

# UNDERSTANDING WHAT PEOPLE DO



The Art and Science of a  
Dynamic-Career Based  
Competency Model

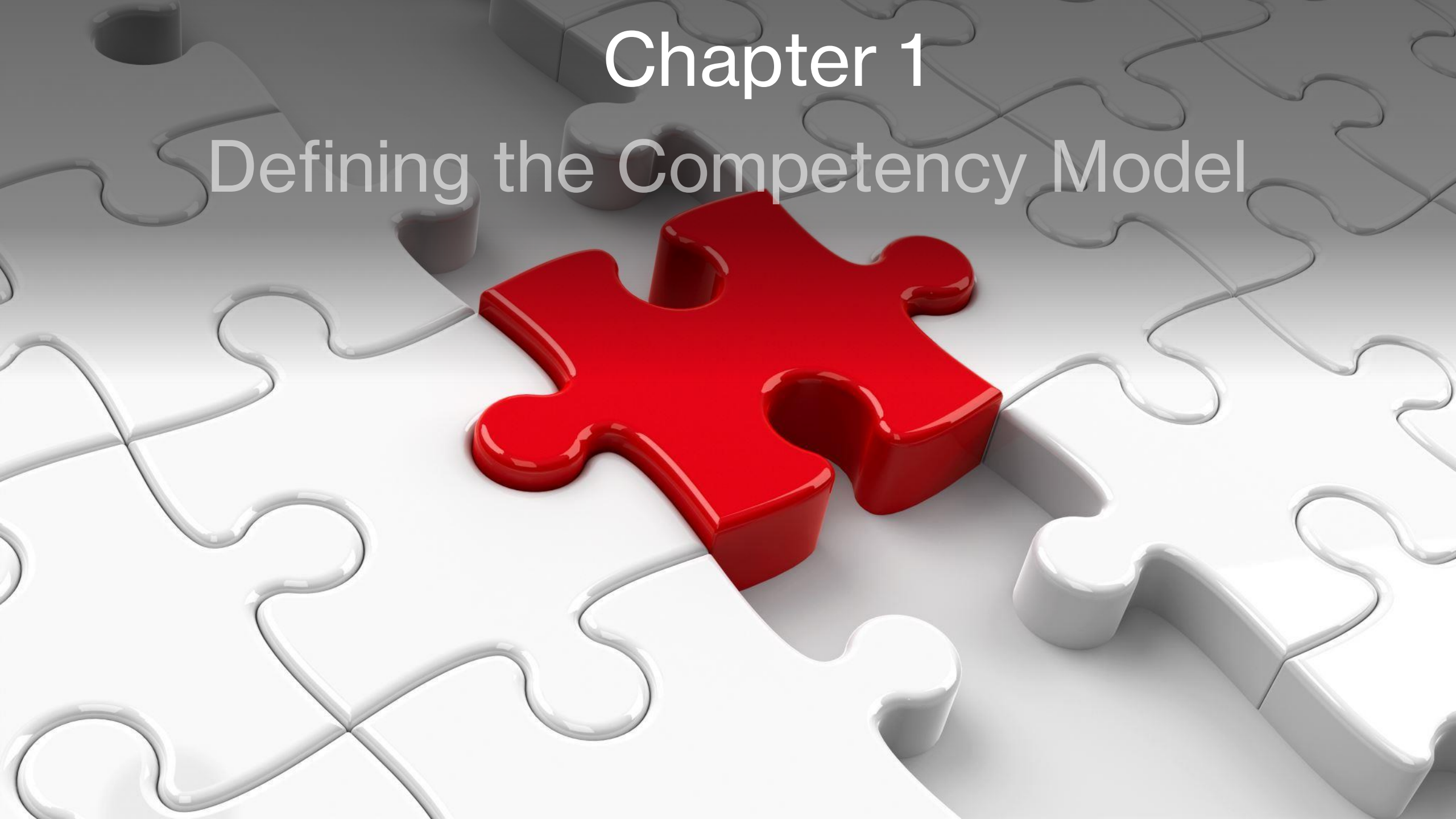
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A blurred photograph of a library interior. On the left, there are wooden bookshelves filled with books. In the center and right, a person is visible in the background, standing near a table or counter. The lighting is warm and soft, creating a bokeh effect in the background. The overall scene is out of focus, emphasizing a sense of depth and atmosphere.

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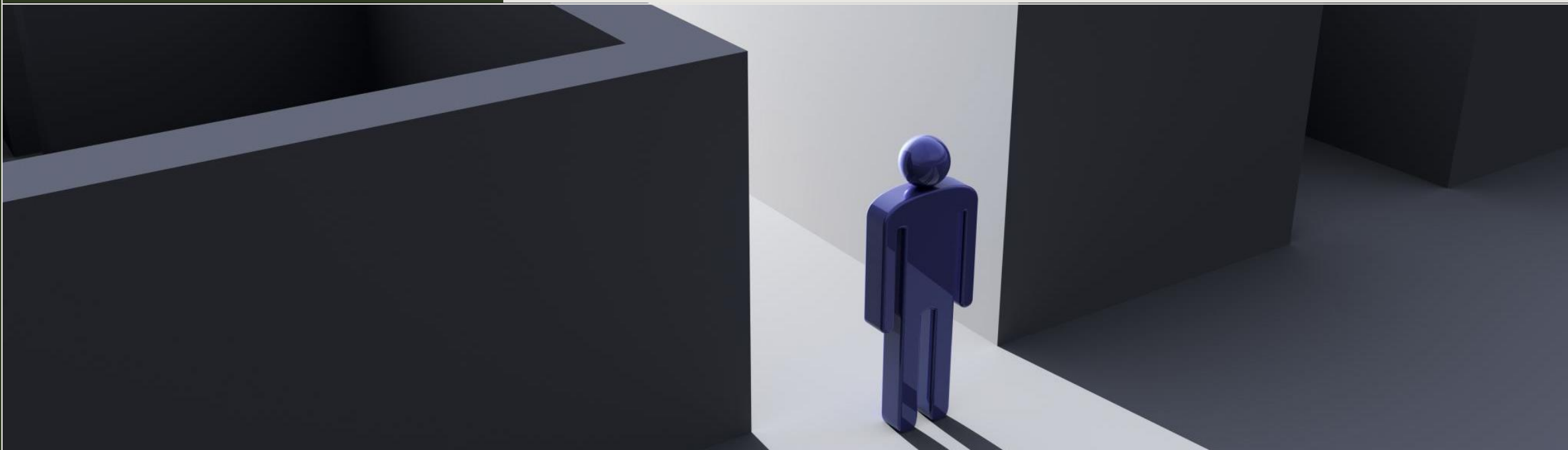
# Chapter 1

## Defining the Competency Model



**“We live our lives forward,  
but can only understand  
them backwards”**

**– Soren Kierkegaard**





**A Wonder of the  
Assessment  
World: We Don't  
Know What a  
Competency  
Model Is.**

# Various Fields Influencing Competency Models



- \* Over time, competency models have undergone various definitions, shaped by fields such as assessment, measurement, I/O psychology, certification/licensure, training and development, and evaluation.

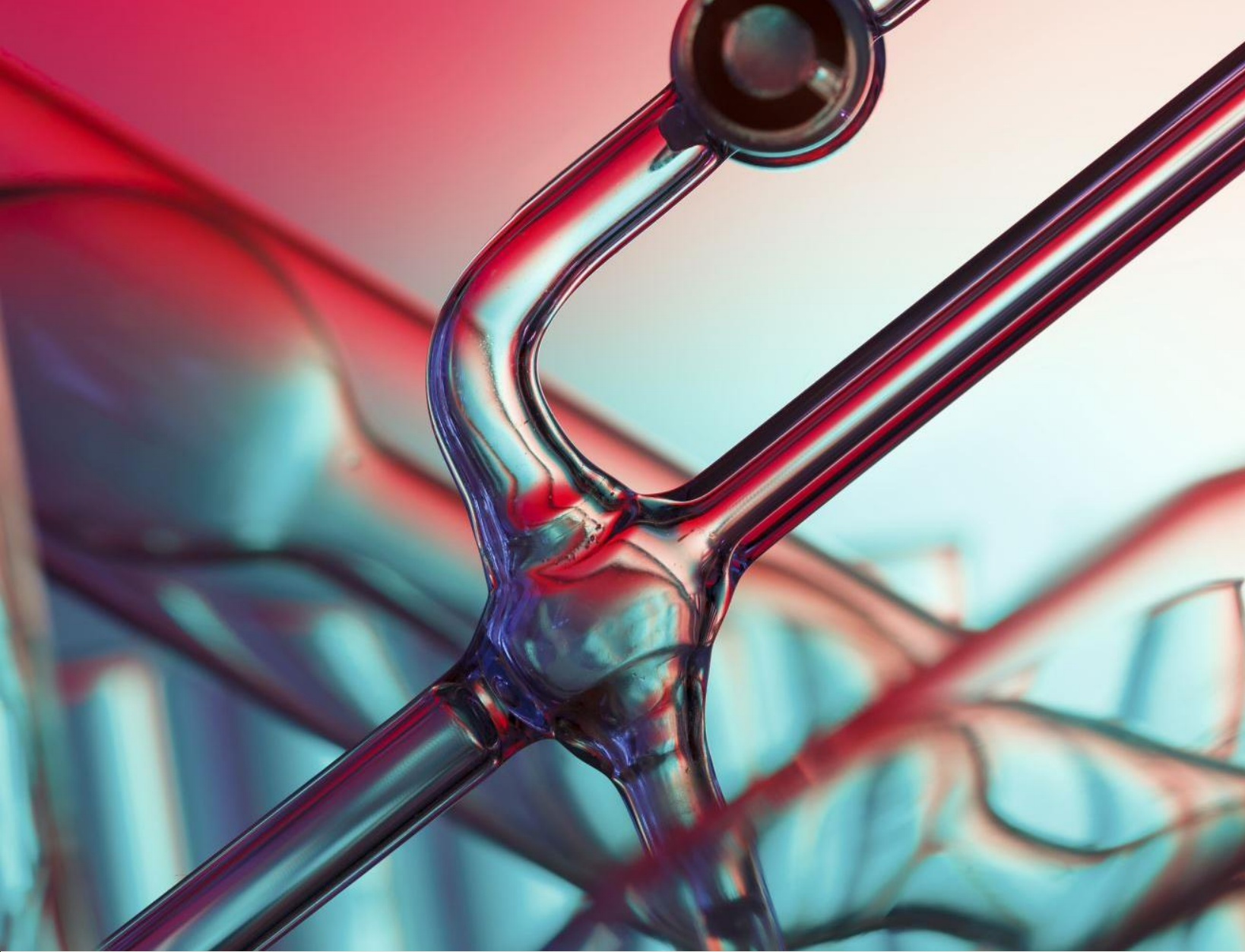
# Somewhat Undefined

With many definitions, competency models have been observed as somewhat **undefined** by competency modeling researchers, leading to much confusion.

In fact, the terms and definitions surrounding “competencies” have sparked ongoing debates. Dubois (1993) highlighted these challenges and described that “the words competence, competency, and **competency model are problematic**” (p. 4).

In subsequent reflection, Dubois (1996) stated that “even the most sophisticated audiences struggle to define and characterize this term [competence] in organizationally meaningful ways” (p. 5).





**What is a  
Competency?**

**Science?**

**Art?**

**Both?**

# Too Many Definitions

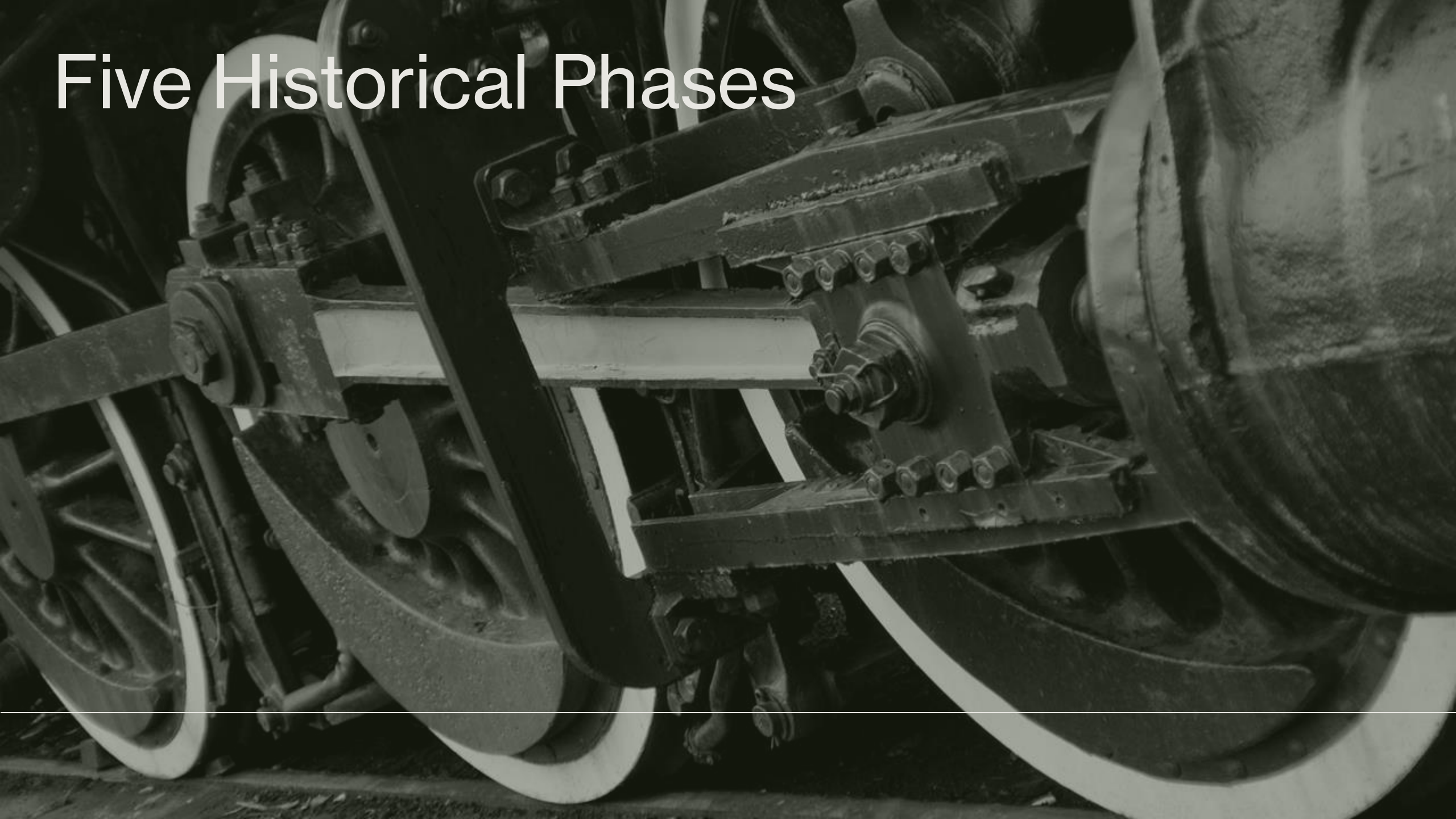


**While the definitions of competency may currently lack clarity, appear confusing, and prove unhelpful, exploring the historical journey of competency and competency modeling can contribute to a clearer understanding.**

**The authors endeavor to navigate through the different phases of this history to shed light on the subject.**

**Furthermore, they aspire to unveil the scientific and artistic aspects of competency modeling, with the ultimate goal of establishing a unified definition based on previous attempts to define competency.**

# Five Historical Phases



# Phase 1: Ancient Origins of Competency

Many researchers posit that the roots of competencies trace back to ancient China through the enduring legacy of the Civil Service Examinations, spanning over a millennium (Anastasia, 1968; Hoge, Tondora, & Marrelli, 2005).



# Chinese Civil Service Exam

These written exams were designed to identify the best **ONE PERCENT** of candidates who would then be able to go on to work as a bureaucrat/official for the Han Dynasty government (206 BCE – 220 CE).

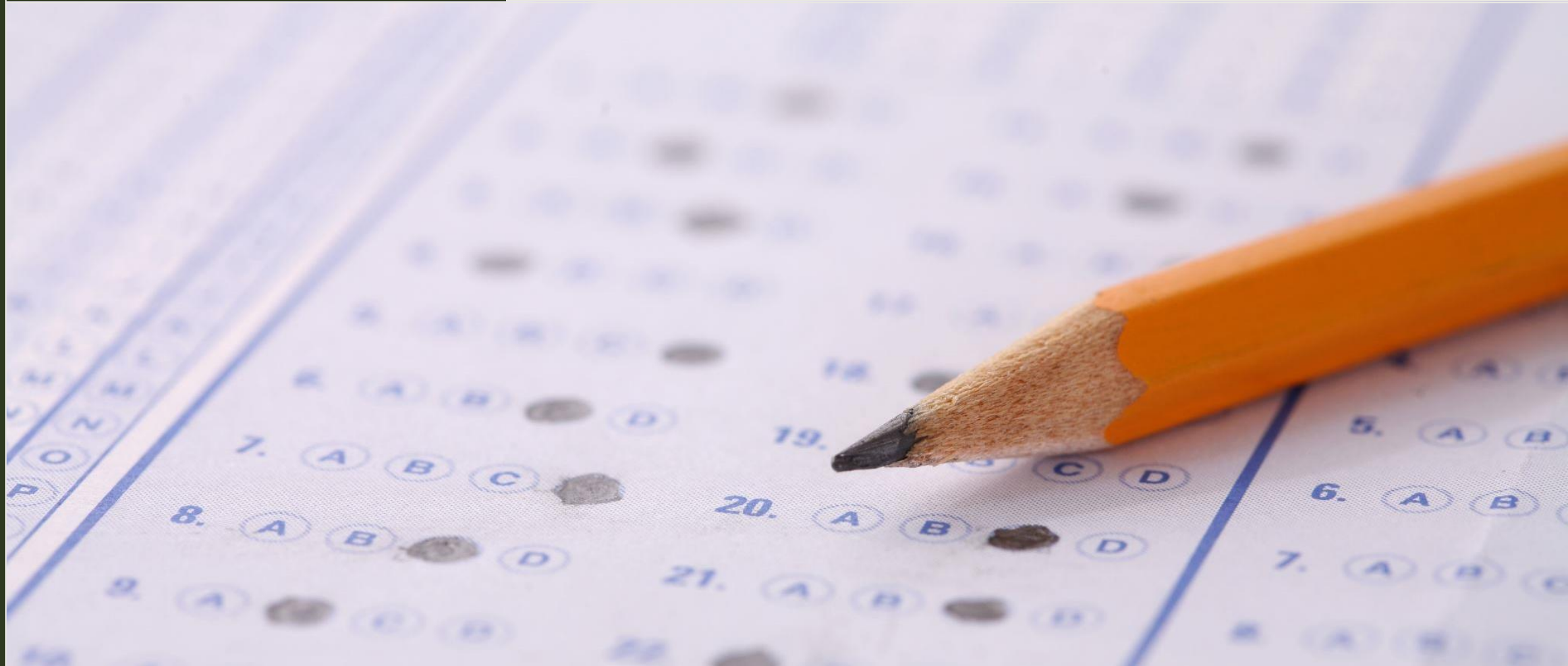
The examinations sought to assess competencies such as Confucian knowledge, understanding of law and government, and oratory skills across varying performance levels, essentially delineating competency levels.



## Benefits of Assessing Competencies

The rigorous nature of this examination system, demanding extensive practice and knowledge, bestowed elevated importance upon education – a legacy still evident in contemporary China (Cartwright, 2019).

Notably, this system's merit-based/competency-based nature potentially facilitated upward mobility and could have curtailed corruption associated with appointments influenced by bribes and familial connections.



United  
States  
Intelligence  
Agency



# Phase 2: Defining Competency and Setting a Competency Framework

The history and origins of competencies are frequently linked to McClelland's (1973) groundbreaking efforts. Hired by the U.S. Intelligence Agency (USIA), McClelland initiated research on competencies to devise more equitable employee selection criteria that would not unjustly exclude minority applicants, ultimately enhancing job performance relevance (Lucia & Lepsinger, 1999).

During his research, he voiced substantial critiques of the intelligence testing movement, advocating instead for the development and assessment of competencies as a means to accurately gauge job performance.



# McClelland's Six Recommendations



# #1 - Criterion Sampling



Measuring job performance involves sampling actual on-the-job activities and developing tests for those performance attributes using theory and practice.

## #2 -Performance changes

Tests should be designed to adapt and reflect changes in what an individual has learned. Rather than try to pinpoint pure predictive factors (e.g., intelligence) of job performance, research professionals should instead develop tests that sample desired job-related behaviors and observe if performance outcomes increase as abilities increase for better measures of validity.



### #3 - Transparency in testing

To improve performance, the individual should know explicitly what they are being tested on and how to adapt their behaviors for better performance.



# #4 - Measure competencies

Tests should assess broader competencies involved in “clusters of life outcomes” (p.9). Competencies should avoid over-specificity; **if there are too many tests for too many jobs or domains, there is no scalability.** McClelland argues for the presence of traditional cognitive (technical) competencies (e.g., reading, calculating), in addition to personality competencies (non-cognitive) such as communication, patience, and goal setting.



## #5 - Operant and respondent behavior

Assessing the capacity for test-takers behaviors or understanding behaviors does not always predict that behavior or knowledge on-the-job.



## #6 - Thought patterns.

To obtain maximum generalizability, tests should define “thought codes” that act as higher-order dimensions instead of defining each individual’s behavioral objective.



# Phase 3 – Figuring It Out



# The Debates

By spearheading a fresh research agenda, McClelland aimed to define and conceptualize competencies. As theories and various schools of thought proliferated, the terms and definitions surrounding "competencies" became subjects of intense debate.



# Expansions of McClelland's Work



# 1982



Boyatzis (1982), often regarded as one of the pioneers of competencies in the competency-based literature, provided a broader definition, characterizing competency as the "underlying characteristic of the person that **leads to or causes effective or superior performance**" (p.4).

# 1993

In his work with competency, Dubois (1993) stated that “the words competence, competency, and competency model are problematic” (p. 4). Dubois (1996) also later stated that “even the most sophisticated audiences **struggle to define and characterize this term [competence]** in organizationally meaningful ways” (p. 5).

2005

Several decades later, Wu (2005, 2009) stated that competencies are the application of knowledge and skill at a specific standard that is required in the workplace.



# 2011

**The U.S. Office of Personnel Management** has defined competency as a “measurable pattern of knowledge, skills, behaviors, and other characteristics that some individual needs to **perform work roles or occupational functions successfully**”. Finally, Campion et al. (2011) summarized the above definitions when the authors stated, “competency models refer to collections of knowledge, skills, abilities, and other characteristics (KSAOs) that are needed for **effective performance in the jobs in question**” (p. 226).

# Phase 4 - Overall Definitions

$x^2 + y^2 = ab + 4c$

$c(x, y)$

$xy = 2$

$cx - cy = 25^2$

$2\pi = C$

$A \perp B$

$\beta = 90^\circ$

$A = B$

$24 + \frac{x}{y} + \frac{a^2 + b^2}{c} + \frac{g}{x}$

$cx \ 9ab + 1$

$mem = 984 + n^{20}$

$(x^2 + 34x + c)$

$x = 9.20$

$n = 14!$

$\sum_{x=2}^{N=30} x$

$x \rightarrow 2$

$x \leq 549$

$\frac{1}{2} [984 + xg + pab]$

$010112$

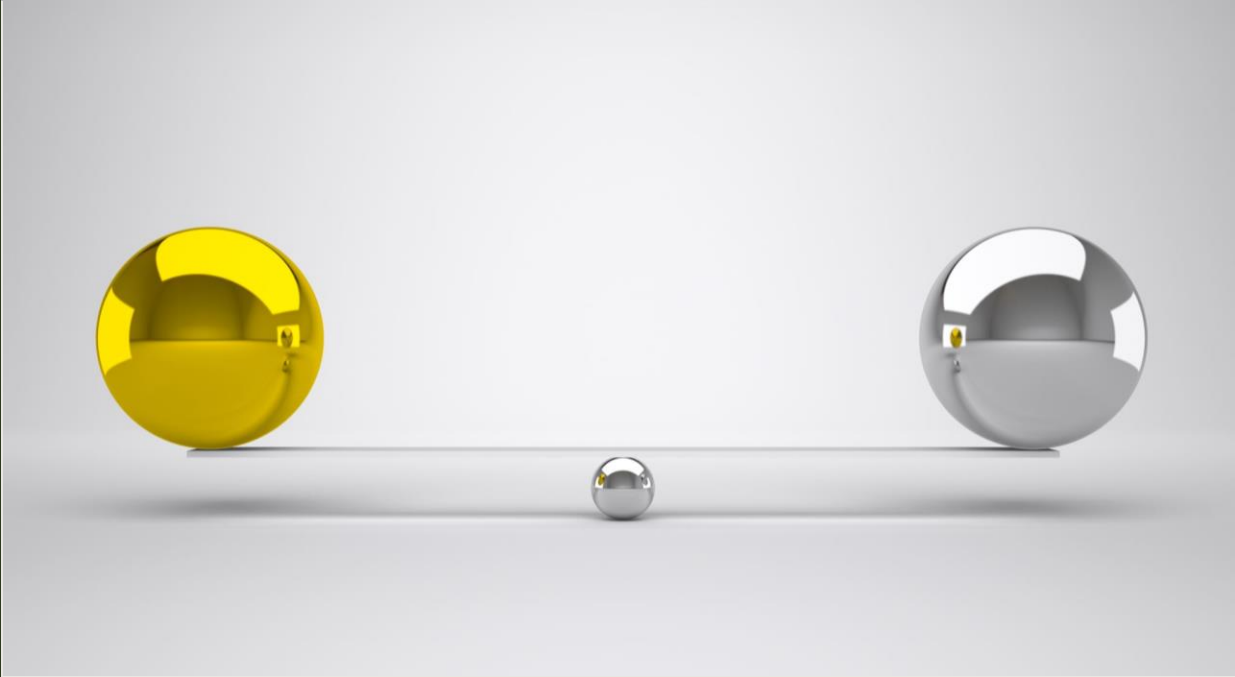
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$y = 4$

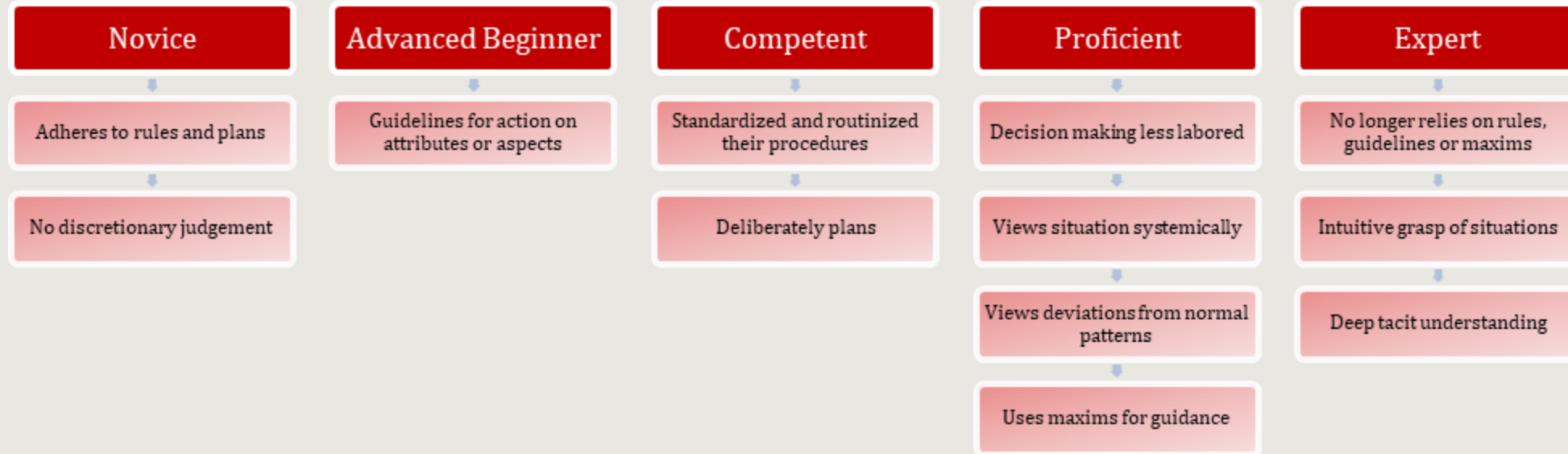
$A$

$\beta = 9 + x^2 + y^2$

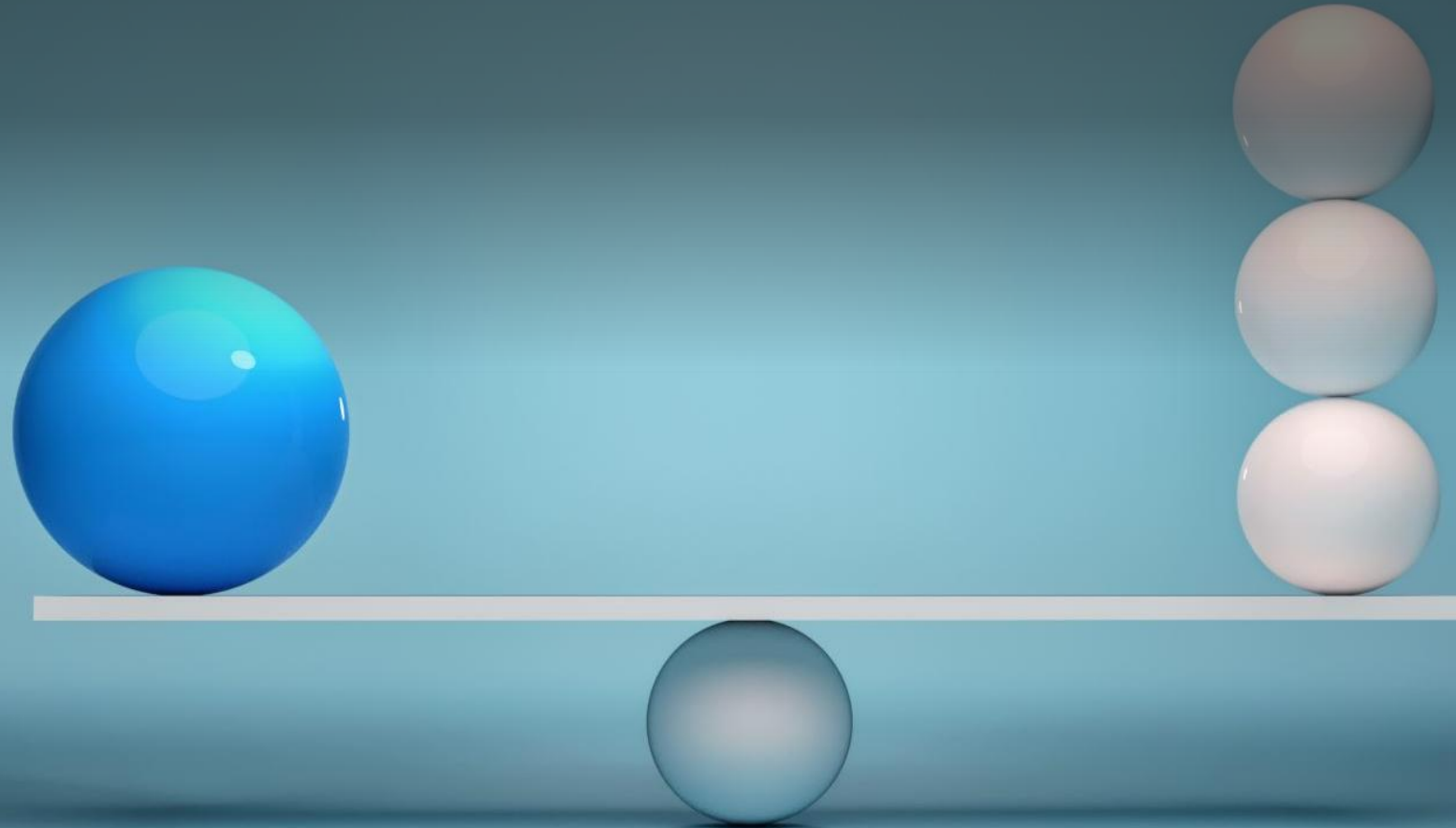
# Dreyfus and Dreyfus



In 1980, Dreyfus and Dreyfus established comprehensive definitions of competency, delineating five distinct competency levels. These levels, characterized as discrete stages, commence with "beginner," progress to "advanced beginner," then to "competent," followed by "proficient," and culminating in "expertise."



# Phase 5 – Unified Model of Competency



# Insights from Various Fields

**AERE asserts the existence of a unified theory, combining the insights from the aforementioned phases and diverse disciplines such as I/O psychology, certification/licensure, training and development, and evaluation.**

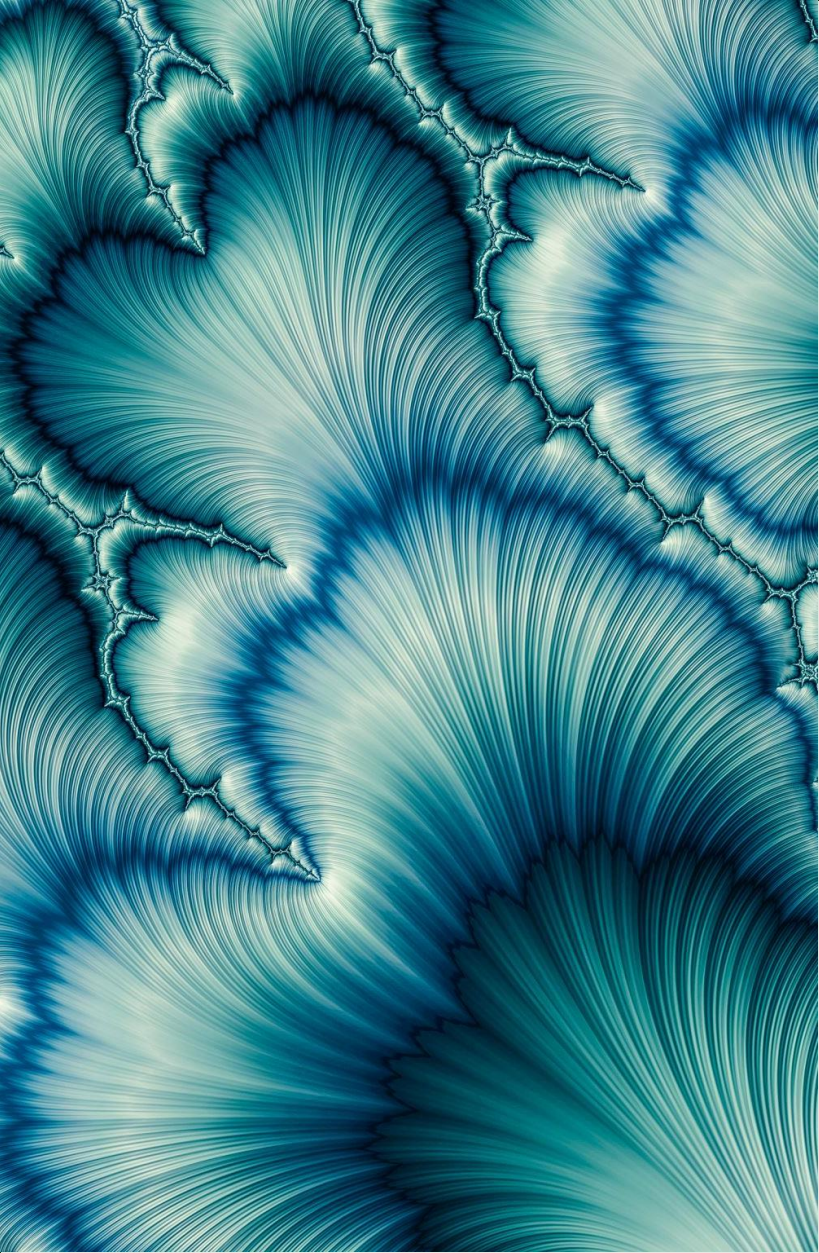
**These progressions have contributed to developing a more robust, rigorous, thorough, relevant, dynamic, and practical competency model.**



# The Shift

The emphasis has shifted from merely identifying competencies across levels to comprehending the interactions between competencies and outcomes, encompassing non-cognitive and cognitive elements. This approach demonstrates the benefits of analyzing the needs and tools essential for success in a particular profession or workforce, whether in a generalist or specialist capacity.





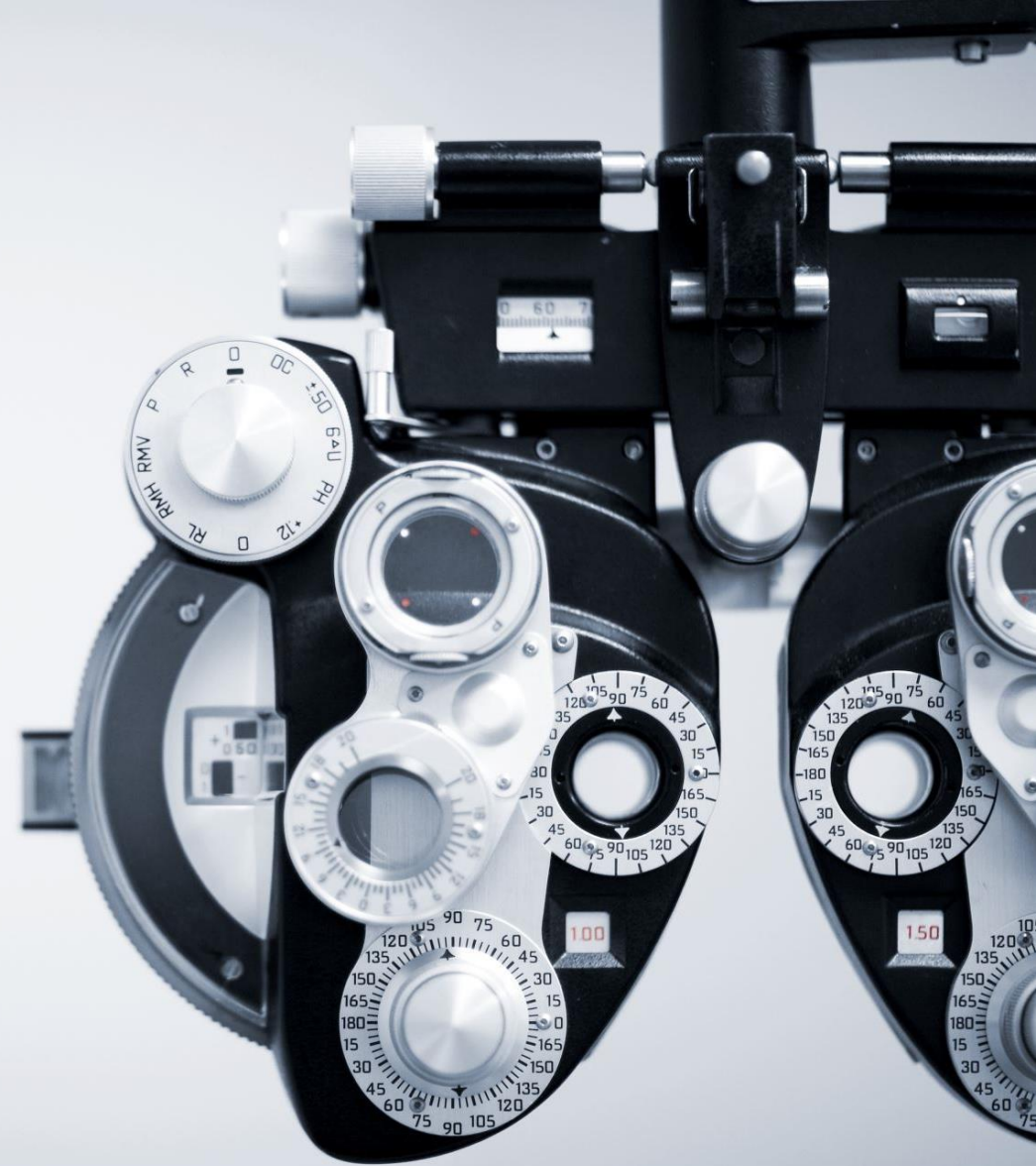
# Dynamic

Simultaneously, AERE acknowledges the evolving nature of the world, emphasizing the need for competencies to adapt to these changes through valid methods. Consequently, AERE advocates for a dynamic competency model.

# Our Definition

Competency is an individual's knowledge, skills, attitudes, and/or other characteristics<sup>[1]</sup> (KSAOs) that are required to meet a specific performance standard/proficiency for success in a specified job or job role (Straehle & Naughton, 2018).

A more recent definition is “an individual's knowledge, skills, attitudes, and/or other characteristics (KSAOs) required to meet a specific standard/proficiency for success in a specified job or job role based on objective outcome measures.” (Straehle, 2023).



# About the Authors





# Manny Straehle, PhD, GISF

With over two decades of active involvement in the credentialing industry; Manny is one of about 20 assessors for the ANSI ISO/IEC 17024:2012 accreditation standards. He possess immense proficiency as a consulting assessment and educational research expert, Dr. Manny sits at the top of Assessment, Education, Research Experts (AERE) as her Founder and President. Dr. Manfred has held roles at Advertising Research Corporation (ARC), Media Broadcasting Company (Pharmaceutical Marketing), National Board of Medical Examiners (NBME), Genesis Healthcare, Prometric, and Green Building Certification Institute (GBCI) to mention but a few. His long professional history and wealth of experience make Dr. Manny of immense importance to the operational value of AERE. Dr. Manny is no stranger to leadership responsibilities and has held several leadership positions for the credentialing and standards industry association while serving in the leadership capacity for countless other committees and institutions. With a formidable professional and managerial resume, Dr. Manny is equipped to pilot the affairs of AERE with laudable success.



# Emily Kim

Emily Kim is the Manager of Research and Senior Writer at AERE. She has engaged in psychometrics, QC, survey design, as well as both qualitative and quantitative research projects. She has also co-authored a number of one-pagers and white papers with AERE, and has experience in leading item writing sessions with subject matter experts for certification development. Emily holds a B.A. in Psychology and a B.S. in Business Management from the University of Maryland, College Park. She is currently enrolled in a graduate program at Virginia Tech in pursuit of a PhD in Industrial Organizational Psychology.



# Jacqueline Nadeau

Jacqueline majored in Psychology at the University of Maryland, College Park . She focused some of her coursework on computer science. As a Research I/O and Assessment Intern, Jacqueline will be studying assessment, education, and research across the industry as well as building her business and consulting skills.



# Jules Regan

Jules is a current sophomore studying psychology and education at Princeton University. Outside of classes, she conducts infant development research and aims to bridge educational psychology research with early education classrooms, making early education more scientifically sound, accessible, and equitable. She spends her free time mentoring middle school students, running the Princeton Psychology Society, and serving on the Princeton Psychology Department's Diversity, Equity, and Inclusion Committee. A first-generation, low-income student herself, Jules is dedicated to improving education on all fronts to ensure the success of the next generation of leaders.