Comparative Case Study on Implementing Generative AI in Medical Practices to Ease Documentative Overburden: A Sociotechnical Systems Perspective

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All About Me

Sri Ramesh Eevani

- Resident of South Brunswick, New Jersey, USA
- Healthcare Technology Executive with 20+ years of experience
- Doctoral Candidate at Drexel University
  (Dissertation in Feb 2025)
- Co-founder of AI Based Healthcare Technology Startup
- My beloved family includes Wife - Sushma and Kids
  – Sriya (19), Sahasra(14), Atharv (5)
- Enjoys family vacations, international tourism,
  watching movies, and playing tennis

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Agenda

Qualitative Research Summary

Research Findings

Generative AI Adoption Key Points

Qualitative Research Summary

Drexel University – Doctorate in Business Administration

Research Title: *Comparative Case Study on Implementing Generative AI in Medical Practices to Ease Documentative Overburden: A Sociotechnical Systems Perspective*

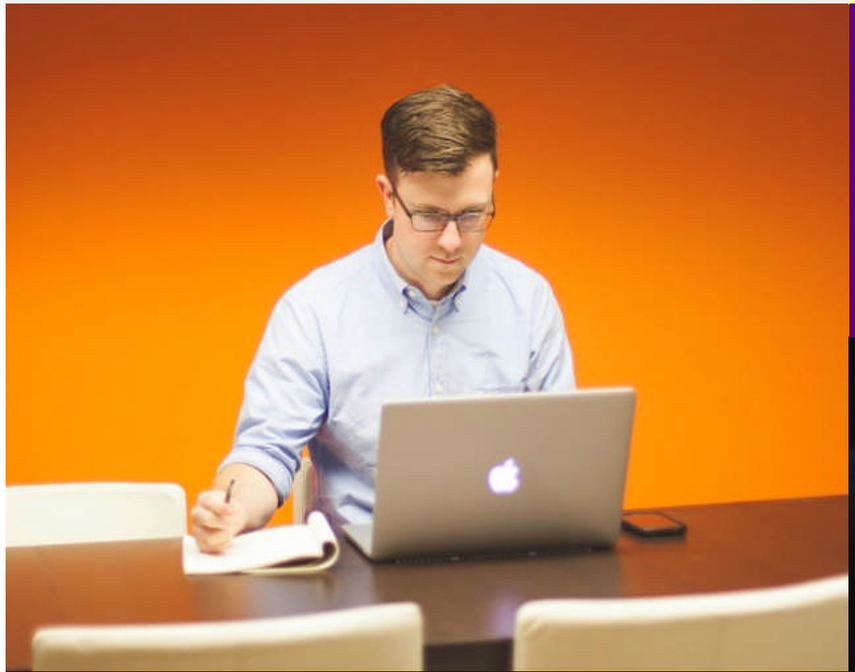
Sri Ramesh Eevani
Doctoral Candidate
Research Student

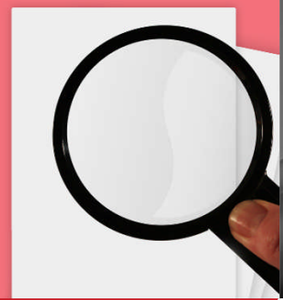
Dr. Rajiv Nag, PhD
Clinical Professor
Research Chair

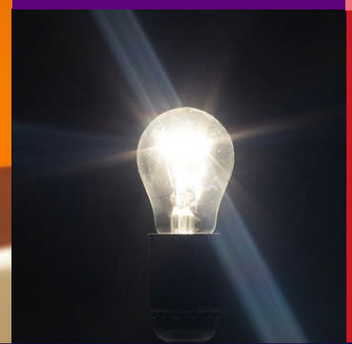
Research Background

Business Problem

Physicians in Medical Practices spend on an average of 1.77 hours/day after working hours, contributing the clinical documentation burden, clinical errors, and burnout (Gaffney, et. Al, 2019)





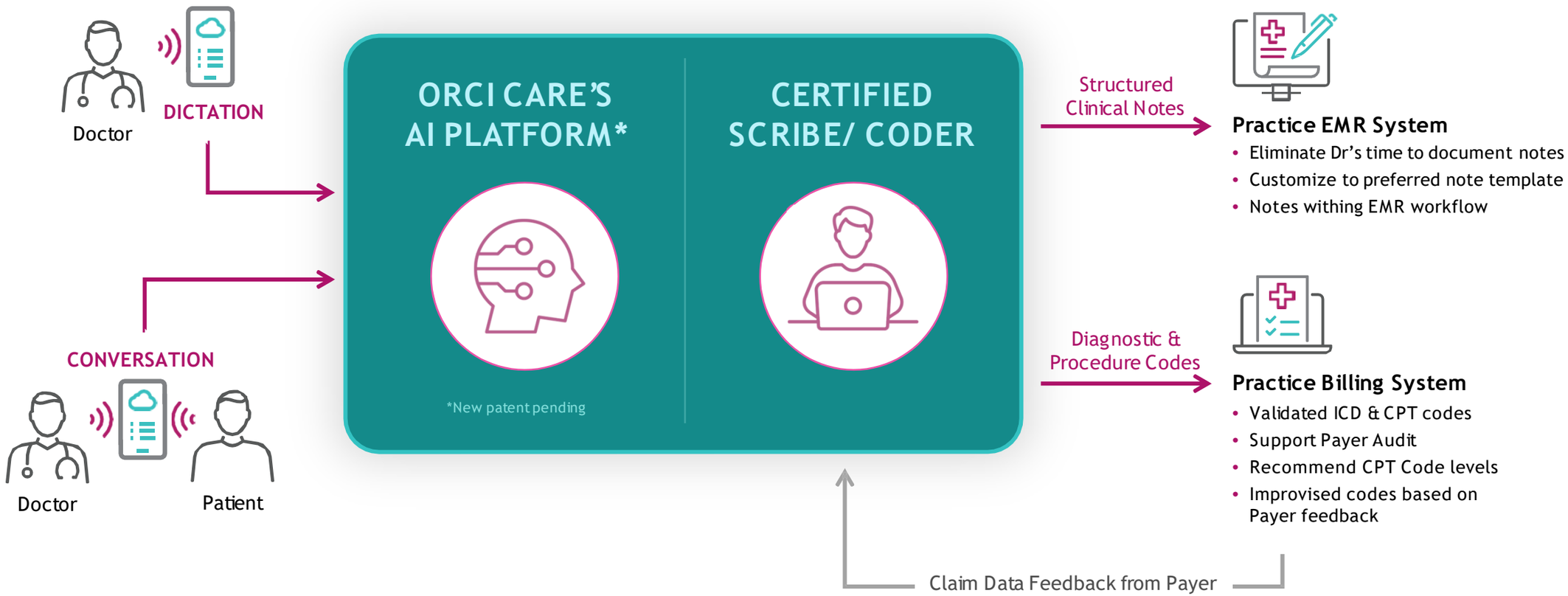


Technology Adoption Concerns

Physicians have concerns about the technology efficacy and evidence base before adopting the new technologies (Berg, 2018)

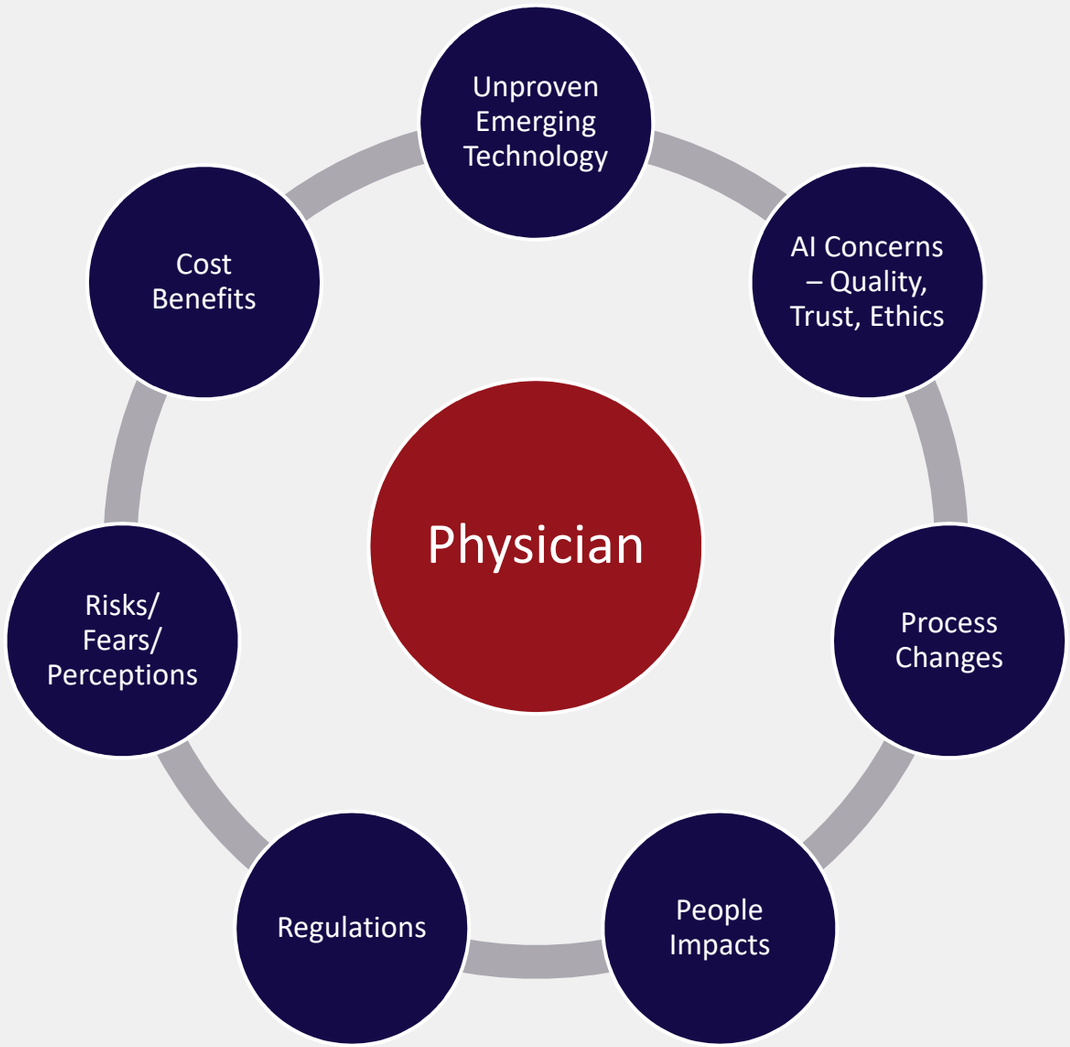
This research offers a novel multi-dimensional perspective on the adoption of Generative AI in medical practices, focusing on a sociotechnical system approach. It emphasizes the importance of considering social and organizational process changes when adopting new technologies.

ORCI CARE AI Scribing Solution



Emerging Technology Adoption Factors

- Physician is the central focus of the technology adoption at medical practices
- Various factors influence the adoption
- Adoption varies based on the impact of social, technical and process changes



Research Framework

Concepts

- Qualitative Research
- Comparative Case Study

Theories

- Socio-technical systems
- Adaptation Structuration

Actors

- Physicians, Scribes, Practice Staff
- Product Team, Technology Experts

Constructs

- Quality of data - AI outcome
- Perceived value and impacts

Research Questions

A What are the barriers and enablers in adopting emerging technology in medical practices?

B How medical practices adopt and implement emerging technologies such as Generative AI products?

C What changes in people, process, and social structure obtained during the implementation process

D How medical practices differ from the other in adoption and realization of the value of Generative AI products?

E What insights can be used to improve the technology consulting and implementation process on behalf of Healthcare IT consulting company?

Research Design

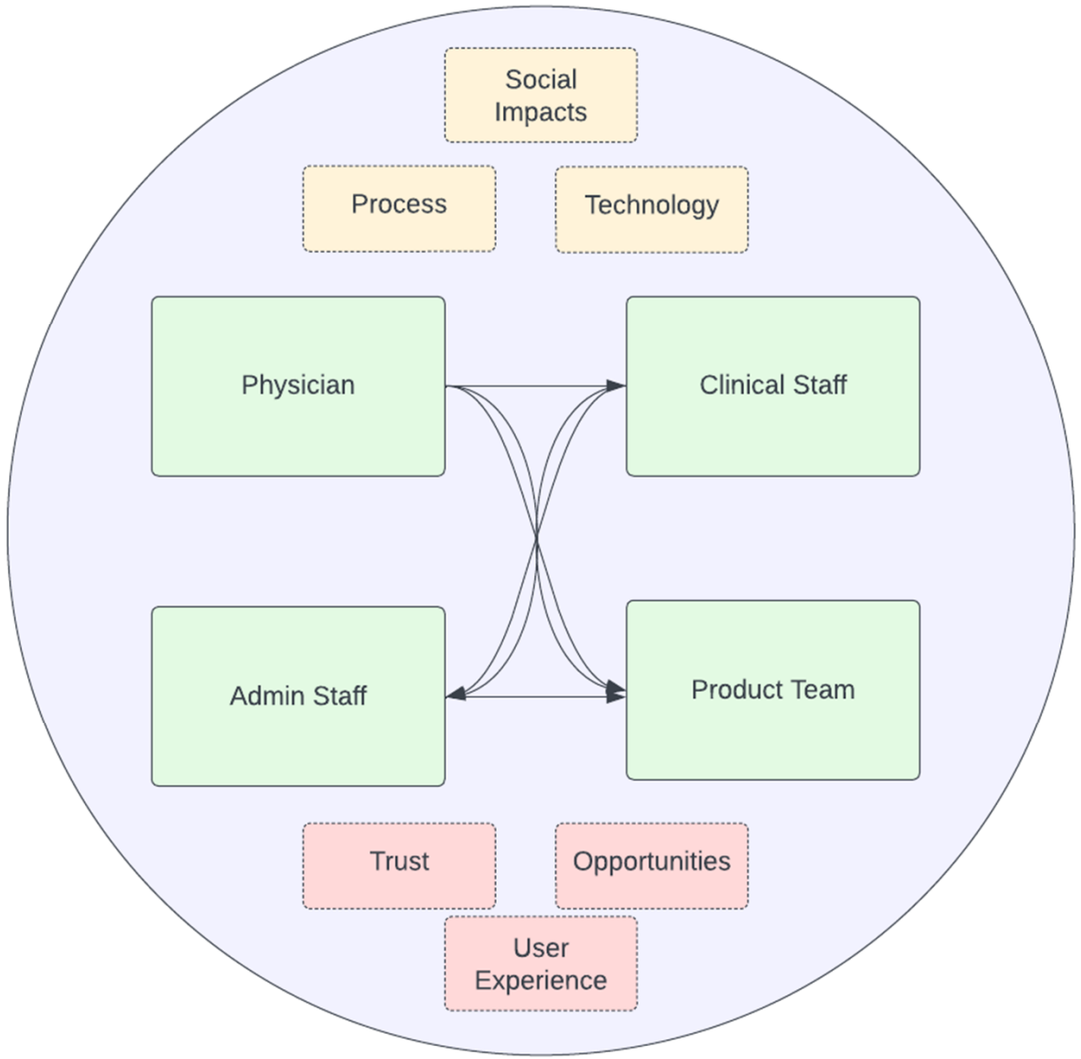
Qualitative Research

Comparative Case Study

- Use Eisenhardt approach for Comparative Case Study
- Use Grounded theory approach coupled with process mapping approach of Langley (1999)
- Study implementation processes
- Compare implementation approach, constraints, outcomes across the sites
- Understand technology consulting teams challenges, opportunities of improvements with implementation
- Observe people, process, systems changes

Multi-site medical practice case study of Generative AI implementation

Empirical Context – Medical Practices



- Physicians are the main actors and central point in the social system of medical practices
- Interact with the technology and collaborates with the team members at the practice
- Operate in extremely tight schedules leaving no room for any technical and people challenges
- Navigate multiple systems as part of the clinical workflow
- The implementation team monitors the end-to-end workflow to capture pain points and opportunities of improvement and enhance the product

Data Sources

01

Medical Practices

- Access to 5 Medical Practices implementing Generative AI for Clinical Documentation

02

Interviews

- ~30 Interviews - Physicians, Clinicians, Office Mgr., Scribes, Product Team, ..etc

03

Field Study

- Field Study – On field implementation observation

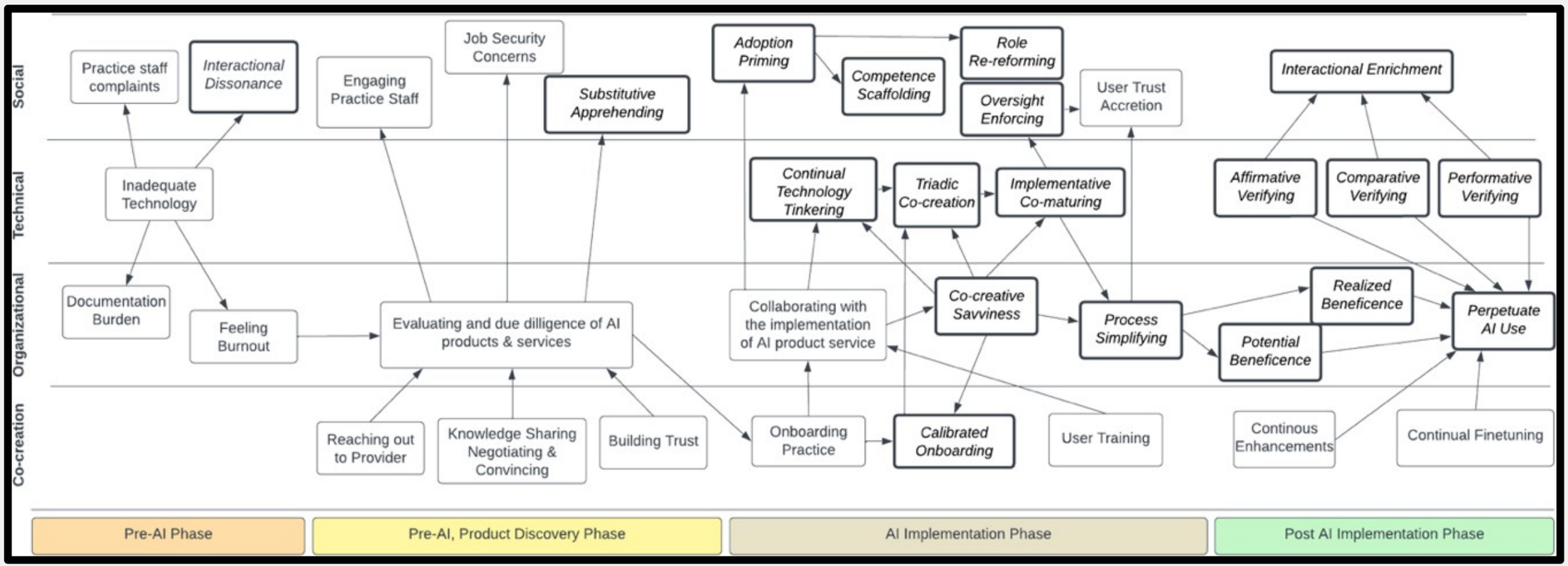
04

Product Feedback

- Ongoing Sentiment Analysis – Textual analysis of feedback survey

Research Findings

Overarching Process Model



Dimensions of Change

- Study captured the changes for Social, Technical, Organizational, Goals & Outcomes across all 5 medical practices
- Comparative qualitative results across the sites

	Site-1	Site-2	Site-3	Site-4	Site-5
Social Change					
Substitutive Apprehending	Low	Low	X	High	Med
Adoption Priming	++	+	N/A	(-)	++
Pre-AI Interactional Dissonance	Med	Low	Low	Low	Med
Post-AI Interactional Enrichment	++	+	++	X	+
Competence Scaffolding	Med	Med	Low	High	Med
Technical Change					
Technology Deficiency	Med	High	Low	Low	Med
Implementative Co-maturing	High	Med	Med	High	High
Continual Technology Tinkering	Med	Med	Low	High	Med
Triadic Co-creating	High	Med	Low	High	Med
Oversight Enforcing	High	Med	Low	High	High
Organizational Change					
Administrative Burdening	High	Low	Med	Med	High
Solution Exploring	High	Low	Med	High	High
Role Reforming	2	1	2	1	2
Perceived Change Load	Low	High	Low	Med	Med
Process Simplifying	++	+	++	+	++
Calibrated Onboarding	High	Med	Low	Med	High
Goals & Outcome					
Prospecting Trailblazers	High	Low	Med	Med	High
Affirmative Verifying	High	Low	High	Med	High
Comparative Verifying	Low	Low	Med	High	Low
Performative Verifying	High	Low	Med	Med	High
Realized Beneficence	++	+	++	X	++
Potential Beneficence	+	+	X	X	+
User Trust Accreting	++	+	++	+	++
Ultimate Outcome					
Continued AI Use	Positive	Negative	Positive	**Neutral**	Positive

Numbers (0 – 2) = Number of new job roles
++ = Significant positive change
+ = Noticeable positive change
N/A = Not Applicable/Available
(-) = Noticeable negative change
X = No noticeable change
Low = Low change/level
Med = Medium change/level
High = High change/level

Generative AI Adoption Key Points

AI Product teams should focus on **Social** & **Organizational** process elements in addition to the **Technology** capabilities

Role-reforming, Triadic Co-creation and **Implementative Co-maturing** the AI Product with the user community is a must

Human oversight and additional controls for **bias**, **hallucination**, and **quality** should be strictly enforced


Thank You