

**UNITED STATES
PATENT AND TRADEMARK OFFICE**



Patents artificial intelligence (AI) tools

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November 19, 2020

Patent Public Advisory Committee quarterly meeting

UNITED STATES
PATENT AND TRADEMARK OFFICE



Agenda

- **Patents AI prototype for search**
 - Milestones in fiscal year 2020
 - Path forward in fiscal year 2021
- **Auto-classification**
 - Milestones in fiscal year 2020
 - Path forward in fiscal year 2021

Patent Public Advisory Committee quarterly meeting

Patents AI search

Vision for AI search in patents

Leverage AI to assist the examiner in retrieving all potentially relevant prior art references for review at the earliest stage of prosecution.

The screenshot displays a patent search interface with several panels:

- Search History / Collections:** Shows 'Current Result Similarity' with a table of prior art results.
- Search Results:** Shows a search for 'touch NEAR (screen)' with 'CPC Suggestions' and 'Similarity Insight - BETA' tabs. A 'Sel 1...20' list is visible.
- Document Viewer:** Shows a document page with a 'Patent A.I. Prototype' overlay.

Current Result Similarity Table:

ID	Results	Query Name	DBs	O...	Actions
L7	1,322,...	touch NEAR (screen)	US-PGPUB USPAT...	OR	🔄
L6	114,894	LCD AND G02B.cpc1	US-PGPUB USPAT...	OR	🔄
L5	94,536	OLED AND H01L51\$.cpc	US-PGPUB USPAT...	OR	🔄
L4	0	OLED AND H01L51\$.cpc	US-PGPUB USPAT...	OR	🔄
L3	1,445,...	touch NEAR (screen OR display)	US-PGPUB USPAT...	OR	🔄
L2	497,497	OLED	US-PGPUB USPAT...	OR	🔄
L1	1,855,...	LCD	US-PGPUB USPAT...	OR	🔄

Search Results Panel:

Search: touch NEAR (screen)
CPC Suggestions: touch NEAR (screen)
Similarity Insight - BETA

Default Operator: OR | Highlights: Multi-color

Options: Show Errors, Plurals, British Equivalents, Prior Art, Interference

Search Results: 2617 Loaded | 23109 +

Document Viewer Panel:

Document id: US-10698701-B1 to Concept 1

3 / 2617 ranked similarity result

Was this source helpful? (thumbs up/down)

Show me similar documents in context of: only this search, this document

	1. Concept 1	2. Concept 2	5. Th...
1	1		
2	2		
3	3		
1845	1851		
2569	2575		
295	309		
296	310		

Patent A.I. Prototype Overlay:

Patent A.I. Prototype

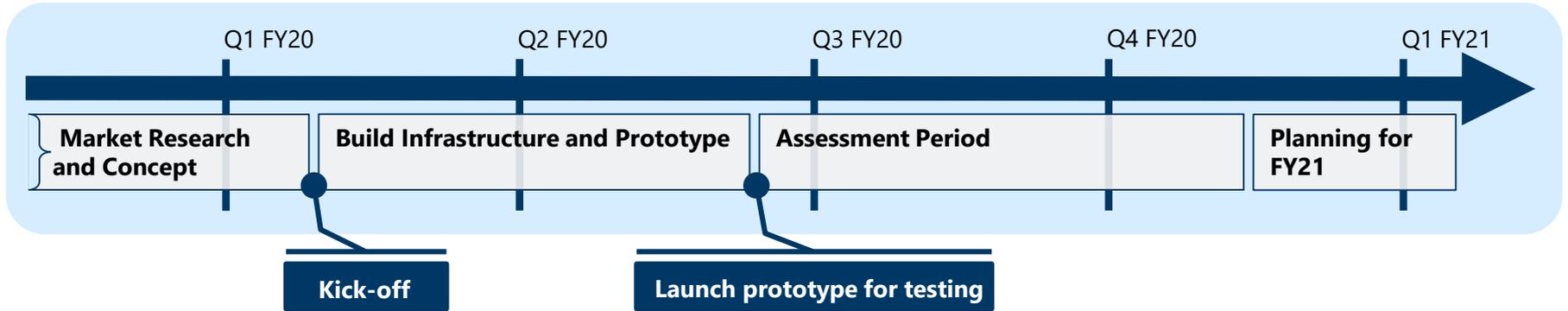
On: Plugin is enabled. Learn about the specific capabilities [here](#)

"When enabled, the plugin only processes results sourced from public databases and for US patents."

v3.1.1

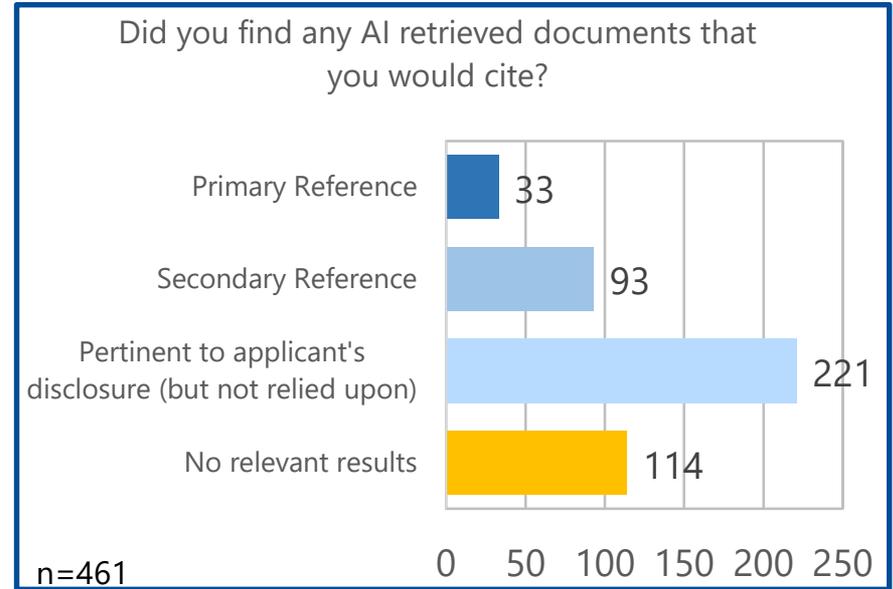
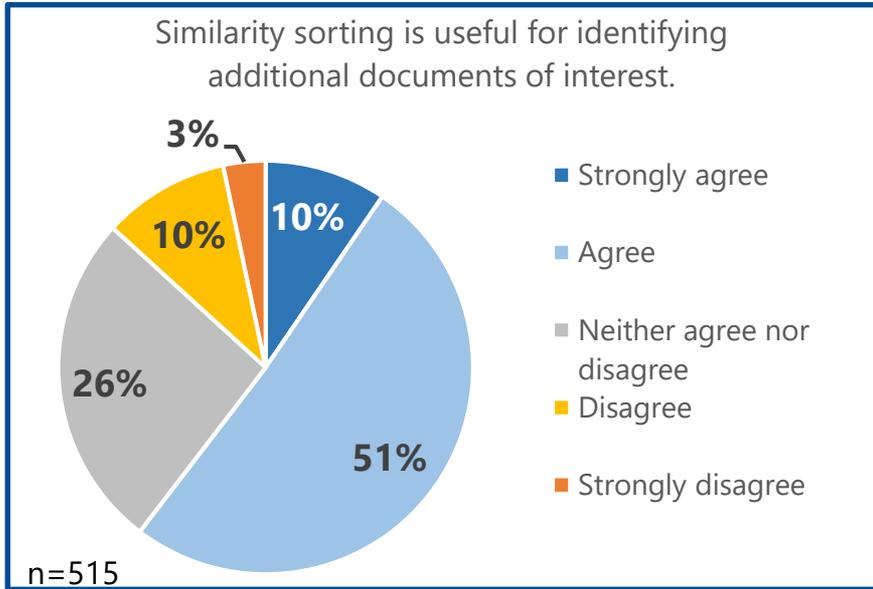
Plugin Enabled

Milestones in fiscal year 2020



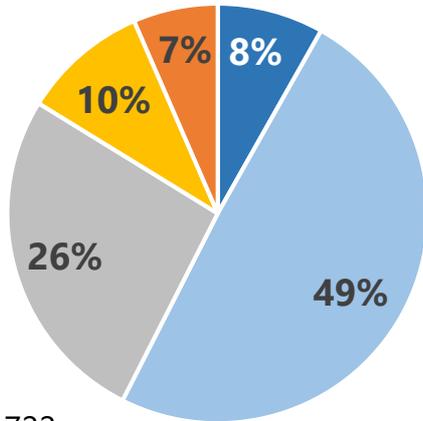
- Initial prototype ready for assessment 4 months from kick-off
- Assessment period extended from March – July 2020
 - ~700 unique survey responses from ~300 unique users
 - In-depth engagement sessions with volunteers

Selected assessment results



Selected assessment results

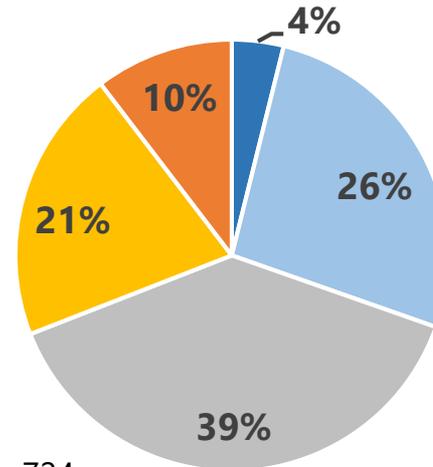
The AI provided me with a more enhanced search than traditional searching methods.



- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

n=722

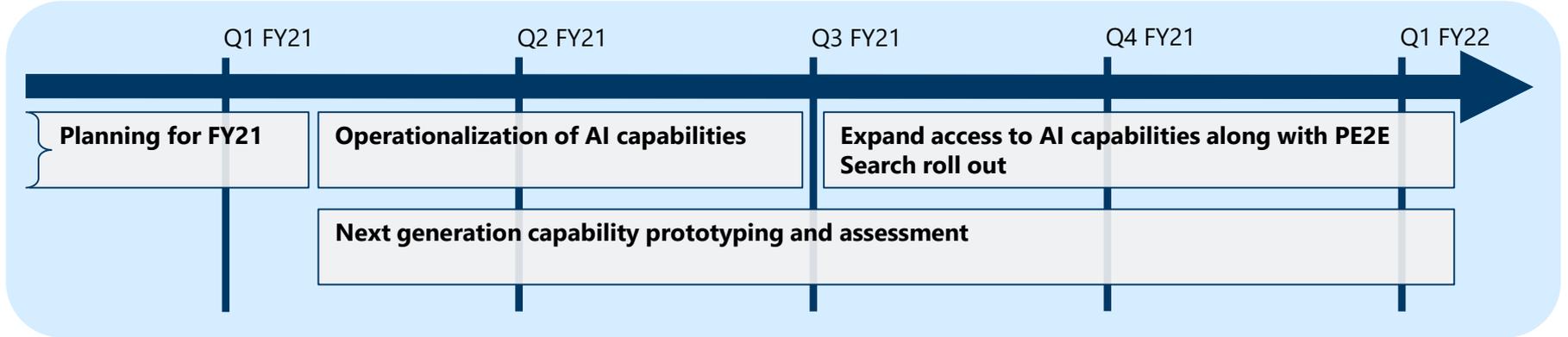
I found prior art I would not have otherwise found by using the prototype.



- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

n=724

Path forward in fiscal year 2021



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Auto-classification

Vision for CPC auto-classification

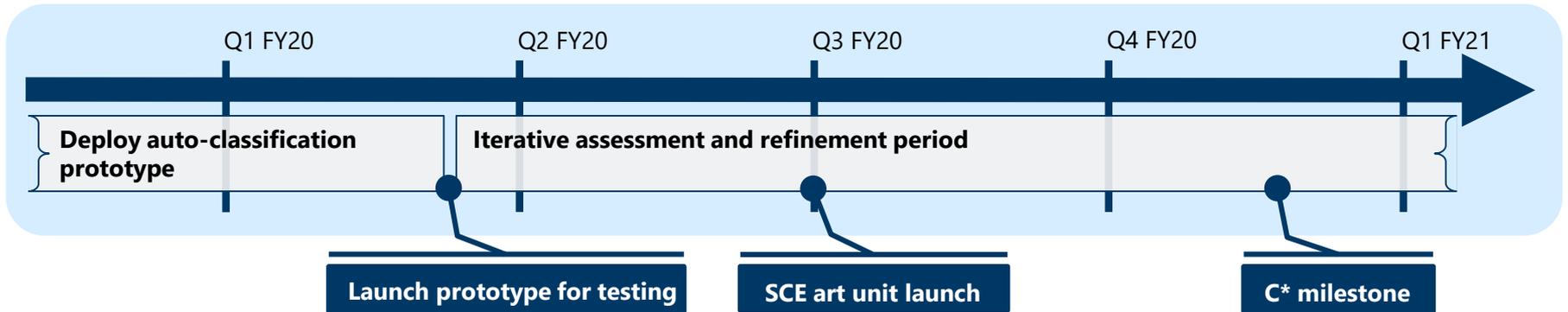
Mature auto-classification system to generate CPC data to meet internal needs and international obligations for classification.

CPC allocations	C*
G01S 7/4863	★
G01S 7/4865	★
G01S 7/4917	
G01S 13/89	★
G01S 7/4914	★
G01S 17/894	

(12) United States Patent Marron	(10) Patent No.: US 10,000,000 B2 (45) Date of Patent: Jun. 19, 2018
(54) COHERENT LADAR USING INTRA-PIXEL QUADRATURE DETECTION	(56) References Cited
(71) Applicant: Raytheon Company , Waltham, MA (US)	U.S. PATENT DOCUMENTS
(72) Inventor: Joseph Marron , Manhattan Beach, CA (US)	5,093,563 A * 3/1992 Small G02B 27/58 250/201.9
(73) Assignee: Raytheon Company , Waltham, MA (US)	5,751,830 A 5/1998 Hutchinson 2003/0076485 A1 4/2003 Ruff et al. 2006/0227317 A1* 10/2006 Henderson G01B 11/026 356/28
	FOREIGN PATENT DOCUMENTS
	WO WO 2005/080928 A1 9/2005



Milestones in fiscal year 2020

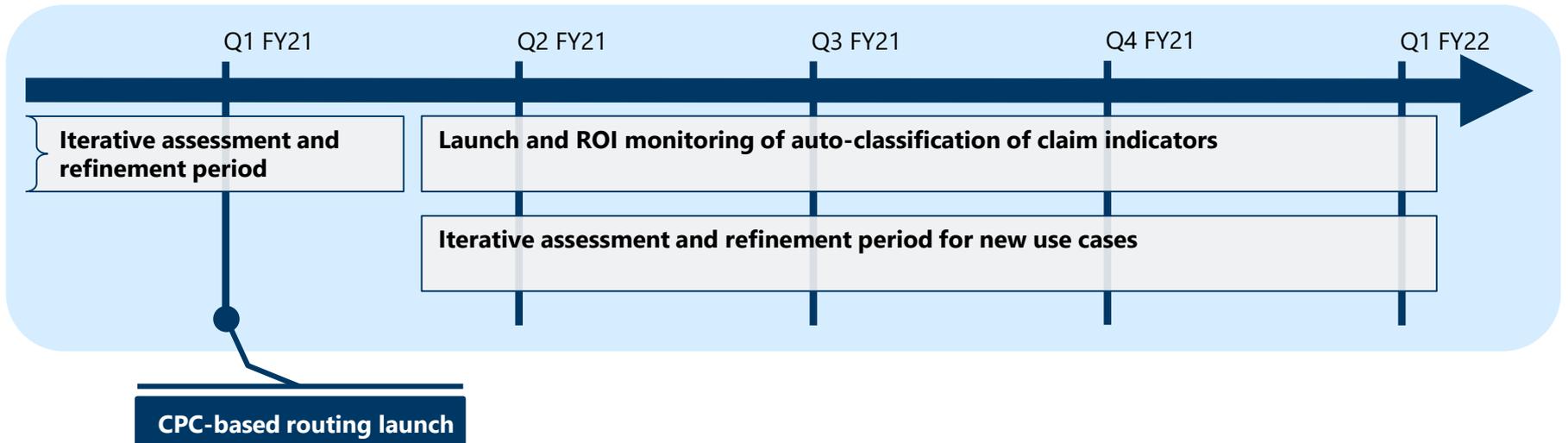


Assessment of auto-C*

	Auto-C*	Applied C*
# of symbols reviewed	1141	1228
Accuracy	64.77 %	65.96 %
Precision	76.58 %	76.95 %
Recall	75.68 %	79.08 %
Specificity	33.33 %	23.71 %
F ₁ score	76.13 %	78.00 %

$$F_1 \text{ score} = 2 \cdot \frac{\text{precision} \cdot \text{recall}}{\text{precision} + \text{recall}}$$

Path forward in fiscal year 2021





Thank you!

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