



PROVINCIA AUTONOMA DI TRENTO



TRENTINO

Artificial Intelligence in Land Registration

A survey on the potential application of Artificial Intelligence
in land registry

June 11th, 2025

Trento

A survey conducted by Alessandro De Gaetano, Lorenzo Marcolla, Enzo Petrich
and Elena Prada



ELRA20

European Land Registry Association ANNIVERSARY



Context and Objectives of the Survey

- **Why this survey?**

To explore how artificial intelligence could be applied in land registry work and identify opportunities, challenges, expectations, and concerns.

- **Who participated?**

Land registrars, land registry assistants and administrative staff.

- **What did we investigate?**

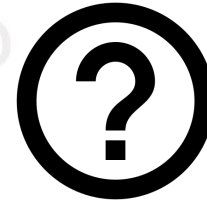
Hopes and fears related to the introduction of AI in daily work tasks.

- **Purpose:**

To gather insights that can guide future AI implementation strategies in our organization.

Methodology

How we conducted the survey

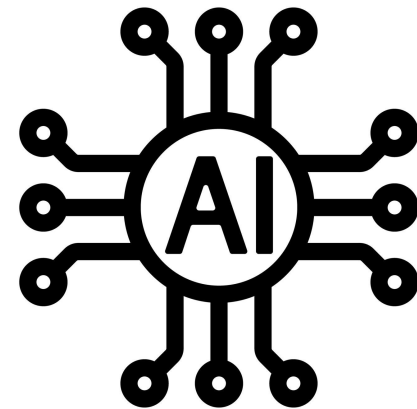


1. Pre-survey preparation

A few months before the survey, colleagues received informative “pillars” containing basic information about AI, including:

- a. Key capabilities (e.g., data analysis, learning and control abilities)
- b. Regulation: AI ACT and Guidelines of the “Agenzia per l’Italia Digitale” (*Agency for Digital Italy*)

c. Artificial intelligence is still in an embryonic stage, as its **training and development can only begin with the input and expertise of the people directly involved in the work.** Therefore, the active participation and collaboration of all workers is essential to shape effective and reliable AI solutions



AI ACT - Regulation (EU) 2024/1689



«the **purpose** of this Regulation is to improve the functioning of the internal market and **promote the uptake of human-centric and trustworthy artificial intelligence** (AI), while ensuring a high level of protection of health, safety, fundamental rights enshrined in the Charter, including democracy, the rule of law and environmental protection, against the harmful effects of AI systems in the Union and supporting innovation (art. 1)»

«providers and deployers of AI systems shall take measures to ensure, to their best extent, a sufficient level of **AI literacy** of their staff and other persons dealing with the operation and use of AI systems on their behalf, taking into account their technical knowledge, experience, education and training and the context the AI systems are to be used in, and considering the persons or groups of persons on whom the AI systems are to be used (art. 4)»



Guidelines of the “*Agenzia per l’Italia Digitale*”

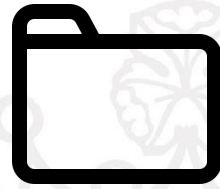


- **Compliance and governance:** respect laws and define clear management frameworks.
- **Ethics and inclusion:** ensure fair, non-discriminatory AI use.
- **Quality and reliability:** guarantee safe and dependable AI solutions.
- **Innovation and sustainability:** promote advanced technologies respecting economic and environmental sustainability.
- **Training and organization:** develop adequate skills for involved personnel.

These principles aim to ensure responsible, transparent, and effective AI adoption in the Italian public sector.



2. Data collection



- a. Data were collected **anonymously** over a period of two weeks via **Google Forms**.
- b. The questionnaire was addressed to all our colleagues: land registrars, land registry assistants and administrative staff.



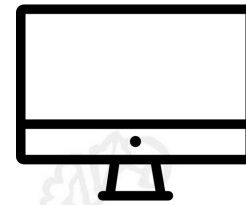
The choice of anonymity and Google Forms



- **More honest and authentic responses:** Anonymity puts participants at ease, who feel free to express honest opinions without fear of judgment or repercussions.
- **Increased participation:** Knowing that the responses are anonymous encourages more people to participate in the survey, increasing the response rate and the representativeness of the sample.
- **Ease of use and accessibility:** Google Forms is user-friendly and accessible from different devices (desktop, tablet, smartphone), making it easier to fill out the questionnaire at any time and place, further improving the response rate.



3. Data Analysis Approach



Data were analyzed primarily according to two criteria:

Role: Land Registrar, Land Registry Assistant, Administrative Staff

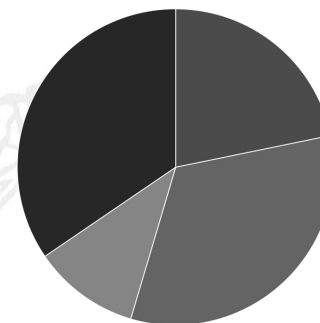
Age

This approach allowed us to identify differences in perceptions and expectations based on professional position and age.

Both quantitative and qualitative data were examined to extract meaningful insights.



THE QUESTIONNAIRE



Questionario sull'IA nel Libro Fondiario

Obiettivo

Il presente questionario mira a raccogliere il parere dei colleghi sull'applicazione dell'Intelligenza Artificiale (IA) nel Libro fondiario, individuando opportunità, criticità, aspettative e preoccupazioni. I dati raccolti saranno utilizzati come base per una relazione ed una discussione approfondita al workshop ELRA (European Land Registry Association), che si terrà a giugno a Trento, con la partecipazione dei Conservatori dei registri immobiliari di tutta Europa.

A supporto del questionario, ricordiamo che è possibile consultare le pillole informative sull'IA trasmesse dal Servizio in data 13 Marzo 2025.

Info generale

◆ **Compilazione:** Il questionario è anonimo e richiede circa 15 minuti ◆

Avanti

Pagina 1 di 8

Cancella mod

Hai mai utilizzato strumenti basati su IA nel tuo lavoro? *

- ☐ Sì, regolarmente
- ☐ Sì, ma solo occasionalmente
- ☐ No, mai
- ☐ Altro: _____

Quale di queste applicazioni dell'IA conosci o hai sentito nominare? *

- ☐ Riconoscimento ottico dei caratteri (OCR) per la digitalizzazione dei documenti
- ☐ Analisi automatizzata dei testi legali
- ☐ Chatbot per l'assistenza agli utenti
- ☐ Sistemi predittivi per stimare tempi di lavorazione delle pratiche
- ☐ Algoritmi per l'individuazione di anomalie o incongruenze nei dati
- ☐ Altro: _____

General profile of respondents

Age groups

25-50

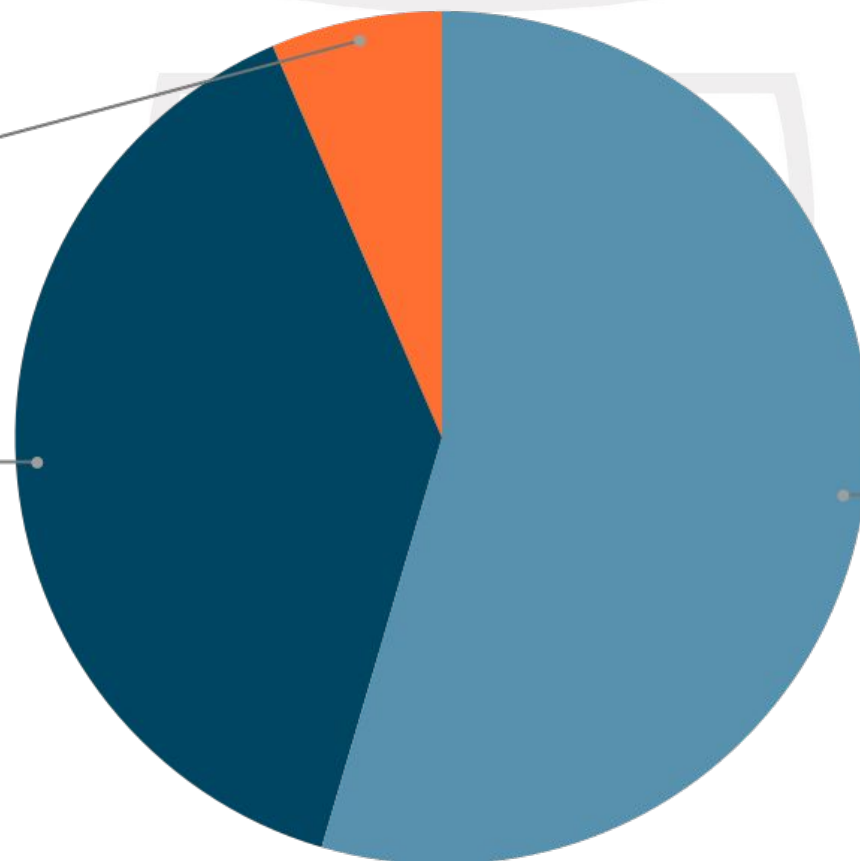
6,5%

36-50

39,0%

over 50

54,5%



Role

Assistants

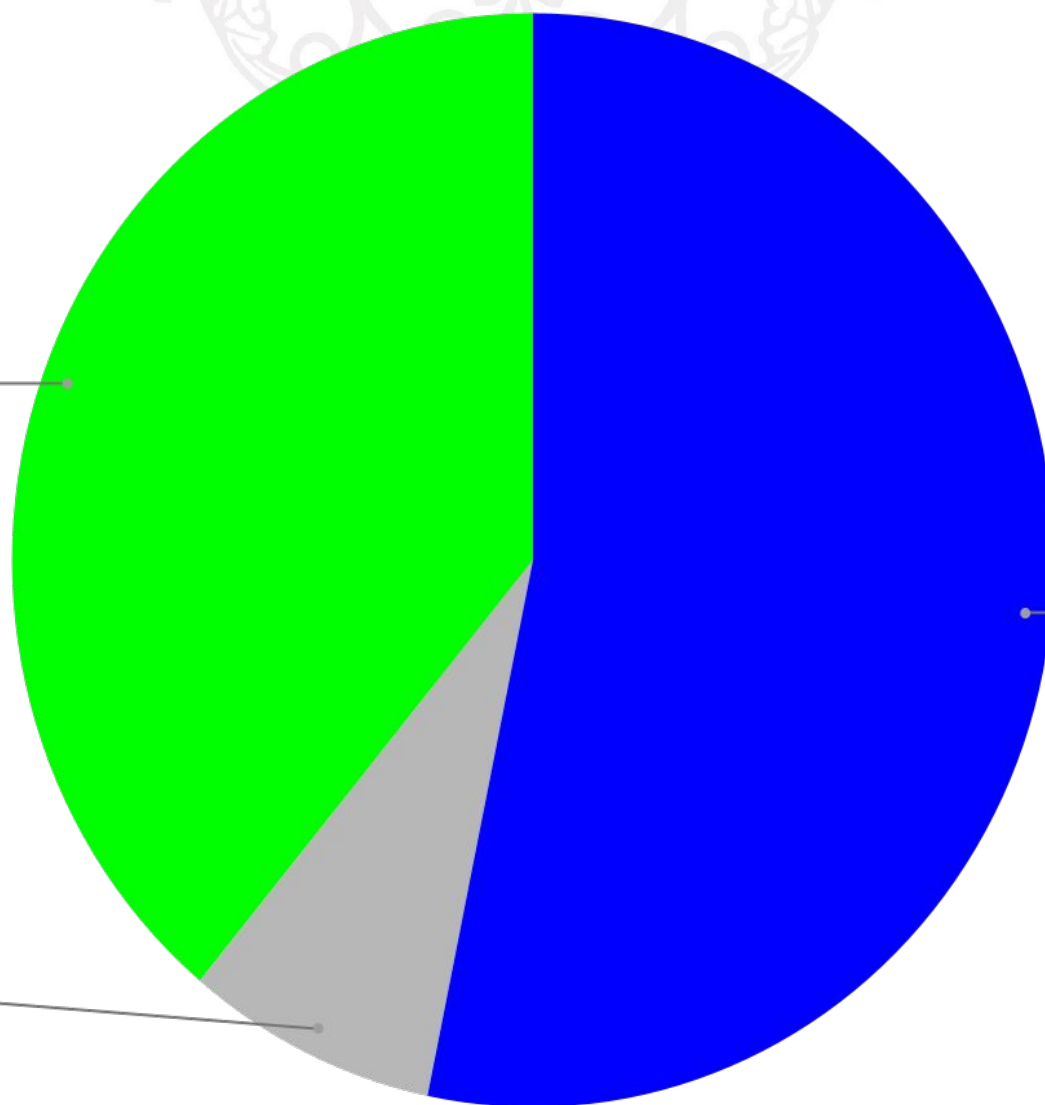
39,0%

Registrars

53,2%

Admin. staff

7,8%



Seniority (years)

5 - 10

10,4%

11 - 20

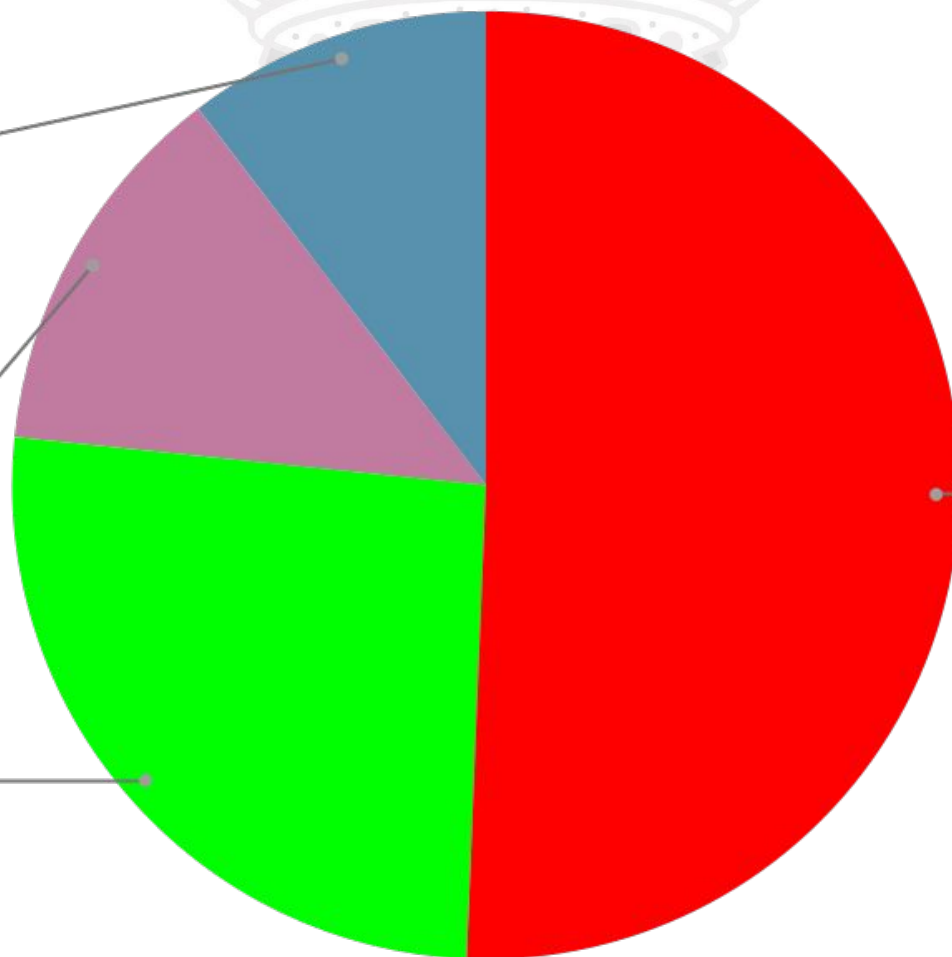
13,0%

< 5

26,0%

> 20

50,6%



Insights from Administrative Staff



Aspect	Age Groups	
	Over 50 (3 respondents)	25-50 (3 respondents)
Digital Skills	Good	Good
AI knowledge	Low	Low
Use of AI in daily life/work	Rare/Known	Rare/Known
View on current tech	Good	Good
AI for daily applications journal	Favorable	Favorable

Insights from Administrative Staff

AI for marking with the registration number - drafting of decrees - execution of decrees	No	Yes, but with human control
AI for consultation	Yes, but only for simple consultation	Yes, but only for simple consultation
Perceived change role	Minimal	Minimal
Overall attitude	Fairly positive, moderate concern	Very positive, low concern

Insights from Land Registry Assistants



Aspect	Age Groups		
	Over 50 (17 respondents)	26-50 (11 respondents)	25-35 (2 respondents)
Digital Skills	Good to intermediate; comfortable with necessary IT tools for their tasks (only one respondent reported low skills)	Good to intermediate; comfortable with necessary IT tools for their tasks	Good; Comfortable with necessary IT tools for their tasks
AI knowledge	Mostly general (only 3 respondents reported good AI knowledge)	Mostly general	1 respondent reported good AI knowledge; 1 general
Use of AI in daily life	Majority never use AI (5 reported occasional use; 4 rare, 1 daily)	Mixed use, mostly occasional (4 reported to never use it, 2 rarely, 4 sometimes and 1 daily)	Occasional use only
Use of AI at work	Almost none (occasional use reported by 1)	Almost none (occasional use reported by 2)	None

Insights from Land Registry Assistants



Current system usability	Half consider systems improvable, half find them comfortable and easy to use	Generally less critical, more satisfied (5 respondents consider the systems quite comfortable and easy, 3 consider it improvable, 3 have a “neutral” position)	Neutral to positive
Familiar AI tools	OCR (most known), chatbots, algorithms for consistency checks, predictive timing systems		



Insights from Land Registry Assistants

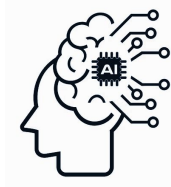
AI in key tasks



Tasks			
Journalizing	Mostly (9) favorable but with operator control; some (6) prefer manual only; the rest (2) believe that the activity can be carried out by AI	More favorable to AI (3) but majority (7) still wants human oversight	Mixed views (one reported that AI can perform the task autonomously, one believes human control is necessary)
Marking with the registration number	Similar to journalizing	Similar to journalizing	Similar
Drafting of decrees	Majority (9) reported human control like necessary; 4 reported that the task should be carried out by land registrars only; the rest (3) considered that AI could be carry out this task	Almost all (9) want land registrar control	Human control

Insights from Land Registry Assistants

AI in key tasks

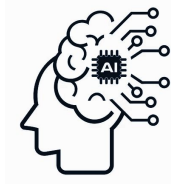


Tasks		
Decree execution	Most considered AI useful with human control (11); 4 reported that the task should be carried out exclusively by humans; the remaining 2 considered AI very useful	Same as over 50: useful with operator (8); exclusive operator role (2); AI very useful (1)



Insights from Land Registry Assistants

AI in key tasks

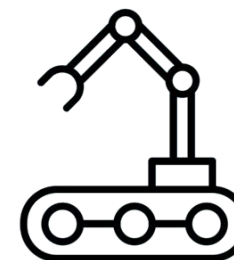


Tasks			
Consultation	AI only for simple consultation (12); some reported that AI should not be used (3); the rest considered it very useful (2)	Same as over 50: AI for simple consultation only (9); very useful (2)	AI for simple consultation only (2)
Case Assignment & Time Prediction	Director control preferred by majority (8); exclusive director role (5); useful (3)	Director control overall preferred (8); but a greater number (2) of respondents consider AI very useful than those (1) who believe that only the director can carry out this activity	Exclusive director (1); director control (1)

Insights from Land Registry Assistants

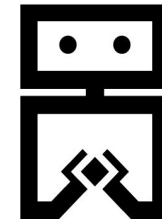
Main potential applications

Potential applications	1. Journalizing 2. Marking with registration number	Same as over 50	1. Journalizing 2. Map-plan overlay
-------------------------------	--	-----------------	--



Insights from Land Registry Assistants

Impact on the quality of work and the role



Impact on Work Quality	- 6 positive - 3 negative - 8 neutral	- 7 positive - 4 neutral	2 positive
Role Impact	Majority of respondents (10) expected partial changes in role; 4 expected significant changes and only 2 expected no change	Similar proportions as Over 50	Both expect partial changes

Insights from Land Registry Assistants

Main concerns about AI



Main Concerns	<p>Slightly more respondents are concerned about machine dependence; another relevant concern is job loss fears. Then difficulty adapting to new technologies and AI errors</p>	<p>Top concern is job loss, then machine dependence and privacy risks. difficulty adapting to new technologies is less reported</p>	<p>Job loss and security risks</p>
---------------	---	---	------------------------------------

Insights from Land Registry Assistants

Benefits of AI

1. Error reduction
2. Increased efficiency
3. Resource optimization
4. Improved accessibility



Insights from Land Registry Assistants

AI & Environment Awareness



- Over two-thirds aware of high energy consumption

- Most consider reducing energy use important (except 4)

- Only 2 know green AI initiatives

- Majority see no positive climate impact; some negative

- 2 consider AI sustainability training irrelevant

- Almost all consider reducing energy use important

- Slightly higher awareness of green initiatives (3)

- Mostly negative climate impact views; some positive

- Strong consensus on sustainable AI training

- Almost all consider reducing energy use important


- Some awareness of green initiatives

- Mostly negative climate impact views; one positive

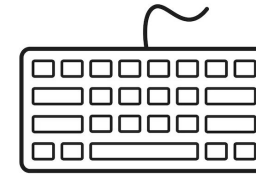
- Strong consensus on sustainable AI training

Insights from Land Registry Assistants

Final considerations

	<p>All agree on need for (on this order):</p> <ol style="list-style-type: none"> 1. Basic AI principles 2. Technical training 3. Interpretation skills <p>All respondents (except 3) are interested in practical courses</p>	Same as Over 50	Same as Over 50
Training Needs	Favorability Toward AI	Average score: 3.0 (scale 1–5)	Average score: 3.5
Level of Concern	Average score: ~3.0 (slightly lower than others)	Average score: ~3.0	Average score: ~3.0

Insights from Land Registrars



Aspect	Age Groups		
	Over 50 (22 respondents)	26-50 (16 respondents)	25-35 (3 respondents)
Digital Skills	Good to intermediate (except 5 low, 1 advanced); comfortable with necessary IT tools for their tasks (only two respondents reported low skills)	Good to intermediate; comfortable (in particular, 8 fairly comfortable, 6 very comfortable) with necessary IT tools for their tasks	Good; Comfortable with necessary IT tools for their tasks
AI knowledge	All know AI, 2 with good knowledge	All know AI, 3 with good knowledge, rest generic	1 good knowledge, 2 generic
Use of AI in daily life	Overall, rarely used (10 rarely, 5 never, 5 sometimes, 2 daily)	overall, sometimes used (3 never, 2 rarely, 6 sometimes, 5 daily)	1 rarely, 2 sometimes
Use of AI at work	Almost none (occasional use reported by 3)	Almost none (occasional use reported by 4)	2 occasional, 1 never

Insights from Land Registrars



Current system usability	9 improvable, 7 fairly good, 2 very good, 4 neutral	Generally less critical, more satisfied (8 respondents consider the systems quite comfortable and easy, 6 consider it improvable, 2 have a “neutral” position)	2 improvable, 1 fairly good
Familiar AI tools	OCR (more known), chatbot, legal text analysis , anomaly detection algorithms		



Insights from Land Registrars

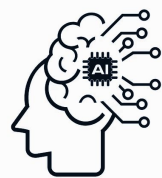
AI in key tasks



Tasks			
Journalizing	Almost equality of opinions from respondents: 10 considered that AI could carry out the task, 10 reported AI should work under human control, 2 consider that the activity should be carried out only by humans	Total equality of opinions from respondents: 8 very useful, 8 with human control	1 useful, 2 with human control
Marking with the registration number	Half of the respondents reported human control as necessary; 8 considered that AI could carry out the task, 3 reported that only human should carry out the activity	11 with human control, 4 very useful, 1 only human	Similar

Insights from Land Registrars

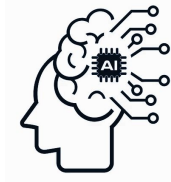
AI in key tasks



Tasks			
Drafting of decrees	Majority (15) reported human control like necessary; 3 reported that the task should be carried out by land registrars only; the remaining (4) considered that AI could be carry out this task	Majority (13) reported human control like necessary; 2 reported that the task should be carried out by land registrars only; the remaining one considered that AI could be carry out this task	1 very useful, 1 only registrar, 1 control
Decree execution	Most considered AI useful with human control (15); 4 reported that the task should be carried out exclusively by humans; the remaining 3 considered AI very useful	Similar to over 50: useful with operator control (10); exclusive operator role (3); AI very useful (3)	1 only assistant, 1 very useful, 1 control

Insights from Land Registrars

AI in key tasks



Tasks			
Consultation	AI only for simple consultation (13); some reported that AI should not be used (4); the rest considered it very useful (3)	Same as over 50: AI for simple consultation only (10); very useful (3); only human role for this task (3)	AI for simple consultation only (3)
Case Assignment & Time Prediction	Director control preferred by majority (12); but a consistent minority consider AI very useful (8) for this task; only two respondents prefer an exclusive director role (2);	6 very useful, 5 director control, 3 only director, 2 only for assignment not time prediction	2 very useful, 1 only director

Insights from Land Registrars

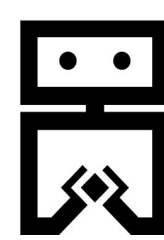
Potential applications

1. Journalizing
2. Marking with registration number
3. Map-plan overlay
4. Decree drafting
5. Precedent search
6. Error analysis



Insights from Land Registrars

Impact on the quality of work and the role



TRENTINO

Impact on Work Quality	- 12 positive - 2 negative - 8 neutral	- 10 positive - 4 neutral	3 positive
Role Impact	Majority of respondents (14) expected partial changes in role; 3 expected significant changes and only 5 expected no change	Similar proportions as Over 50	2 only some aspects, 1 significant change

Insights from Land Registrars

Main concerns about AI



Main Concerns	Top concern is machine dependence, then job adaptation, errors, and privacy (in order)	AI errors, privacy, adaptation, AI machine dependence, job loss (in order)	Job loss, adaptation	privacy,	dependence,
---------------	--	--	----------------------	----------	-------------

Insights from Land Registrars

Benefits of AI

1. Resource optimization
2. Error reduction
3. Efficiency
4. Speed
5. Accessibility



Insights from Land Registrars


AI & Environment Awareness



<ul style="list-style-type: none"> - Almost three-fourths aware of high energy consumption - Most consider reducing energy use important (except 1) - 7 know green AI initiatives - 15 have no idea of what impact AI can have on climate change; 6 believe the impact is negative, only 1 positive - only 1 considers AI sustainability training irrelevant 	<ul style="list-style-type: none"> - Three-fourths aware of high energy consumption - Almost all consider reducing energy use important - Slightly higher awareness of green initiatives (5) - Mostly negative climate impact views; some positive - Only 1 considers AI sustainability training irrelevant 	<ul style="list-style-type: none"> - Everyone aware of AI energy use - All three consider reducing energy use important - Only 1 aware of green initiatives - Mostly (2 out of 3) negative climate impact views; one positive - Strong consensus on sustainable AI training
---	--	--

Insights from Land Registrars

Final considerations

 Training Needs	<p>All agree on need for (on this order):</p> <ol style="list-style-type: none"> 1. Basic knowledge; 2. interpretation of AI products; 3. Technical training <p>Overall preference for practical training</p>	<p>Same as Over 50</p>	<p>Same as Over 50</p>
Favorability Toward AI	<p>Average score: 3.73 (scale 1–5)</p>	<p>Average score: 3.75</p>	<p>Average score: 4</p>
Level of Concern	<p>Average score: 2.4</p>	<p>Average score: 2.3</p>	<p>Average score: 2.3</p>

Conclusions & Takeaways



- AI is broadly welcomed as a **support tool** for routine, technical, and error-prone tasks, but not as a replacement for human expertise.
- Key concerns include **machine dependence**, job security, adaptation to new technologies, and—among younger staff—privacy risks.
- The **environmental impact of AI is perceived negatively**; there is strong support for greener and more sustainable AI solutions.
- **Training** is seen as essential for successful AI adoption, especially practical and **technical courses**.
- Attitudes toward AI are consistent across seniority levels, with younger and more digitally skilled staff showing slightly higher favorability.

Thank you for your attention!



Now... it's your turn!

Feel free to participate to our survey: scan the QR codes with your phone!



1) Do you believe that the current technologies used by the land registry are effective, or do you think there is room for improvement?

033

Yes, they are effective



No, there is room for improvement



2) Do you believe that AI tools (such as chatbots) could be useful in providing automated responses or legal advice to users?

030

Yes



No



3) Do you believe that AI tools could adequately analyze a legal document for the purposes of land registries?

030

Yes



No



4) What do you consider the main benefit AI could bring to the land registry?

030

Error reduction



3 %

Increased efficiency



40 %

Resource optimization



23 %

Improved accessibility to data



10 %

Faster procedures



23 %

5) What is your main concern about introducing AI in the land registry?

0 2 9

Job loss



Dependence on machines



Difficulty adapting to new technologies



AI errors



Privacy and data security risk



6) What suggestions do you have for an effective and sustainable implementation of AI in the land registry?

(1/2)

0 1 9

- The AI must be developed by your country/government, not by big AI companies. It's because of the data privacy and controlling the data and technology.
- Know what you are doing, otherwise you become the sorcerer's apprentice who could not stop the broom.
- Check list importing data from the deed directly to the registry
- Quality checks and evaluation
- Precision
- Quality and human control
- There are human control loop
- Cutting off administrative tasks
- Data registry validation
- Human control and be sure of the same answer for every question
- Precision
- Quality
- The option: talk to a human
- Enhance personal data protection
- Human Control - loop
- Document analyzing
- Human in the loop
- Accuracy and quality

6) What suggestions do you have for an effective and sustainable implementation of AI in the land registry?

(2/2)

0 1 9

- Checks & balances in place
- General guidelines.
- Quallity check