How an AI Powered Conversational Interface Altered the Relationship With Our Customers

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Company Profile

- Largest bank in Canada
- 6th Largest retail bank by assets in North America
- +16 million clients and has 80,000 employees worldwide
- Corporate headquarters are located in Toronto, Ontario
- Founded in 1864 in Halifax, Nova Scotia
- Over 1,200 branches in Canada and a growing footprint in the U.S.
- Over 120 branches across seventeen countries in the Caribbean

The Year Ahead

"Yesterday's Performance is Today's New Benchmark"

Transform, Accelerate, Rapidly Deliver and Innovate!

"In this increasingly instant and digital world, consumers don't plan their finances like they once did, which means we need to know our customers' needs, their wants, their ambitions, and their fears, often without ever asking them directly. We need to place ourselves in the context of their lives.

In short, we need to think of ourselves as their financial Siri."

Dave McKay, CEO RBC Royal Bank

Advice Centre Highlights

Mission Critical platform serving millions of clients each year

100 Million Incoming Calls Per year

24x7x365 Customer Support

55 million self-serve IVR transaction per year

Supporting **13,500** Agent Seats

Expanded **600** home based advisors

20+ terabytes of structured and unstructured data

5.6 million proactive contacts per year

#1 JD Power, Ipsos & Dalbar

Customer Service Overview

Available Channels and Business Lines Served

Call Center Chat Email Video

RBC P&CB

RBC Capital Markets

RBC Insurance

RBC Wealth Management

RBC Investor & Treasury Services

RBC T&O

Why Conversational?

Old technologies stood between us and a happy customer

DTMF IVR MENU TREE

- Customers get lost in IVR
- Many misrouted calls and Agent-to-Agent transfers
- Limited self-service availability and usage
- Lengthy average handling times
- Agents costs 5 times more than IVR

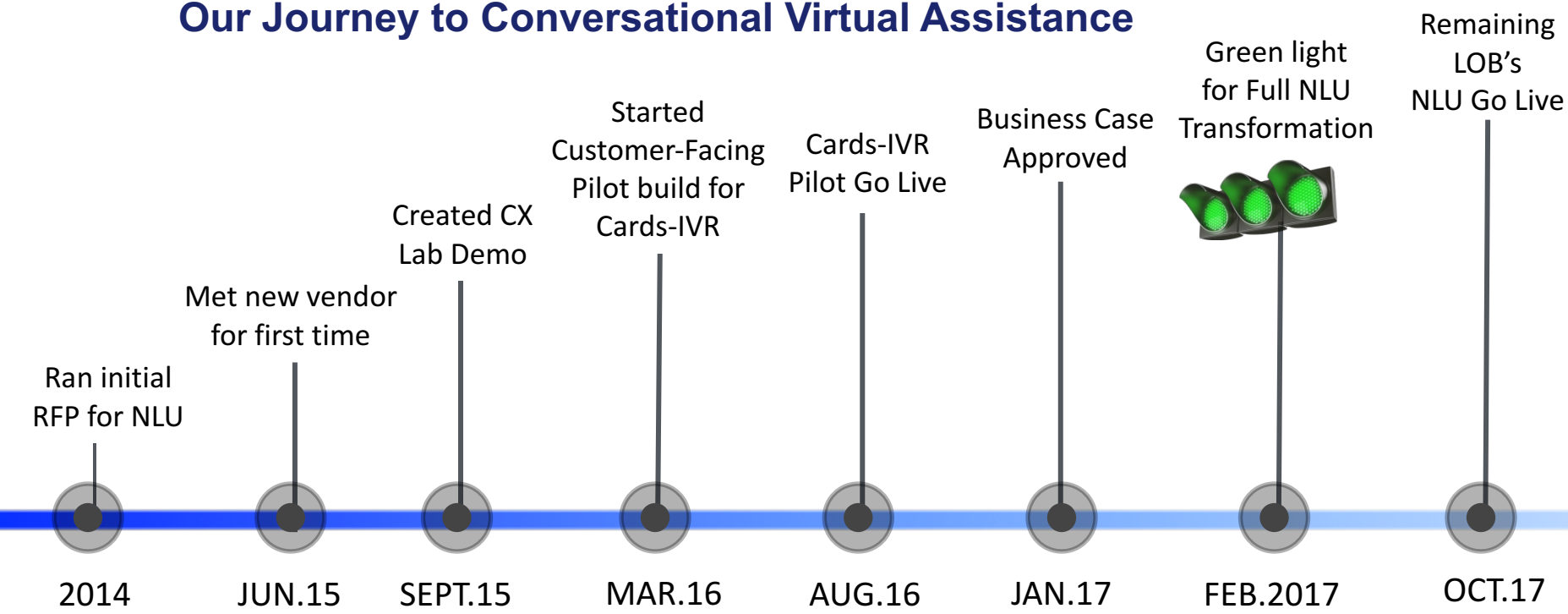
New Conversational Strategy Objective:

SEAMLESS HUMAN-LIKE COMMUNICATION USING THE MOST HUMAN-FRIENDLY INTERFACE EVER INVENTED — **V O I C E**

Technology should be invisible to the customer!

Getting Started with NLU

Our Journey to Conversational Virtual Assistance



Proving the Technology with a Pilot

Successful Conversational Pilot for Credit Card Service Line

- ✓ Classifies customer requests into +130 different intent categories and sub-categories
- ✓ Currently delivers 10 end-to-end Conversational Self-Services for Cards IVR

Tracking Results with Bi-weekly Supervised Reports

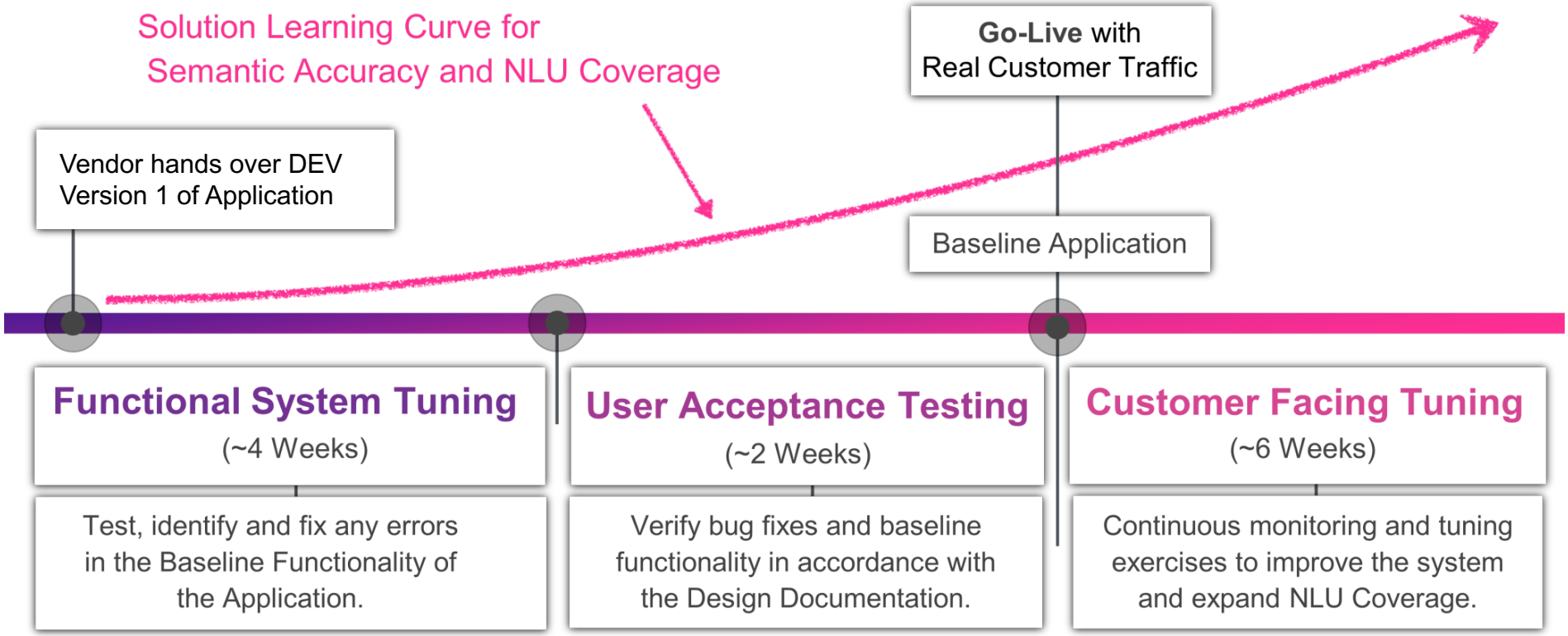
Business KPI's

- Authentication in IVR
- Self-service Automation & Containment
- Agent-to-Agent Transfers
- IVR Transfers to Advisors

Technical KPI's

- Semantic Accuracy (CISR)
- Task Completion Rate (TCR)

NLU Project Overview



Conversational Performance and Success Metrics

Industry Standard NLU KPI's measured bi-weekly with supervised reports

"Semantic Accuracy" — Concept Identification Success Rate (CISR)

CISR illustrates the extent to which the system successfully extracted the correct meaning out of the individual caller utterances (in %) is calculated by:

= Correctly Understood Utterances * 100 / Total Steps by Cooperative Users

"Successful Calls" — Task Completion Rate (TCR)

TCR represents the percentage of calls where DiaManT® successfully serviced the customer's request by correctly routing to the correct advisor or providing self-service (in %) is calculated by:

= Successfully Completed Calls * 100 / Total Calls By Cooperative Users

Pilot Results

Within 3 months of Pilot operation the system reached

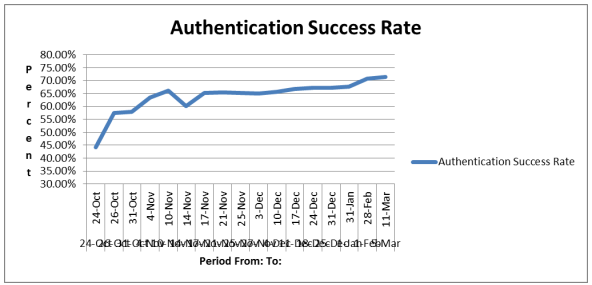
93% Semantic Accuracy & 86% Task Completion

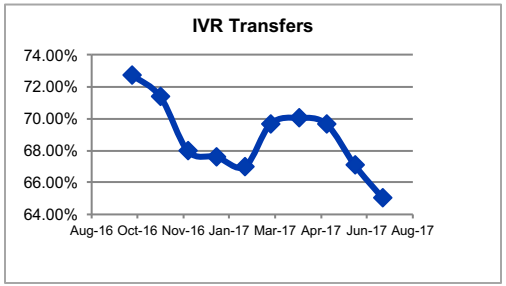
AUTHENTICATION SUCCESS
increased from
44% → **71.5%**

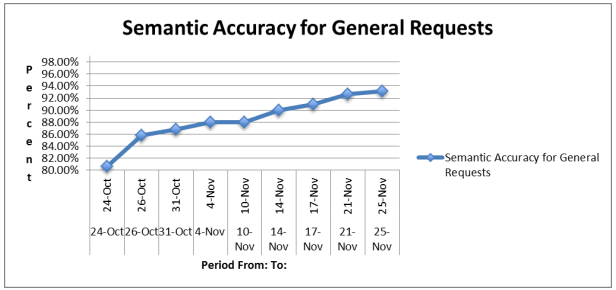
IVR TRANSFERS
decreased from
73% → **65%**

SEMANTIC ACCURACY
increased from
80.6% → **93.17%**

WORD ERROR RATE
decreased from
18% → **5.6%**







Improvement of metrics CONTINUES after transition from pilot to full production operation!

Business Benefits

Operational Improvements

Double digit increase in successful completion of self-service

Increased Call Capacity
(i.e. same amount of call volume with fewer ports required than old system)

Increased Client Satisfaction

Discovery of new convenient services to offer our clients

Client Lens on New AI Virtual Assistant

Less than 1% negative feedback

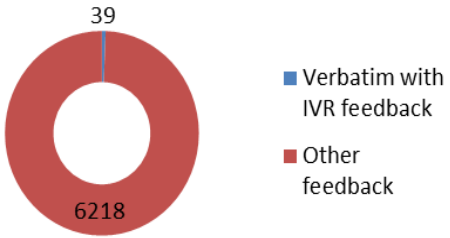
(sample of 1.45 Million calls)

50% of complaints related to issues that can readily be improved with further tuning,

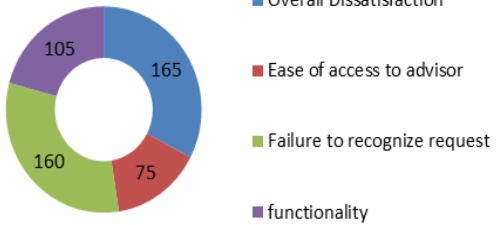
i.e. “did not understand my request correctly”

Voice of the Customer Filters

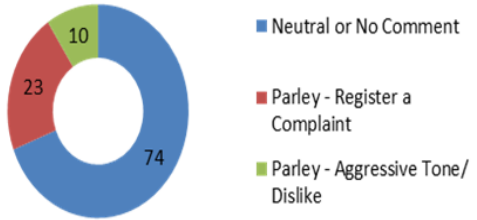
IPSOS Cards LOB Surveys = 6257



Complaint Volume Mar - July = 505 [1]



Call Listening = 107 calls [2]



Lessons Learned

- ✓ Open the tap as wide as possible from the start
- ✓ KPI Improvement = Continuous Training and Tuning = Data
- ✓ NLU (AI) testing methodology is not the normal way QA engineers think
- ✓ There are a billion ways people ask for the same thing – semantic tuning is key
- ✓ Adhere to standard human communication protocol with VUI design
- ✓ Selecting proper Voice Talent is extremely important for conversational feeling

Key Discoveries

We discovered a lot about **what our customers really wanted**, and what new services need to be developed in the call center for the **future.**

Importance of Open Architecture

Being open and able to try new technologies, such as Chatbots with the same platform , without need for new integrations.

PLUG INS | VOICE BIOMETRICS

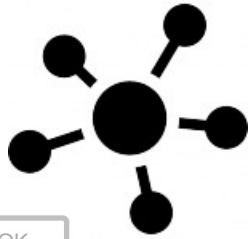
The Real Value of Data

All customer interactions with new vendor NLU system produce big data that is providing us with a priceless repository of knowledge.

INSIGHT | REAL TIME | ANALYTICS

Omni-Channel Strategy

Our customers want to have access to automated self-services using alternative channels of communication; SMS, Web Chat, Whatsapp, Facebook messenger and email. Our Dialogue manager needs to be Omni-channel if we are to continue improving.

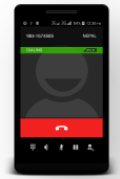


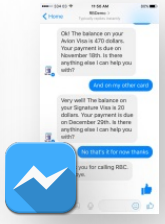
MULTI CHANNEL | SMS | WEB CHAT | WHATSAPP | FACEBOOK

Extending Parley Application to Digital Channels

Deploying One Application for Conversational NLU Self-Service on Digital Channels

Channels	Phone	Mobile App	Online	SMS	Whatsapp	Facebook
Media	Voice	Voice, Text, GUI	Text, GUI	Text	Voice, Text	Voice, Text, GUI





Design and Build VA Application Once, and Deploy on Multiple Channels

Optimized Interactions with Voice, Text, GUI & Rich Interactive Media

Thank You

Questions?

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