AI & the Evolution of HRM, and Resistance to Change

Seung Soo Eo

Definition & Vision of AI in HR

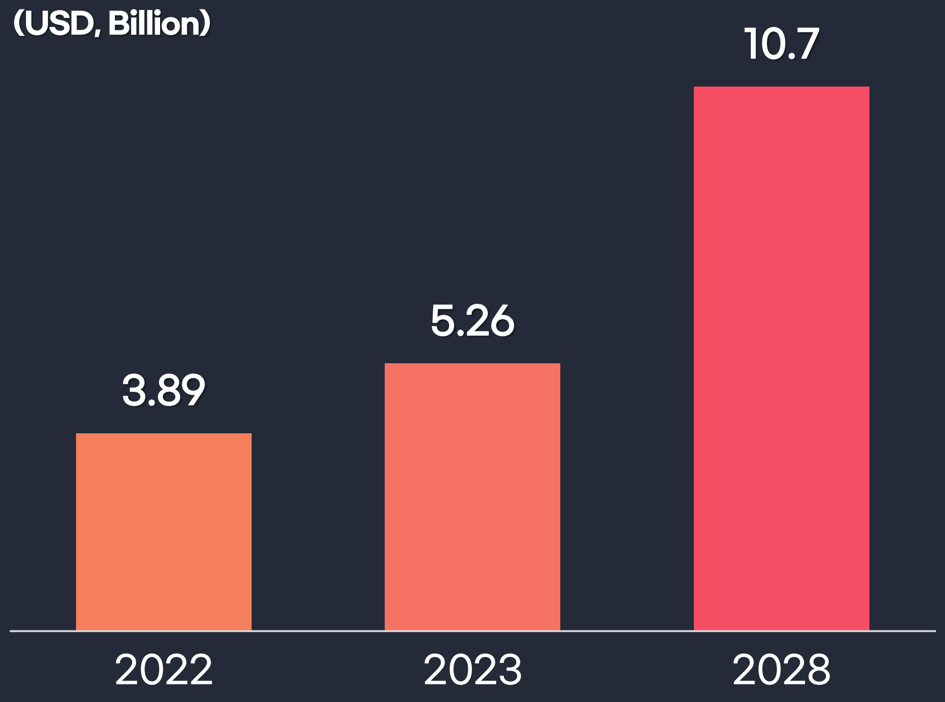
> **A system of artificiality** composed of **algorithms and software programs** created by humans for HRM, that **learns and analyzes data related to HR** and carries out **part of a task** for a **predefined specific goal** or desirable job performance outcome.

- Chowdhury et al., 2023

Definition & Vision of AI in HR

Global AI in HR Market

Market forecast to grow at a CAGR of 15.4%



(Source: RESEARCHANDMARKETS)

AI’s Impact on HR Management

- AI's Role in Modern HR
  - Beyond automation: AI augments human capabilities.
  - Provides real-time insights, enhancing decision-making
- Workforce Transformation
  - 40% of employees may need reskilling due to AI & automation
  - 87% believe roles will be augmented, not replaced, by AI
- Direct Implications for HR
  - Challenge: Filling roles that perform augmented tasks.
  - Opportunity: AI in HR tech aids in navigating this new landscape, promoting innovation while ensuring a human touch.

(Source: IBM, AI and a new era of human resource)

01. AI in HR

Two Viewpoints on AI
A Blessing or a Potential Threat

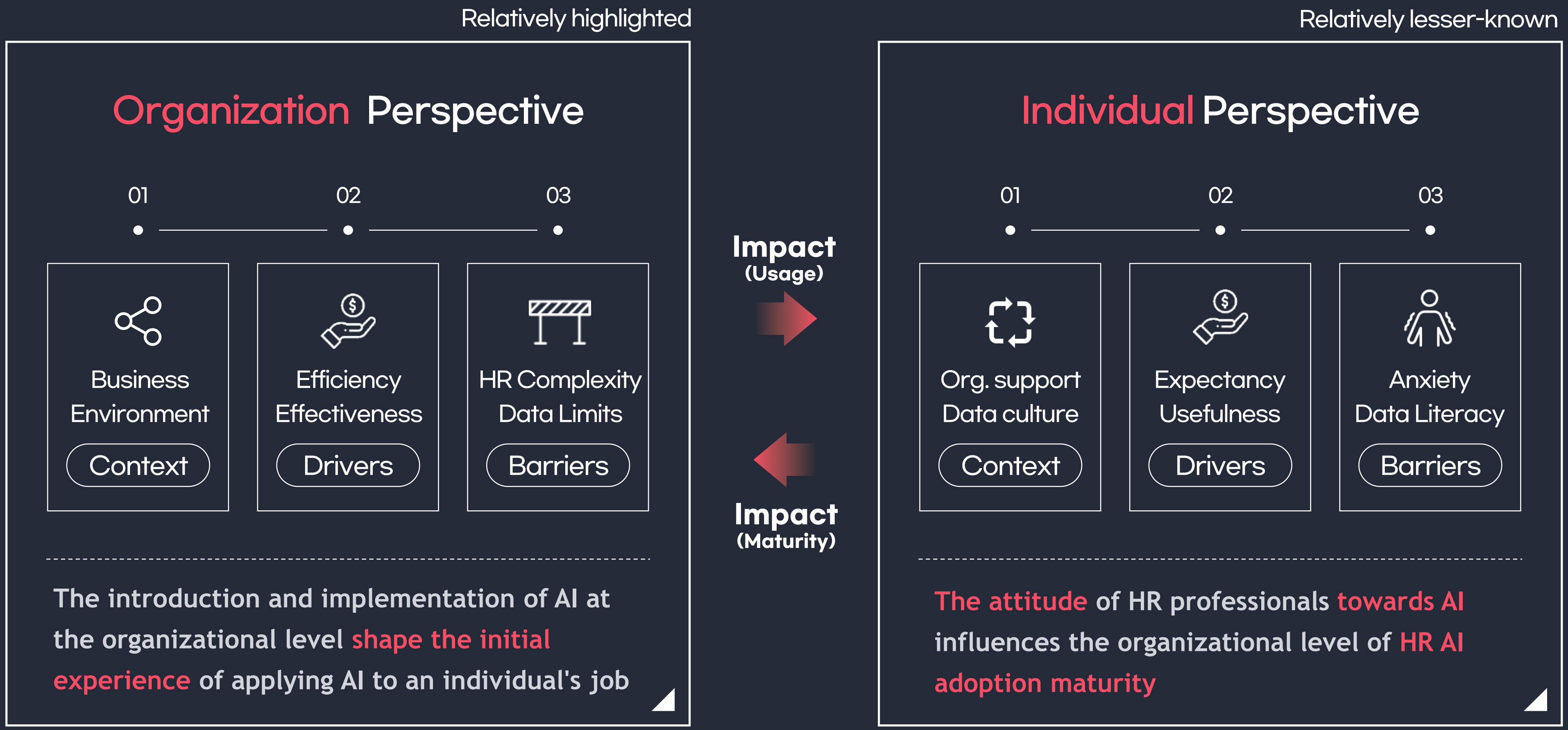
Omnipotent Tool

AI as the apex of innovation, an unrivaled force with limitless capabilities, designed to uplift & empower

The Phantom Menace

The concealed danger of AI, overshadowing humanity with its unparalleled might, raising concerns of dominance & control

Perspective on AI Adoption in HR
Organization vs. Individual



Relatively highlighted

Organization Perspective

01	02	03
Business Environment	Efficiency Effectiveness	HR Complexity Data Limits
Context	Drivers	Barriers

The introduction and implementation of AI at the organizational level shape the initial experience of applying AI to an individual's job

Impact
(Usage)

Impact
(Maturity)

Relatively lesser-known

Individual Perspective

01	02	03
Org. support Data culture	Expectancy Usefulness	Anxiety Data Literacy
Context	Drivers	Barriers

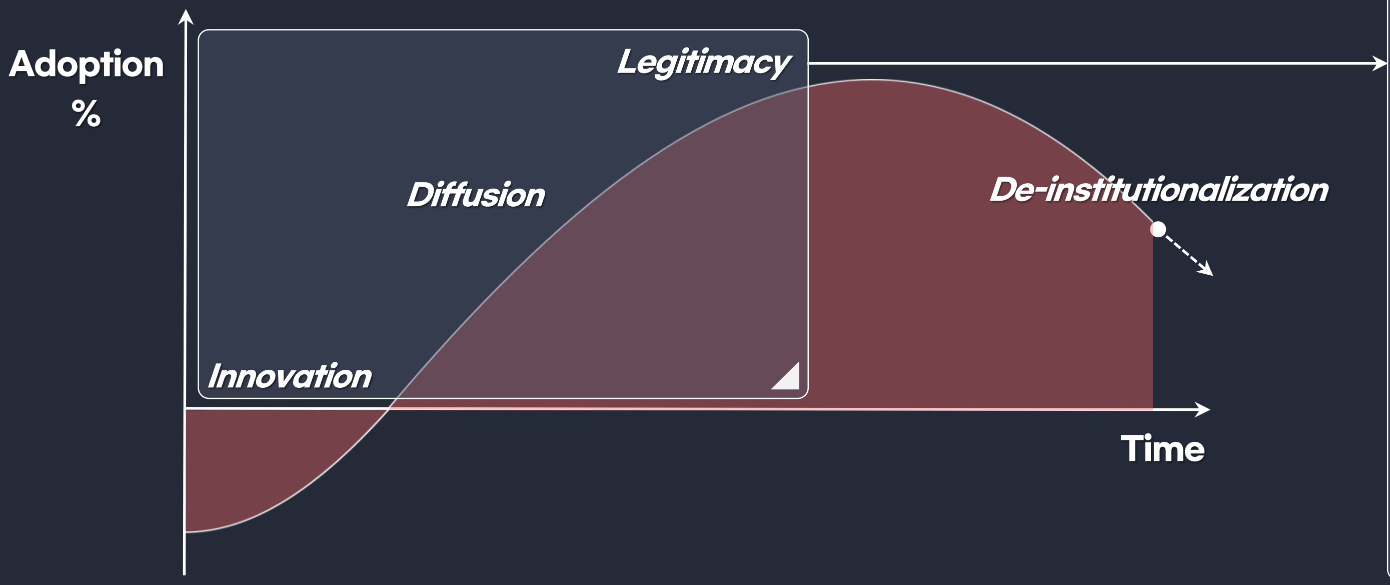
The attitude of HR professionals towards AI influences the organizational level of HR AI adoption maturity

Key Drivers at the Organizational level

Legitimacy: The level of social acceptance of a phenomenon

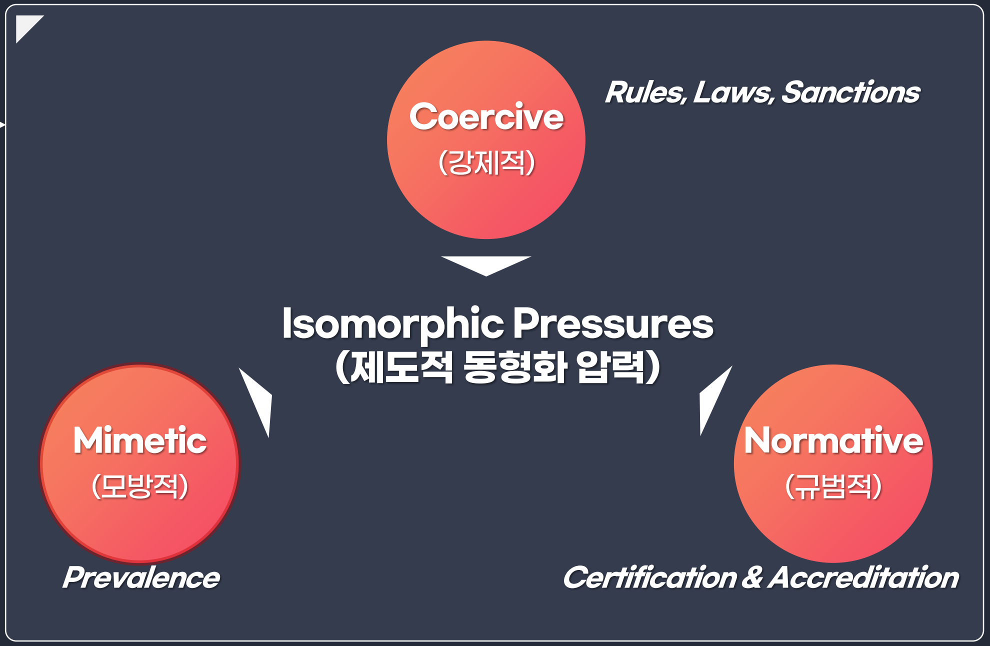
The degree to which a behavior or activity is desirable, appropriate, and generally acceptable to members

Traditional Institutionalization Curve



Lawrence and Jennings (2001)

Isomorphic Pressure



Coercive (강제적)

Rules, Laws, Sanctions

Isomorphic Pressures (제도적 동형화 압력)

Mimetic (모방적)

Prevalence

Normative (규범적)

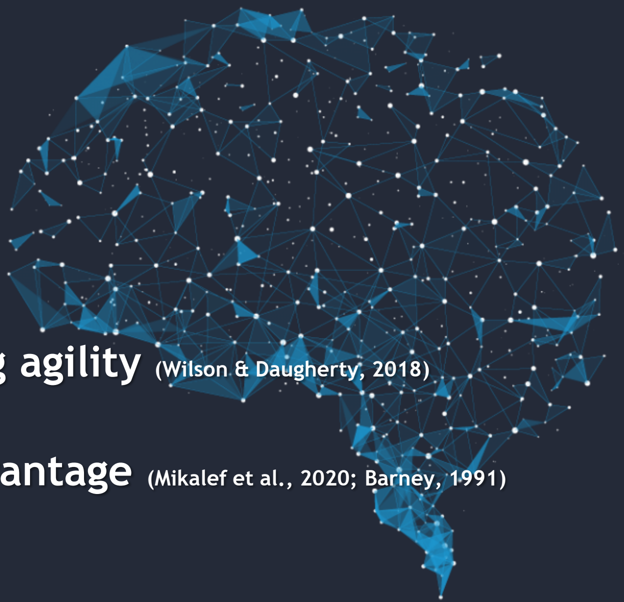
Certification & Accreditation

DiMaggio & Powell (1983)

Key Drivers at the Organizational level
Why Do Companies Want to Introduce AI into HR?

AI-Assisted HR Decision Making

- AI's ability to objectively analyze patterns and predict future behaviors reduces mistakes (Giermindl et al., 2021)
- Properly designed AI systems can offer unbiased & fair HR decision (Gaur & Riaz, 2019)



Enhancing Productivity

- Collective intelligence: AI and human collaboration
- Optimizing biz. processes by leveraging big data → enhancing decision-making agility (Wilson & Daugherty, 2018)
- The combined skills & expertise from both AI and humans = a competitive advantage (Mikalef et al., 2020; Barney, 1991)

Key Drivers at the Organizational level
Why Do Companies Want to Introduce AI into HR?

Operational Efficiency

- AI's ability to automate tasks and augment human intelligence can lead to reduced costs, faster response times, and increased business productivity (Wamba-Taguimdje et al., 2020)
- AI tools can track employee morale, identify underperforming employees, and assess the overall organizational performance (Gaur & Riaz, 2019)

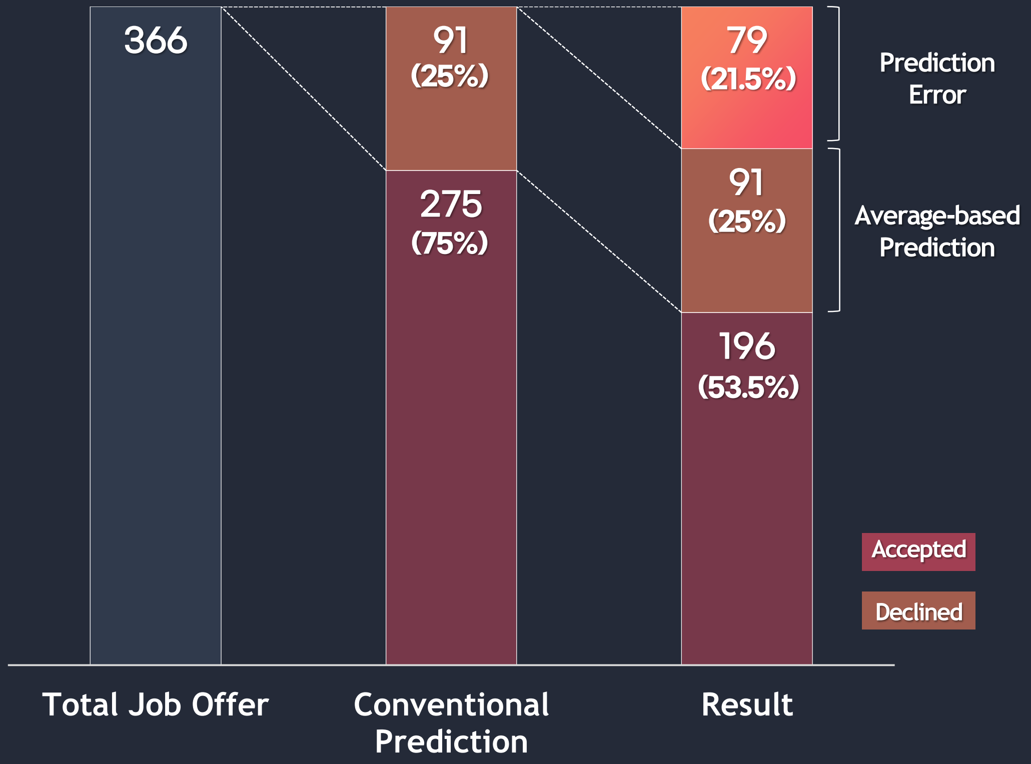
Predicting Job Offer Declinations
Using Decision Tree Algorithm

Background
- Unpredictable job offer declinations
- Leads to understaffing and operational issues

Problem
- Inadequate average-based prediction models
- Lack of personalized prediction

Objective
- Shift to personalized prediction models
- Improve accuracy in predicting declinations

Methodology
- Implement Decision Tree Algorithm
- Estimate individual probabilities



The expected job declination rate (25%):
the arithmetic average job declination rates of past 3 yrs.

03. Organizational Perspective

Predicting Job Offer Declinations
Using Decision Tree Algorithm

Explanatory Variables

Features	Categories & Values
Demographics	Age, Sex, Distance between residence to facilities
Education	Degree, GPA, Major course credits
Applied job group	R&D, Sales & Marketing, Engineering, Staff
Certifications	Numbers of job-related certification
Job application history	Number of pervious job application
Behavioral Data	Digital log of job application - ex. Log-in frequency
Test & Assessment Score	Cognitive ability test score & Attitude assessment

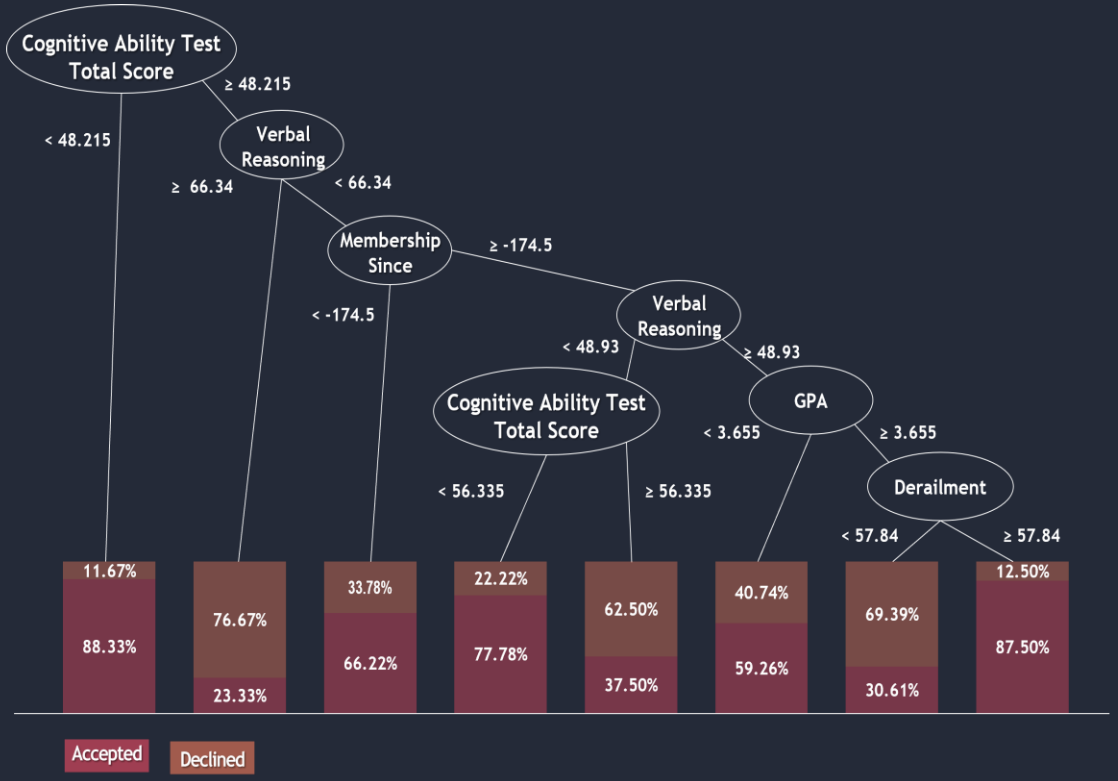
Response Variables

Job offer
Accepted or Declined

03. Organizational Perspective

Predicting Job Offer Declinations
Using Decision Tree Algorithm

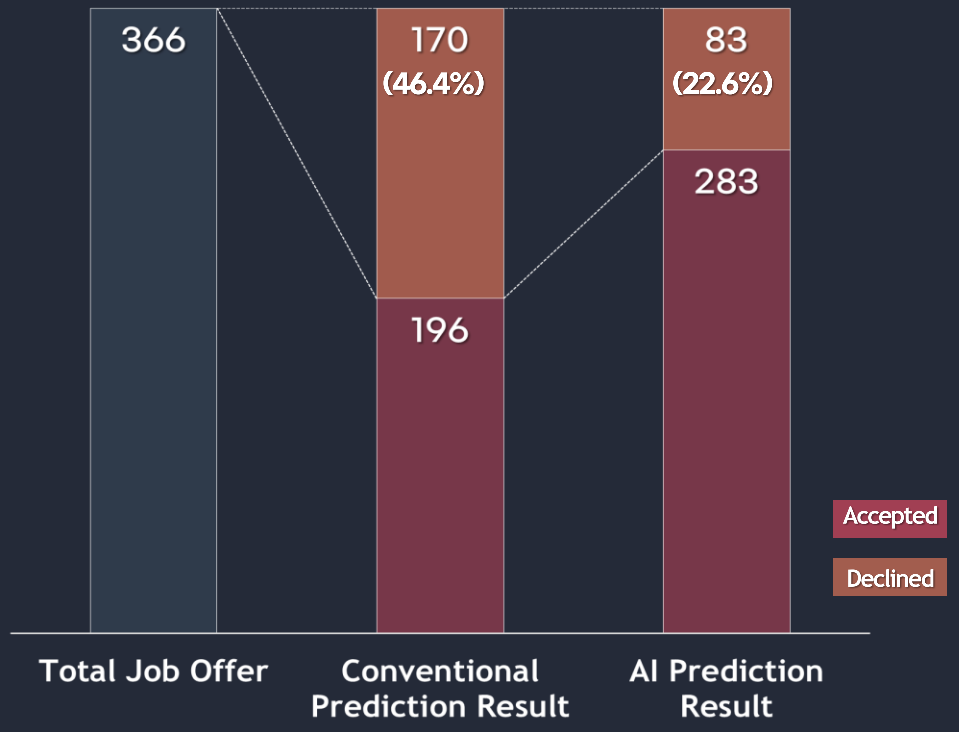
Decision Tree (의사결정나무 알고리즘)



Cognitive Ability Test Total Score
< 48.215
≥ 48.215
Verbal Reasoning
≥ 66.34
< 66.34
Membership Since
≥ -174.5
< -174.5
Verbal Reasoning
< 48.93
≥ 48.93
Cognitive Ability Test Total Score
< 56.335
≥ 56.335
GPA
< 3.655
≥ 3.655
Derailment
< 57.84
≥ 57.84
11.67%
88.33%
76.67%
23.33%
33.78%
66.22%
22.22%
77.78%
62.50%
37.50%
40.74%
59.26%
69.39%
30.61%
12.50%
87.50%
Accepted
Declined

Outcomes

- Reduced declination prediction error (46.4% → 22.6%)
- Enabled individual declination probability calculation



Achievement Record (자기소개서) Scoring Model Using Natural Language Process (NLP)

Background

- Achievement Records are a vital selection tool containing extensive applicant's information

Problem

- Hindered by evaluator bias
- Resource-intensive evaluation process

Objective

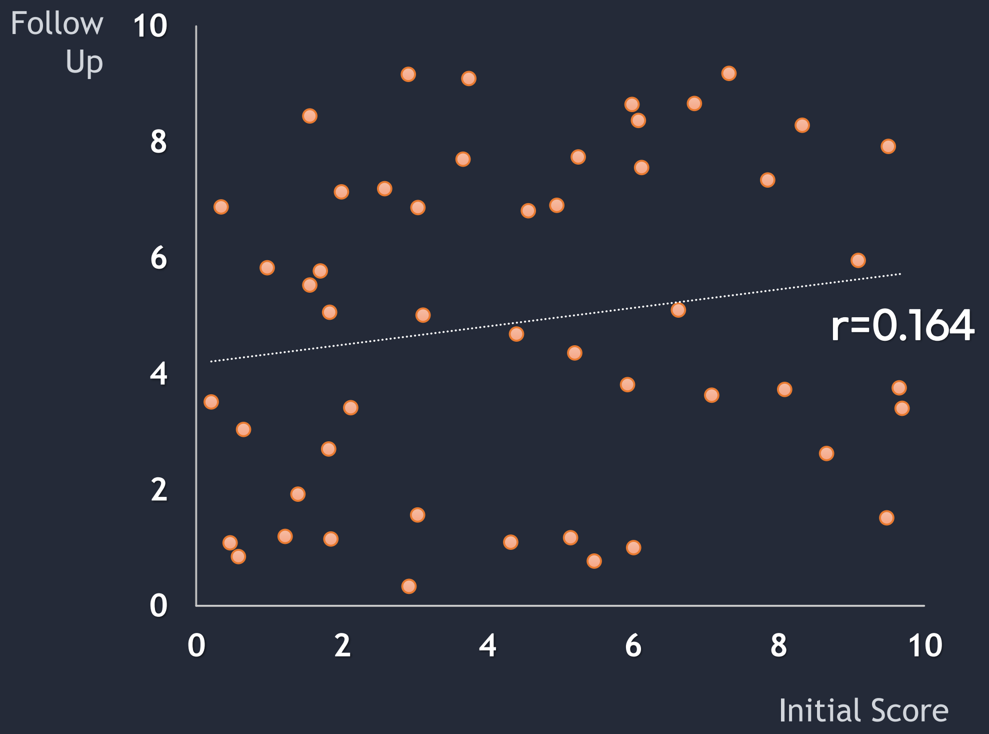
- Increase assessment reliability
- Reducing time and resource requirements

Methodology

- Implement NLP (Natural Language Process)
- Training based on expert psychologist evaluations

Test-Retest Reliability (평가-재평가 신뢰도)

Comparing Initial and Follow-up Scores on the Same Applicant's Achievement Record by the Evaluator



03. Organizational Perspective

Achievement Record (자기소개서) Scoring Model
Using Natural Language Process (NLP)

Raw Texts

Achievement Record Raw Text

- 4 Section, 4000 words -

[전기에너지 지식과 소통 능력] 전기기술 엔지니어 직무에 필요한 핵심역량은 전기 및 스마트 에너지에 대한 전문지식이라고 생각합니다. 전력공급의 안정성과 전기 설비의 신뢰성 확보를 위해서는 그에 관한 전문역량이 필요하기 때문입니다. 저는 전기분야의 전문성을 높이기 위해 학과 과정에서 전기기계, 전력공학 등의 교과목을 이수하였습니다. 전기기계 수업에서는 학업 스터디를 구성하여 팀원들과 함께 직류기 및 변압기 등을 공부하며 강의에 대한 이해도를 높였습니다. 또한, 6개월간 전기기사 자격증을 획득하기 위해 필기와 실기 시험을 준비하면서 전기분야의 전반적인 이해와 내용을 정리하였으며, 2개월간 전기공사기사 자격증의 필기시험을 준비하면서 전기기사 공부와는 다른 추가적인 내용을 익혀 전기에 관한 전문지식을 갖추었습니다. 또한 전세계에서 스마트 에너지가 확산하면서 기존 전력 사업 구조 자체에 변화가 일어나고 있어...

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Key Sentences

Key sentences

- highlighted by assessors -

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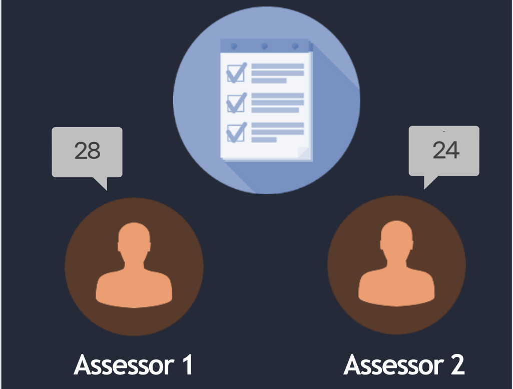
Scores

Evaluation scores of highly trained psychologists



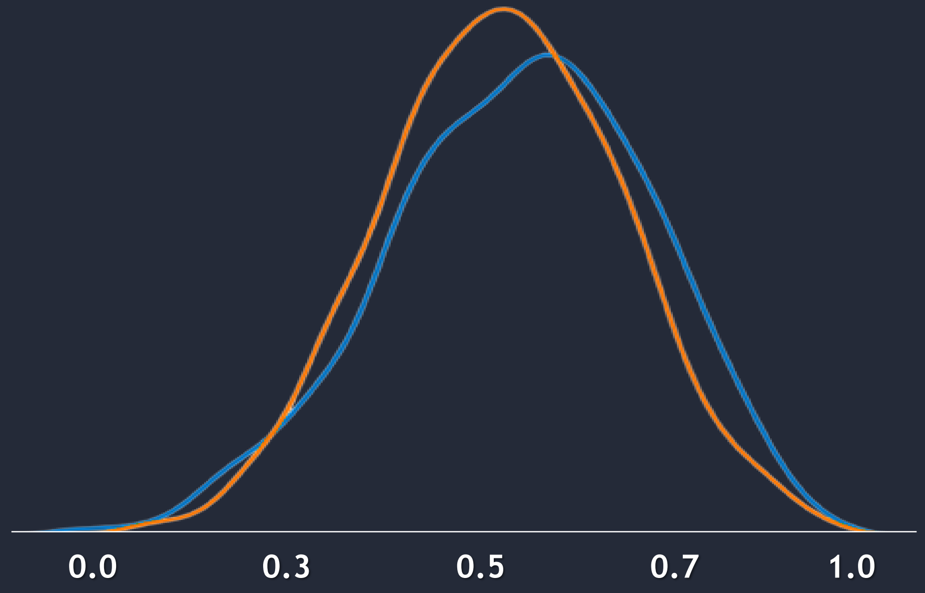
Trained AI on 15,000 achievement records' raw text & evaluation score of the past 3 years

03. Organizational Perspective

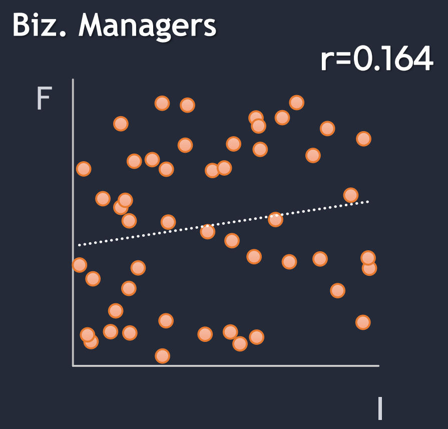
Achievement Record (자기소개서) Scoring Model
Using Natural Language Process (NLP)

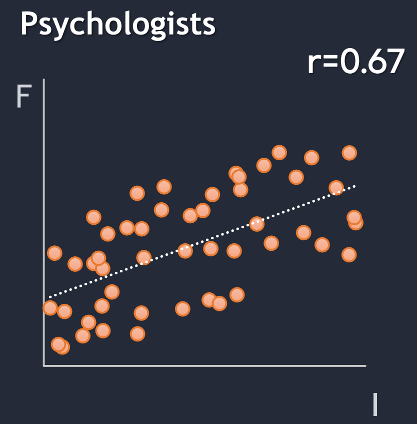
AI Score vs Human Score

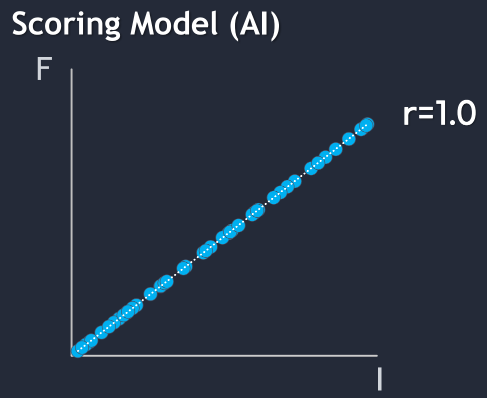
Human Score	5 weeks & 3,000,000,000 Won
AI Score	40 min.



Test - Retest Reliability (평가-재평가 신뢰도)


Biz. Managers


Psychologists


Scoring Model (AI)

Criteria

1.0	Perfect
0.8~0.9	Excellent
0.6~0.7	Acceptable
0.5~0.6	Poor
~0.5	Unacceptable

03. Organizational Perspective

Barriers at the Organizational level
What Might Hinder the Implementation of AI in HR?

HR Complexity

- Difficulty in modeling intricate human behavior (Tambe et al., 2019)
- Transparency & Trust: lack of clarity & justification of AI decisions (Chowdhury et al., 2020)
- Integration challenge (AI ↔ current sys.) (Kaplan & Haenlein, 2020)

Data Limitation

- Insufficient data affects AI effectiveness (Tambe et al., 2019)
- Need for accurate, relevant data (Ransbotham et al., 2020)

Barriers at the Organizational level
What Might Hinder the Implementation of AI in HR?

Bias Risks & Ethical Dilemmas

- Concerns about unethical use of AI (Tambe et al., 2019)
- Potential for unfair AI outcomes (Giermindl et al., 2021; Malik et al., 2021)
- Worries about data privacy and misuse (Giermindl et al., 2021; Malik et al., 2021)

Employee Concerns

- Employees might resist or be skeptical about AI implementation (Tambe et al., 2019)
- Job security

04. Individual Perspective

Key Drivers at the Individual level
What Makes HR Professionals Want to Utilize HR AI

Perceived Usefulness

- A person’s belief that using AI would enhance his or her job performance
- (Potential) User’s subjective assessment of the value & benefit of AI
- Play a significant role in AI adoption

Perceived Easy of Use

- A person’s belief that using AI will be free from effort
- How user-friendly is the AI system?
- Easy of integration into current workflows and tasks

Key Drivers at the Individual level
What Makes HR Professionals Want to Utilize HR AI

Social Influence

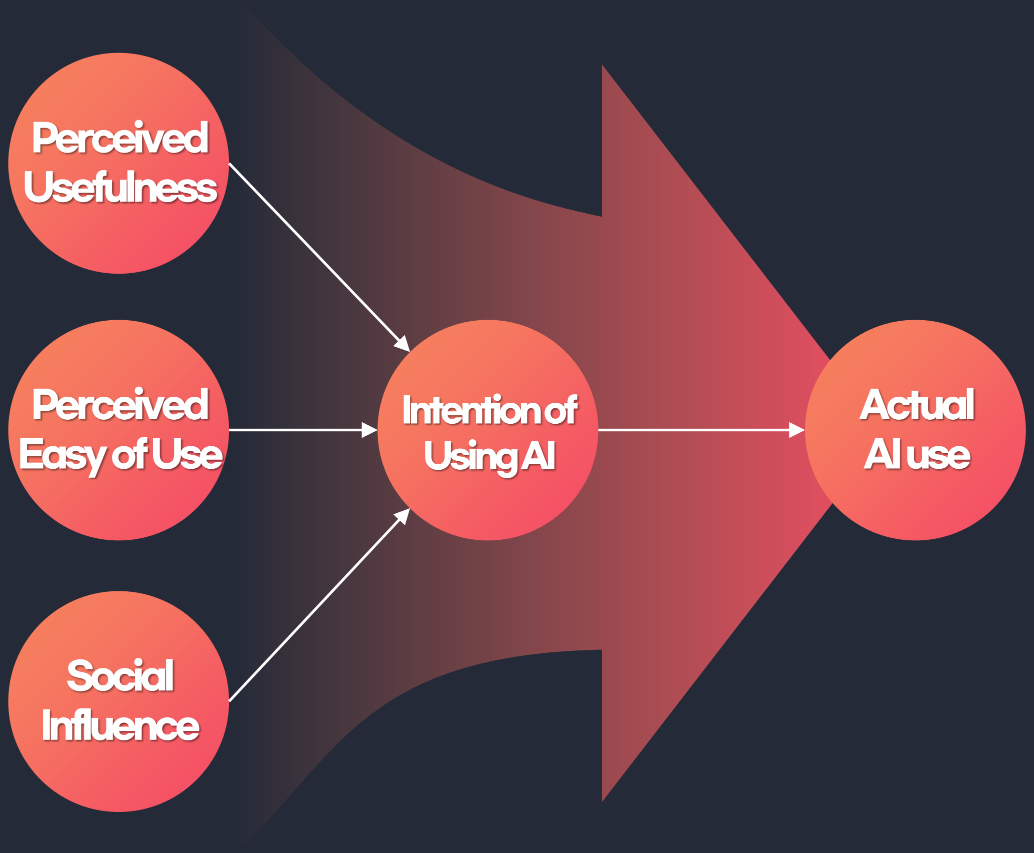
- A person's belief that important others in organization think they should use AI
- Societal & peer pressure to adopt AI

Facilitating Conditions

- A person's belief that an organizational and technical infrastructure exists to support the use of AI
- Includes availability of resources, technical support, training, & compatibility with existing systems

Key Drivers at the Individual level

What Makes HR Professionals Want to Utilize HR AI



Perceived Usefulness

Perceived Easy of Use

Social Influence

Intention of Using AI

Actual AI use

Human beings are not perfectly rational

Adopting AI is NOT just about rational decision-making.

Rather,

It's a decision made within bounded rationality

04. Individual Perspective

Barriers at the Individual level
What Might Hinder HR Professionals Want to Utilize HR AI

Uncertainty Avoidance

- An individual's discomfort with ambiguity.
- Leads to preference for clear rules and structures
- Seeks established norms to reduce unpredictability

AI Anxiety

- the negative feelings or perceptions potential users have when considering the use of a specific technology in the future (Bozionelos, 2001a; Wilfong, 2006)

Limited Data Literacy

- Low data literacy in HR Professionals often leads to resistance in AI adoption

04. Individual Perspective

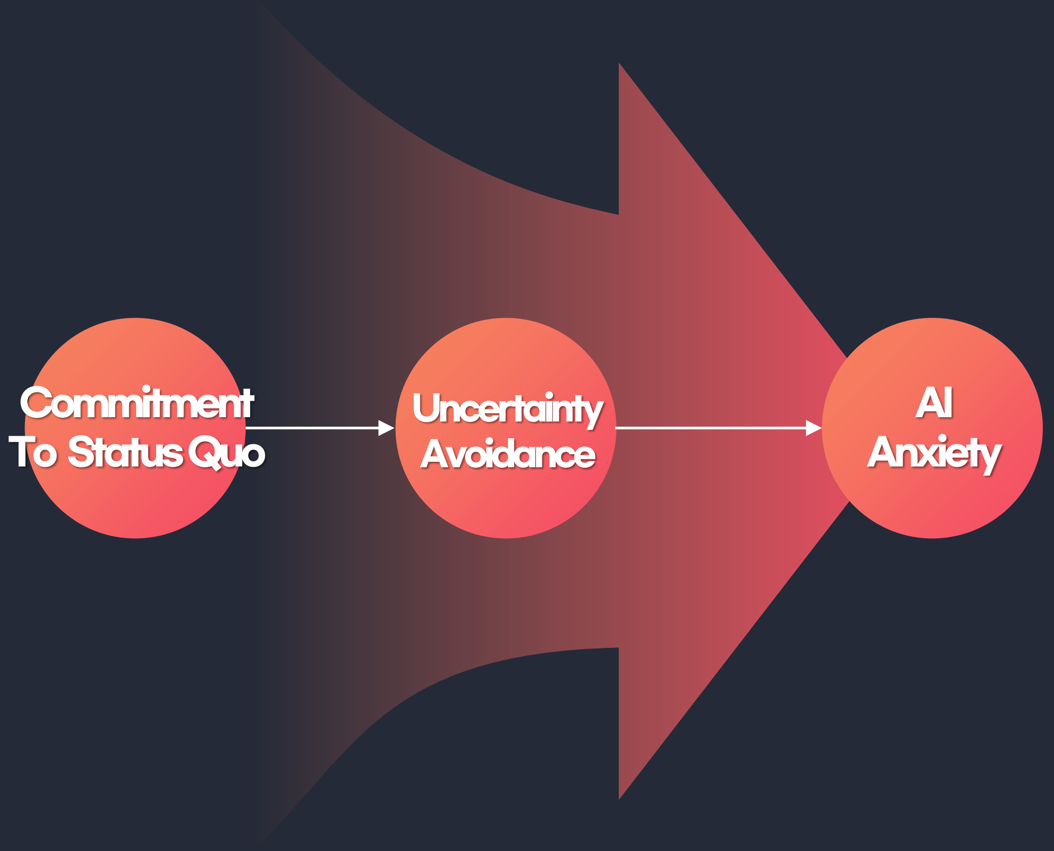
Barriers at the Individual level
What Might Hinder HR Professionals Want to Utilize HR AI

Commitment to HR Practice Status Quo

- HR Professional’s deep-rooted belief in the organization's prevailing strategies and HR practices
- Reduced inclination to change, even amid external business pressures.
- HR Professional’s subjective evaluations of the current performance of the HR practices

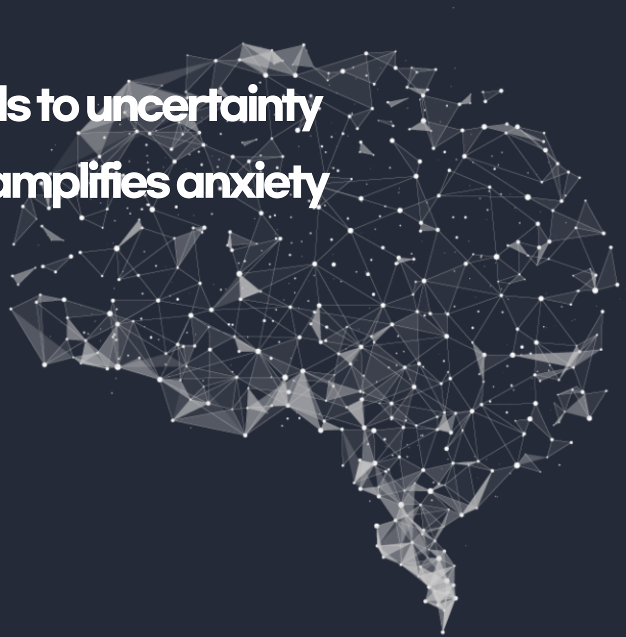
04. Individual Perspective

Barriers at the Individual level
What Might Hinder HR Professionals Want to Utilize HR AI


Commitment To Status Quo
Uncertainty Avoidance
AI Anxiety

Inertia hinders challenge

The inertia towards current HR practices leads to uncertainty avoidance, which in turn amplifies anxiety towards AI in HR



Change is the Only Constant

Before we strongly advocate for the ethicality of AI & the imperative to validate AI-driven results, let's introspect:

Historical Ethicality

- Have our past HR practices always adhered to ethical standards?
- How often have we genuinely scrutinized and reflected on the ethical underpinnings of our traditions?

Effectiveness of HR Decisions

- Did we consistently validate the effectiveness and efficiency of our HR decisions?
- Have we earnestly assessed and reflected on the outcomes of our choices?

Change is the Only Constant

Before we strongly advocate for the ethicality of AI & the imperative to validate AI-driven results, let's introspect:

Scientific Rigor

- Did we adopt a scientifically rigorous approach in our decision-making?
- Were our methodologies and choices informed by data and empirical evidence, or did we rely on anecdotal insights?

As we champion the next steps with AI, introspection on our foundational practices is crucial

AI & the Evolution of HRM, and Resistance to Change

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