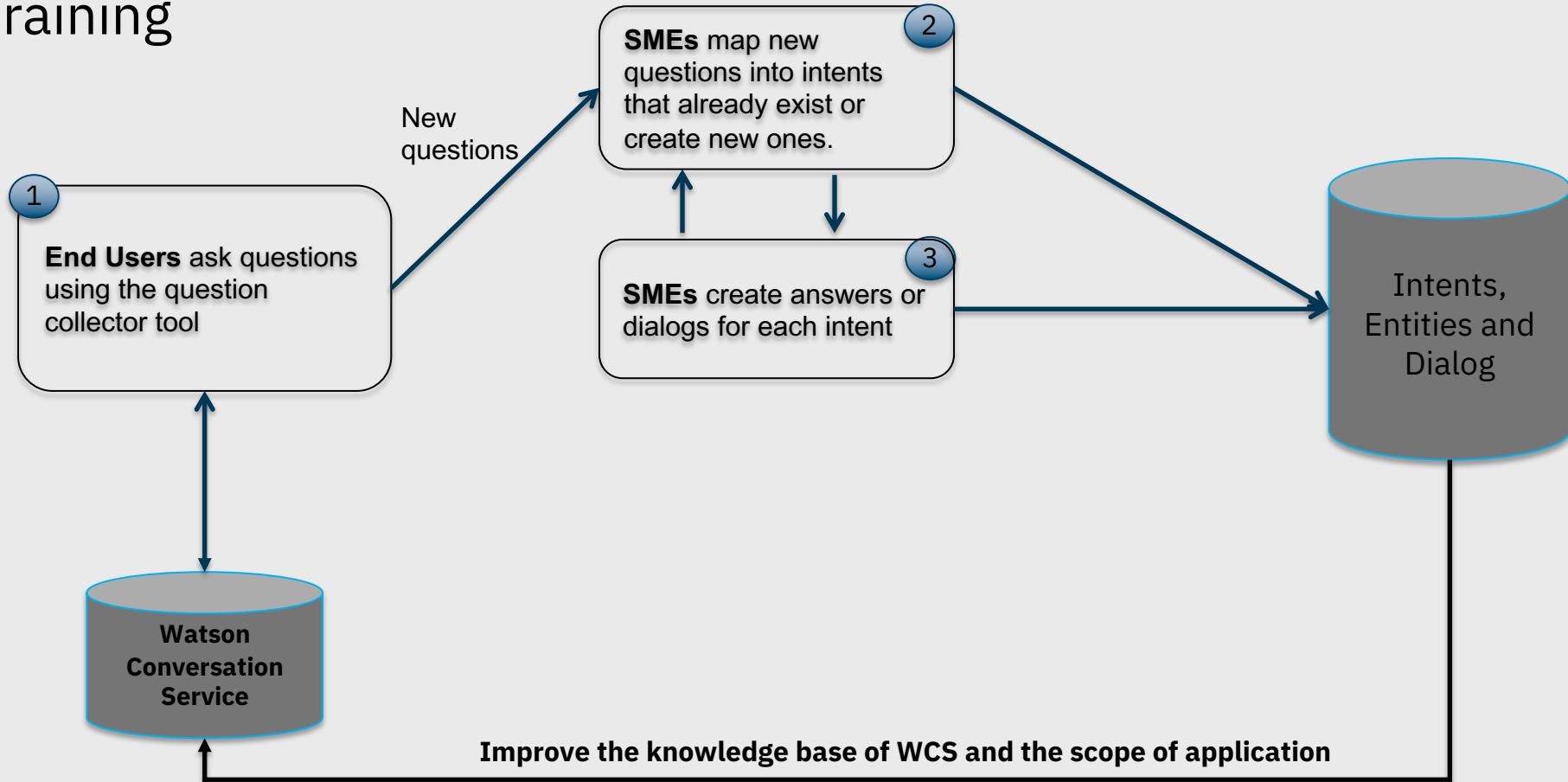
A seguir, você poderá nos ajudar a entender quais tipos de perguntas e curiosidades as pessoas gostariam de saber sobre 9 grandes obras de arte brasileiras.

[CLIQUE AQUI PARA COMEÇAR!](#)

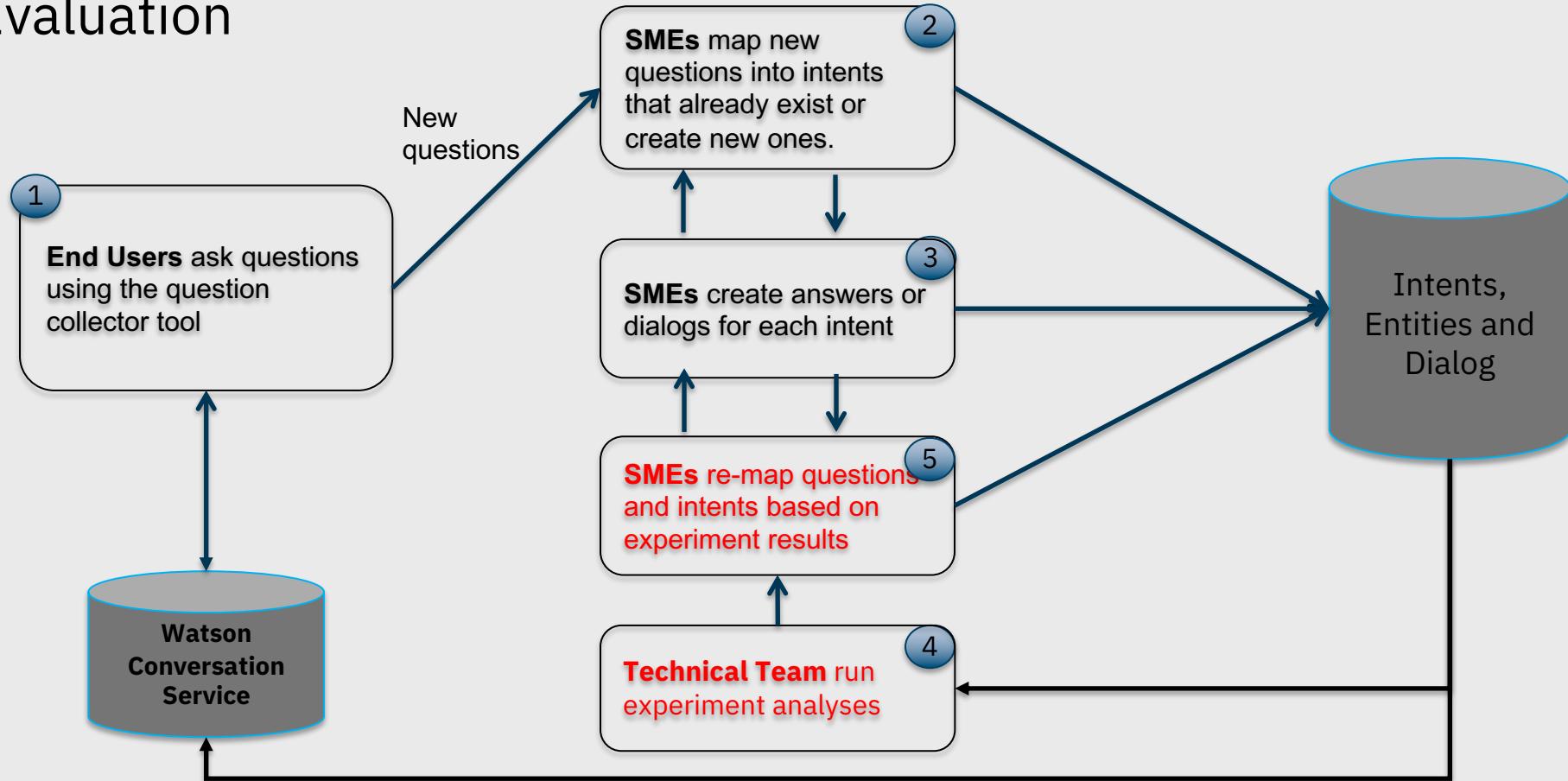
Hi!

In this site, you will help us understand the questions people might have and how curious they are about these 9 wonderful Brazilian pieces of art.

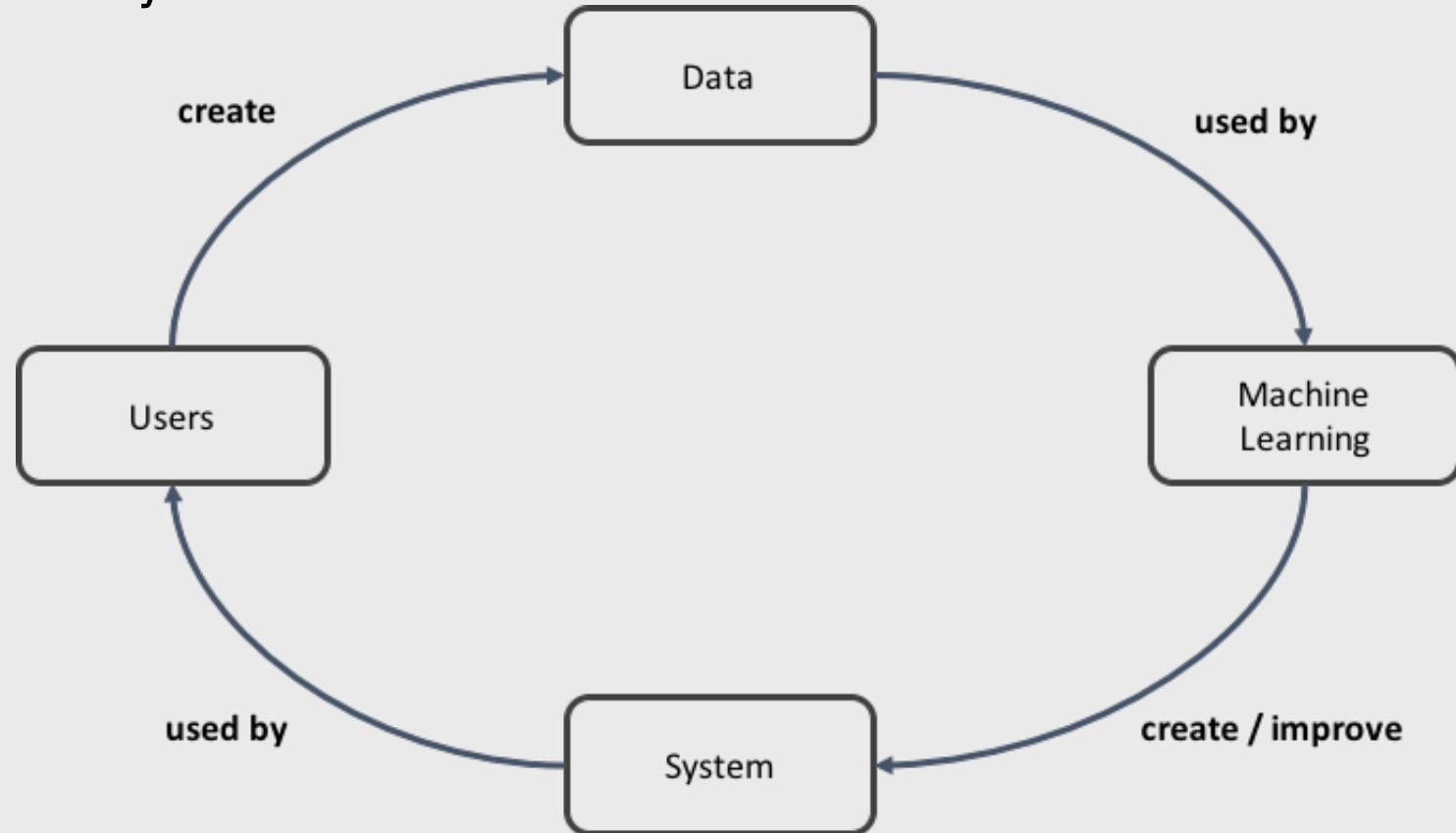
Training



Evaluation



Virtuous Cycle of AI



Virtuous Cycle

Artwork: São Paulo

Date	Dataset size	Quantity of Classes	p@1
11/09/16	330	17	0.80
11/21/16	885	25	0.78
12/07/16	885	25	0.81
02/02/17	975	25	0.84
02/18/17	975	25	0.85
02/23/17	975	25	0.85
03/03/17	975	25	0.86
03/08/17	975	27	0.85
03/16/17	975	27	0.86
03/17/17	1170	37	0.79
03/24/17	1750	50	0.84
04/01/17	2090	51	0.79
04/18/17	3005	51	0.89
05/09/17	4495	51	0.91
05/31/17	4500	51	0.92
08/18/17	4500	51	0.92

Artwork: Mestiço

Date	Dataset size	Quantity of Classes	p@1
11/09/16	375	7	0.61
11/21/16	915	7	0.57
12/07/16	1115	21	0.63
02/02/17	1215	24	0.74
02/18/17	1390	33	0.72
02/23/17	1395	34	0.71
03/03/17	1455	38	0.76
03/08/17	1455	38	0.81
03/16/17	1530	46	0.75
03/17/17	1530	46	0.69
03/24/17	1840	48	0.75
04/01/17	1950	48	0.75
04/18/17	2625	49	0.82
05/09/17	3600	50	0.84
05/31/17	4245	50	0.88
08/18/17	4245	50	0.88

Artwork: Bananal

Date	Dataset size	Quantity of Classes	p@1
11/09/16	NA	NA	NA
11/21/16	NA	NA	NA
12/07/16	NA	NA	NA
02/02/17	195	15	0.51
02/18/17	340	25	0.65
02/23/17	340	25	0.52
03/03/17	340	25	0.60
03/08/17	340	25	0.47
03/16/17	340	25	0.51
03/17/17	340	25	0.46
03/24/17	815	39	0.71
04/01/17	1105	44	0.72
04/18/17	2750	46	0.85
05/09/17	3460	46	0.88
05/31/17	4535	64	0.89
08/18/17	4540	64	0.87

Improvement of accuracy and coverage during several iterations.

Artwork: Porco

Date	Dataset size	Quantity of Classes	p@1
11/09/16	265	9	0.73
11/21/16	730	14	0.80
12/07/16	730	14	0.75
02/02/17	740	15	0.76
02/18/17	875	29	0.83
02/23/17	875	29	0.80
03/03/17	925	32	0.76
03/08/17	925	32	0.83
03/16/17	925	32	0.74
03/17/17	1070	41	0.75
03/24/17	1450	45	0.83
04/01/17	1960	48	0.80
04/18/17	2795	49	0.87
05/09/17	5865	51	0.93
05/31/17	6870	52	0.94
08/18/17	6880	52	0.94

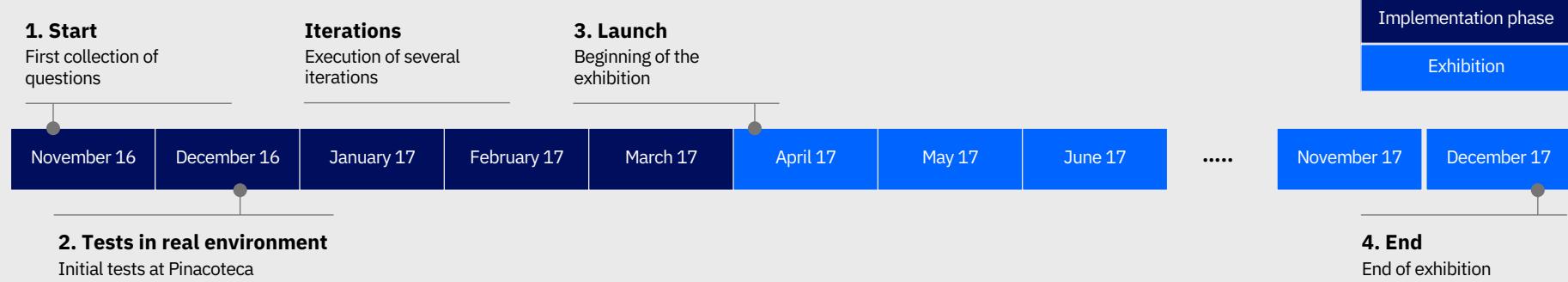
Artwork: Saudade

Date	Dataset size	Quantity of Classes	p@1
11/09/16	525	22	0.68
11/21/16	1195	25	0.83
12/07/16	1200	26	0.76
02/02/17	1340	27	0.81
02/18/17	1345	27	0.80
02/23/17	1450	33	0.82
03/03/17	1450	33	0.82
03/08/17	1450	33	0.81
03/16/17	1450	33	0.85
03/17/17	1450	33	0.85
03/24/17	1860	50	0.80
04/01/17	1950	50	0.83
04/18/17	2540	50	0.87
05/09/17	4020	50	0.90
05/31/17	4020	50	0.89
08/18/17	4270	50	0.90

Artwork: Lindonéia

Date	Dataset size	Quantity of Classes	p@1
11/09/16	NA	NA	NA
11/21/16	NA	NA	NA
12/07/16	NA	NA	NA
02/02/17	140	10	0.71
02/18/17	220	18	0.57
02/23/17	230	18	0.59
03/03/17	230	18	0.70
03/08/17	230	18	0.63
03/16/17	230	18	0.70
03/17/17	230	18	0.65
03/24/17	745	34	0.74
04/01/17	880	38	0.82
04/18/17	1135	38	0.79
05/09/17	3330	40	0.91
05/31/17	4145	40	0.93
08/18/17	4145	40	0.94

Timeline and Results



Results

- Earned media valued at US\$ 3.3 million;
- More than 60 PR stories, including a 4-minute segment on Brazil's leading soft news TV show;
- +6.4M views on YouTube and Facebook to date;
- 50% increase on the number of Pinacoteca's visitors in the first month;
- +26K people with direct contact with Watson to date

Awards

- Bronze – Cannes Lions Mobile 2017
- Bronze – Cannes Lions Cyber 2017
- Silver – Cannes Lions Radio 2017
- Bronze – Cannes Lions Outdoor Innovation 2018
- Grand Prix – Brazil
- Bronze – Innovative Use of Radio & Audio
- Graphite Pencil – Communication & Interaction



The Museum of Tomorrow

LINK: <https://museudoamanha.org.br/en>

- Science Museum
- Located in Rio de Janeiro, Brazil
- Offers a narrative about how we can live and shape our next 50 years on this planet.
- **Solution Benefits:** The Museum of Tomorrow and IBM Watson created an experience that inspires visitors to think about their role in society and truly participate in the search for more tolerance and a sustainable tomorrow.



Watson & Museum of Tomorrow

The initial interaction of the visitor with the system is through a voice dialogue. The conversation system guides this discussion. The **dialog** begins with a question:

SAMPLE CONVERSATION:

- *(Machine): The Museum of Tomorrow shows in its main exhibition the opportunities and challenges of this era of great transformation. Thinking about it, what worries you the most in today's world?*
- *(Visitor): Pollution*
- *(Machine): Pollution really is something of concern. Within this great theme, what else worries you?*
- *(Visitor): Contamination of waters.*
- *(Machine): Can you change that scenario? What can you do?*
- *(Visitor): Propose not to throw garbage anywhere.*
- *(Machine): Thank you very much for your participation.*

System then **recommends** some social initiatives connected to the concerns mentioned by the visitor.

Visitor can take an optional photo. Photo is projected on a large **visualization** video wall and it reveals **clusters** of people concerned about the same issues.

1 Dialog: WA asking questions



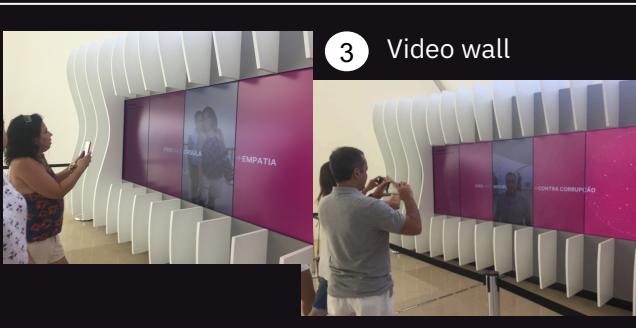
User Interface and equipment



2 Recommendation



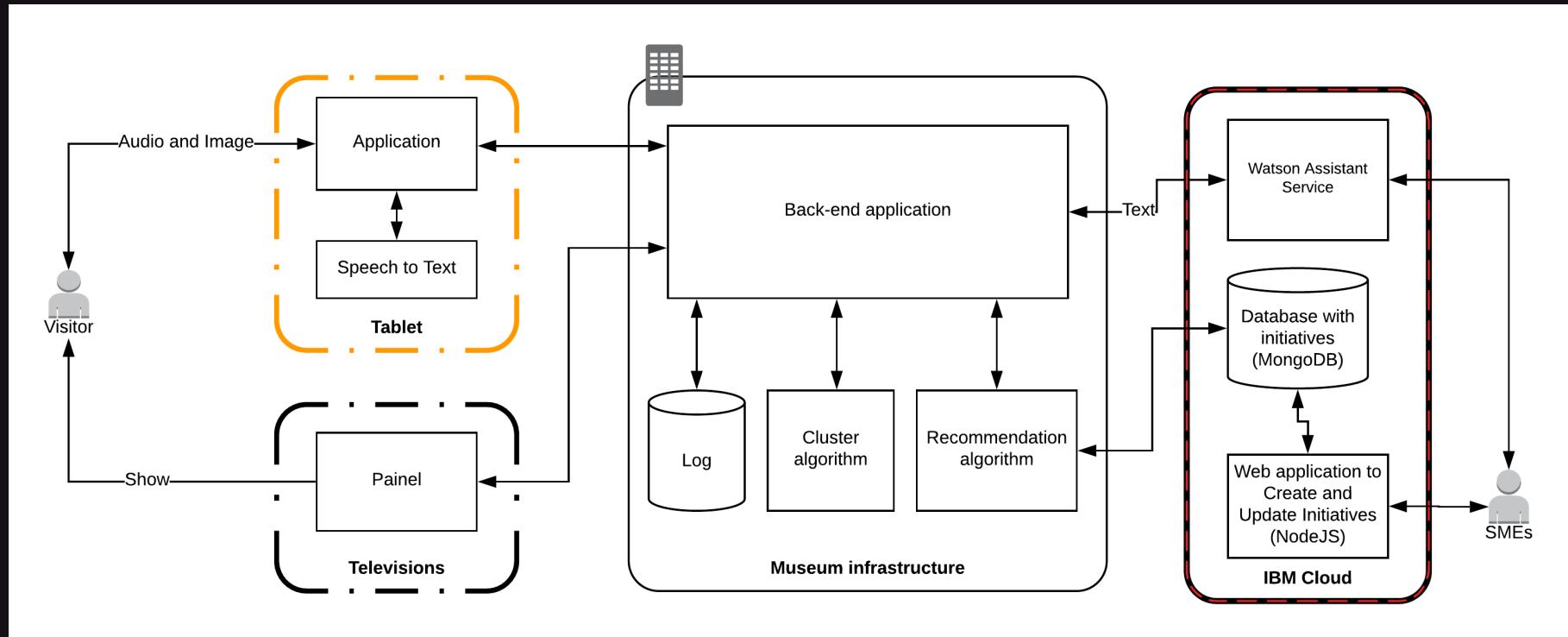
3 Video wall



4 Clusters

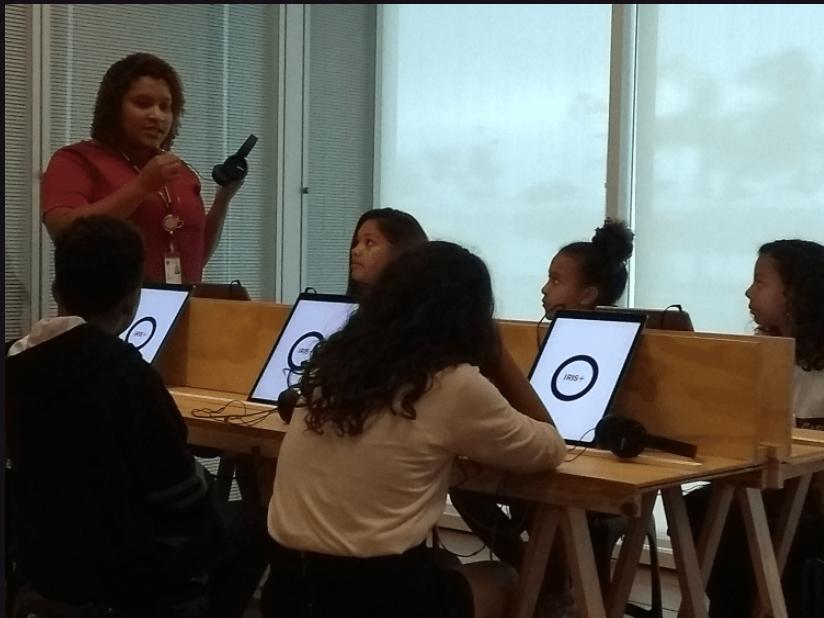


Watson & Museum of Tomorrow



Watson & Museum of Tomorrow: Timeline

1. Start	Iterations	3. Launch	4. Statistics to Date	Top concerns	Implementation phase
First collection of answers	Execution of several iterations	Beginning of the exhibition	11,629 conversations in March 757 max conversation per day	Ambiental degradation, Violence, Pollution, Global warming	Exhibition
August 17	September 17	October 17	November 17	December 17	January 18
.....	February 18	March 18	November 2020	December 2020

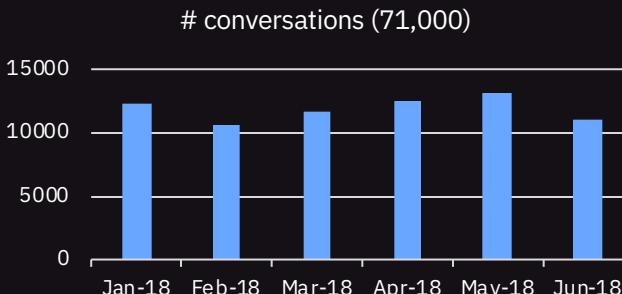


Training session

The solution was specified and implemented by the IBM Watson team and a software company specialized in museums.

The curators from the museum are responsible for the curatorship activities.

IBM Watson team:
Marcelo Tueiv: Cognitive Consultant
Marco Cardoso: Solutions Engineer
Fabricio Barth: Tech Lead



+70K people with direct contact with Watson to date

References

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IRIS+ Part Two: How to Embed a Museum’s Personality and Values in AI. <https://www.aam-us.org/2018/06/19/iris-part-two-how-to-embed-a-museums-personality-and-values-in-ai/>

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The National Museum of Anthropology .Mexico.