+tellic

Data Science for Life[™]

Accelerating R&D for the Explorer Persona

May 14, 2020

Executive Summary: Accelerating R&D for the Explorer Persona

- Emerging & novel data + AI = opportunity to create "an unprecedented pace" for research;
- However, the many challenges include identifying which persona to engage (and how), solutions architecting the required UX, and automating data curation pipelines to support the solution at scale;
- Our approach has involved:
 - Identifying and focusing on the Explorer Persona, who wants a curated, graphic UX;
 - Architecting a Hybrid Index Solution that links a Graph and Search DB;
 - Implementing automated pipelines to curate data both for the graph UX and for search



Emerging & novel data + AI = opportunity to create "an unprecedented pace" for research



©2020 TELLIC LLC CONFIDENTIAL AND PROPRIETARY

3



However, there are numerous challenges with Varied Stakeholders preferences, GUI design and data curation

1. Engaging Varied stakeholder personas

2. Designing a GUI for Varied Data Structures



3. Curating Volumes of data (with Varied structures)



©2020 TELLIC LLC CONFIDENTIAL AND PROPRIETARY



4

250+ R&D user interviews surfaced three personas, each with unique preferences

	QUANT	EXPLORER	EXPERT
Title	Data Scientist	Associate Scientist, Drug Discovery	Senior Scientist, Therapeutic Area Lead
% of R&D HC	Low	High	Medium
Experience	3-10 years	1-5 years	10+ years
Preferred UX	Advanced queries	Dynamic GUI	(?) Prefers insights surfaced by colleagues
©2020 TELLIC LLC CONFIDENTIAL AND PROPRIETARY		5	+tellic

The Explorer wants to navigate between a graph GUI, a search UI, and link to sources



©2020 TELLIC LLC CONFIDENTIAL AND PROPRIETARY





Serving the Explorer UX with a hybrid-index solutions architecture



Hybrid Graph-Search Index

©2020 TELLIC LLC CONFIDENTIAL AND PROPRIETARY





Automated data curation pipelines that normalize biomedical acronyms for search

BIOMEDICAL TEXT

Sentence 1

Therefore, in **AD** and SCC patients, nuclear PIM1 expression level is an independent factor for DFS and OS and it might serve as a predictive biomarker for outcome.

Sentence 2

Together, it suggested that activation of NF-κB plays an important role in mediating neuroinflammation in AD.



AD is...

Adenocarcinoma MeSH ID: D000230 94% certain

Alzheimer's Disease MeSH ID: D000544 96% certain

©2020 TELLIC LLC CONFIDENTIAL AND PROPRIETARY

8

PATENTS PENDING

+tellic

Automated data curation pipelines that quantify semantic strength for graph

9

STRUCTURED & TEXT DATA (including annotated images and transcribed speech)

"Increased FH is associated with decreased symptoms and increased lifespan in patients with HbSC disease."

"Children with HbSS SCD and HBFG were excluded from the study, but children with the traits for hemoglobin S, hemoglobin C, thalassemia, and iron deficiency were not."

GRAPH DATABASE



©2020 TELLIC LLC CONFIDENTIAL AND PROPRIETARY

PATENTS PENDING



The Result: Serving the Explorer Persona with a dynamic GUI

+tellic graph.C19 🗈 save -	Search for nodes	Q 📽 jake 🚯 🗙	≡
Export - 💢 - 🧭 - 🎋 - 🏀 🔿 💥 🖇 ∞ 🍪 🥰	& 🔏 💋 🖉 🎤 🗎 - View -		
No datetime data were detected		🖬 Stat 🛛 Q Search 🚯 Detail 🌣 Settings	
Add more nodes and relationships to the visualization		Nodes 0 / 1 (selected / all) Relationships 0 / 0 (selected / all) m	nore
		Nodes Relationships —	+
•		+ Add property chart	
		▼ Therapeutic Area	:
	Neonatal Diseases and Abnormalities Hemic and Lymphatic Diseases 0 0.2 0.4 0.6 0.8 1	.0	
Anemia, Sickle Cell		 ✓ Entity Type Disease 0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1 	.0
		 Number of Hidden Relationships 1996 	
		0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1	.0
Privacy Policy Terms of Service		Suppor	rt
©2020 TELLIC LLC CONFIDENTIAL AND PROPRIETARY	10	+tellic	•

+tellic

We look forward to partnering with you

For a demo please contact demo@tellic.com| +1 212.221.8612 | tellic.com