UNHCR, The UN Refugee Agency

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The Recruitment Process

Competitive Selection

to ensure we select the right person for the right job

Key Challenges

- Finding the best talent to hire
- Time
- Quality of hire

Time Intensive Application Screening

| Talent pools | 22,000 applications in 2018 |

| Externally advertised International Professional posts | 37,000 applications in 2018 |

For HR: **Not enough time left** for client oriented activities, including candidate nurturing and support

For our clients: **Slow processing of talent pool applications**, and open positions not filled as fast as possible with prospective talent, causing potential operational impact

Sept 2017 – New Recruitment & Assignments Policy

- DHR needed an automated solution for screening

- Struggling to find a way to use our HR system (PeopleSoft v9.2)

- 3rd party solutions were not cost-effective

...what about Artificial Intelligence...?

March 2018

HR meets Innovation

Artificial Intelligence in our Lives

Machines that Learn like Humans

- Algorithms are everywhere
  - ✓ Advertisements
  - ✓ Voting polls
  - ✓ Cryptocurrency
- Artificial intelligence is there to assist

Training ARiN at UNHCR

- Natural language processing of large text data
- Training sets to "teach" ARiN the right response for the input text it reads
- Machine learning is shown by the responses

Training ARiN to be unbiased

- Collaboration with UNHCR's Innovation team
- Training sets include samples from various regions and genders
- Continued monitoring
- Recruiters mark exceptions

Humans, the Recruiters, are still part of the process
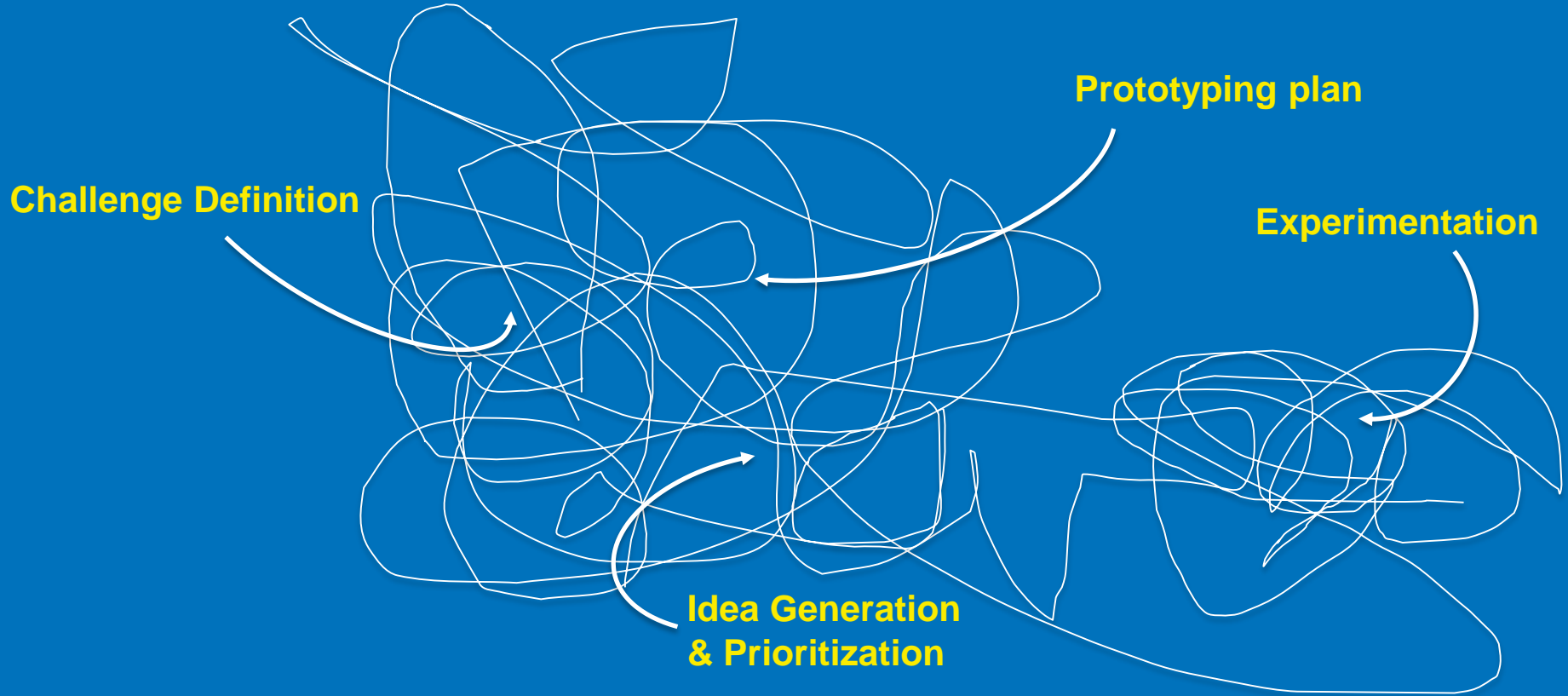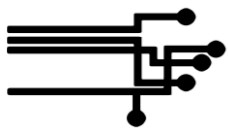
The Innovation Journey

Imagination
Creativity
Invention
Ideas
Process
Iteration
Solution
Improvement
Different

"The process of translating an idea or invention into a good or service that creates value."
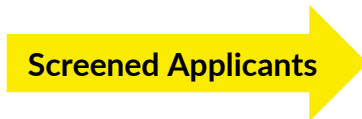(The Business Insider)

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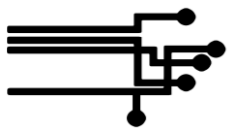
The Reality of Innovation

Prototyping plan

Challenge Definition

Experimentation

Idea Generation & Prioritization

ARiN and the HR System

Machine training & algorithms produce results

New/Updated Applicants, JO/Applicant Data (nightly process)

Validation of Pre-screening by Recruiters

Screened Applicants

MSRP HR

Oracle
PeopleSoft HCM v9.2

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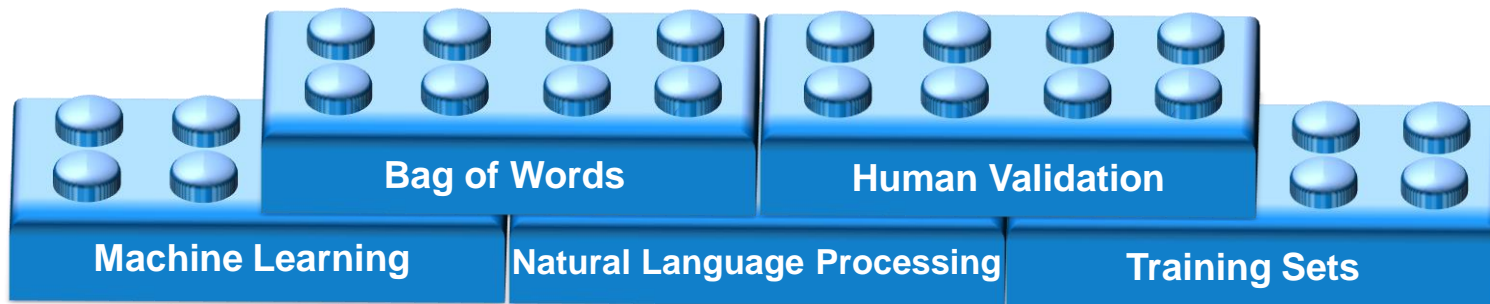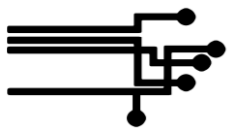
Components of ARiN

Artificial Intelligence is <u>not a robot</u> or system adapted for our needs, but a program which is built to serve/assist us.

Machine Learning · **Bag of Words** · **Natural Language Processing** · **Human Validation** · **Training Sets**

ARiN is part of the Team

ARiN
DHR Artificial Intelligence

Routine checks for new applicants and updated profiles	Checks for applicable, relevant work experience	Checks education credentials, calculates years of experience in seconds

Recruiters

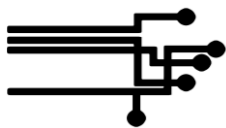|		
Machine learning and updates – bias control	Human validation and handle exceptions to ARiN results	Acceptance of pre-screening results

Once validated by the Recruiter, results are transferred to the HR System
for the next steps of the vetting process

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What does our A.I. look like?

How we maintain ARiN

Role	Skillset	Activities
Project Management (strategic design)	Research and Design	**Main focal point with business owners:** Coordinate all admin-related activities including contractual arrangements , communication with business owners and keep track of project advancements.
Data Scientist	Main computer language: R, and basic SQL (queries)	**Data analytics and communication with business owners:** establish process flows (creation of Asana) and conduct database analysis (dashboards with stats), drafting of data flow diagrams (DFD), creating code book for materialized view (MV).
A.I. Engineer (also developer)	Main computer language: python, proficient in R too.	**Main AI application architect, communication with developers:** design of the back-end A.I. component of the application (also known as engine); testing algorithms and score for classification , Use-case diagrams
UX/UI Designer (also developer / engineer)	Main computer language: Javascript, proficient in SQL too.	**Main designer:** creation of mockups and high-fidelity prototypes, front-end development, drafting of user-flow diagrams and site map and wireframing, brand designer, implementation of dashboards and user-friendly application features.
Full-stack Developer (engineer)	Main computer language: SQL, proficient in Python too.	**Main database management:** maintenance of server, drafting of sequence diagrams, back-end development and connection with A.I. engine, aggregation and queries for materialized view.

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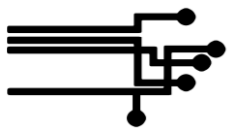
About ARiN Database/Tools

| Database	SQLite v3.7.17
Statistics Tools	Google Charts
Programming Languages & Framework	Python v2.7, Javascript, Tornado v5.1.1
AI Component	gensim==3.7.2, nltk==3.4.1
Front-end Development	Angular 7
Compatible Browsers	Chrome, Firefox
Web and application servers	SWIGENER001 CentOS 7
Collaboration technologies & Content and Document Management Systems	OneDrive, Asana, Google Docs, Google Drive, Microsoft Sharepoint
Code Host	AWS CodeCommit
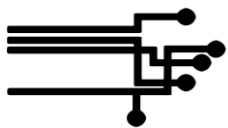
What ARiN is not

A magic program eliminating the need for human decision-making or knowledge

- AI programs help maximize outreach and candidate evaluations, and put human gatekeepers in a better, more informed position to hire the right people for the available jobs.

- AI help us "humans" think better, by providing the information we need to get things done.

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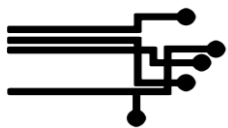
Lessons Learned

- Be clear about the problem to solve, before building the foundation
  - Know the end goal(s)
  - Find ways to ensure A.I. is non-biased
  - Machine is making decisions; do you, and how do you want to validate?
- Bring IT into the discussions early on
  - Where/how do you need integrations to other systems?
  - Lack of understanding of 'non traditional' technologies and interoperability with existing UNHCR systems
- Prepare to productionize and scale the solution
- Prepare for post-production support
- Communicate regularly
  - New technology is interesting; could spark other ideas
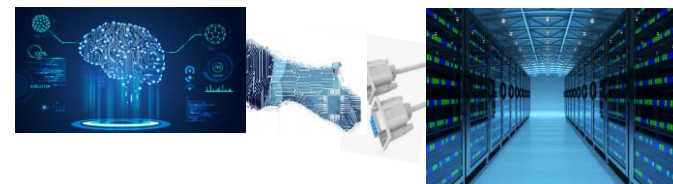
What's next?

ARiN Enhancements

- Improving usability and results for Talent Pool screening

Virtual Agents

- Exploring chatbot technology for various uses in HR

Collaboration

- Working with UN Secretariat (Inspira team) collaborating on ideas for a workforce 'Search Tool'
  - Applicants or Staff based on specific criteria
  - Exploring if/how AI can further help us with HR data and processing

Any questions?