

UNDERSTANDING COMPETENCIES IN THE WORKPLACE: A REVIEW OF CONCEPTS, FRAMEWORKS, INDIVIDUAL COMPETENCIES, AND MANAGERIAL COMPETENCIES

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ABSTRACT

As technology advances and organizational demands shift, employees and managers must demonstrate a mix of technical, behavioral, analytical, and interpersonal skills. Consequently, competencies have become increasingly significant in modern organizations. Focusing on manufacturing contexts, this paper reviews workplace competencies, their evolution across major competence frameworks, and their relevance to managerial and individual performance. Drawing on McClelland's Competency Model, Boyatzis's Model of Managerial Competence, the Iceberg Model of Competence, the Korn Ferry Leadership Competency Framework, and Bartram's Great Eight Competency Model, the review traces the development of competency thinking. It further synthesizes individual competencies, including achievement orientation, analytical ability, interpersonal skills, planning and attention to detail, communication and listening, creativity and innovation, technical knowledge, customer orientation, and discipline, followed by managerial competencies, which include impact and influence, people leadership, initiative and anticipation, decision-making, team management and people development, and resource management. The review points out that organizational effectiveness depends on integrating individual competencies for employees and individuals as well as managerial competencies for individuals in leadership positions rather than examining them in isolation.

Keywords: Competency, Competency Frameworks, Individual Competencies, Managerial Competencies

INTRODUCTION

Background

The nature of work has changed significantly due to rapid advances in industrial technologies, broadening technical knowledge beyond traditional operational skills. Industry 5.0 emphasizes integrating human intelligence with advanced technology, requiring employees to collaborate with manufacturing systems and oversee technology-enabled processes (George & Hovan, 2020). In parallel, contemporary manufacturing demands personnel with both domain-specific expertise and the analytical skills to interpret data, operate complex systems, and support technology-driven decision-making as Industry 4.0

continues to develop (Li et al., 2021). These trends have heightened the importance of employee capability in organizational performance, as skills, knowledge, and experience contribute to operational improvements, effective problem-solving, and information sharing that drive innovation (Lee et al., 2011). As a result, organizations have shifted their focus from evaluating academic performance to assessing competencies and behaviors that can be developed and applied within occupational settings (Campion et al., 2011).

DEFINITIONS OF COMPETENCY

Competency is gaining importance in Human Resource Management (HRM) and Industrial-Organizational (I/O) psychology because it can attribute and predict outstanding performance on a specific task. Organizations now evaluate people based on their early behaviors that distinguish high performers rather than their intelligence, education, and technical expertise. Consequently, more firms are using competency-based approaches to find, train, and manage individuals who exhibit the best behaviors (Campion et al., 2011; Sanchez & Levine, 2008).

After the Second World War, intelligence tests became a common method for selecting and employing candidates for organizational vacancies (Young & Chapman, n.d.). McClelland (1973) pushed the boundaries further by conducting a thorough study showing that intelligence and aptitude tests could not serve as a reliable and valid source of information to predict success in job performance. He argued that the focus should be on the observable behavioral traits that a successful employee consistently exhibits.

Boyatzis (1991) expanded on McClelland's (1973) and Klemp's (1980) work by defining competency as the fundamental traits causally linked to superior or successful job performance. Beyond technical capabilities, competencies include underlying qualities such as traits, reasons, beliefs, self-image, social roles, and behavioral skills that can be paired with job needs and the organizational environment to generate performance.

Expanding on this, Spencer and Spencer (2008) defined competencies as fundamental traits causally linked to criteria-based performance. According to their Iceberg Model of Competency, knowledge and abilities stand out. At the same time, personal qualities, such as motivations, attributes, and self-concept, are less obvious but better predictors of future job performance.

Recent research shows that competencies have both behavioral and observational components. Rodriguez et al. (2002) define competencies as observable behaviors and personal traits that can be evaluated objectively. Campion et al. (2011) defined competencies as a quantifiable combination of knowledge, skills, abilities, and other characteristics (KSAOs) that differentiate superior performers. Rather than skills, abilities, or performance, competencies comprise knowledge, skills, abilities, motivations, and behavioral tendencies that manifest in predictable behavioral patterns that consistently lead to success in various work environments (Campion et al., 2011; Sanchez & Levine, 2008).

According to Marrelli et al. (2005), competencies are behavioral, meaning that “they are demonstrated in observable, measurable behaviors at work.” Competency-based assessment methods rely on behavioral indicators of competency, which provide quantifiable descriptions of these behaviors and support pattern identification and evaluation planning.

IMPORTANCE OF COMPETENCIES IN CONTEMPORARY ORGANIZATIONS

Today's businesses operate in highly dynamic contexts marked by rapid technological change, shifting consumer expectations, fierce competition, and ongoing organizational transformation. Alongside organizational resources and technology, employee and leadership

competencies have emerged as crucial sources of long-term competitive advantage. As a result, competency-based management has become a strategic method for determining, evaluating, cultivating, and maintaining the behavioral skills necessary to accomplish organizational objectives (Campion et al., 2011; Dubois & Rothwell, 2004).

Competency frameworks emphasize the knowledge, skills, abilities, motivations, and behaviors that distinguish superior performers, unlike traditional approaches that prioritize years of experience, educational attainment, or task completion (Boyatzis, 1991; Spencer & Spencer, 2008). These frameworks allow organizations to analyze distinct aspects of performance, thereby enhancing understanding of the factors that drive job performance. Furthermore, competency frameworks help identify and develop high-performing employees by prioritizing the processes through which work is accomplished rather than focusing exclusively on outcomes (Campion et al., 2011; Kurz, 2003).

Competency frameworks enhance the precision and uniformity of human resource procedures, as research has repeatedly shown. Managers can conduct more objective performance evaluations and reduce subjectivity in appraisal procedures by communicating expected workplace behaviors through clearly defined skills. Additionally, these frameworks encourage uniformity across organizational departments and locations and increase transparency in personnel choice (Lucia & Lepsinger, 1999; Marrelli et al., 2005).

Competency frameworks extend beyond performance management by aligning business culture and strategic objectives with employee behaviors. By translating organizational goals into observable workplace behaviors, these frameworks foster innovation, enhance operational capability, improve customer satisfaction, drive quality improvement, and increase organizational agility. Furthermore, competency frameworks enable organizations to identify workforce skill requirements, attract qualified candidates, and respond effectively to evolving business environments (Rodriguez et al., 2002; Sanchez & Levine, 2008).

By highlighting employees' strengths and growth, competency frameworks also serve as useful tools for professional development. Competency assessments can improve employee engagement, leadership effectiveness, organizational commitment, and overall business performance by enabling coaching, training, mentoring, leadership development, career planning, and succession planning (Campion et al., 2011; Dubois & Rothwell, 2004; Marrelli et al., 2005). Competency-based HRM is now a fundamental component of contemporary human resource management because it integrates recruitment, selection, onboarding, performance management, learning and development, promotion, succession planning, and workplace planning (Lucia & Lepsinger, 1999; Ulrich, 2008).

By evaluating candidates' behavioral potential for successful job performance, competency-based recruitment techniques, such as behavioral interviews, assessment centers, situational judgment tests, and competency-based psychometric assessments, allow organizations to evaluate candidates beyond academic credentials (Campion et al., 2011). Similarly, rather than focusing only on performance results, competency-based performance management assesses the behaviors necessary for successful role performance and provides objective developmental feedback (Rodriguez et al., 2002).

The importance of competency-based HRM is evident in manufacturing settings, where operational performance depends on employees' technical expertise and behavioral abilities. Managers and employees alike must uphold quality standards, production efficiency, workplace safety, teamwork, communication, planning, leadership, flexibility, and critical thinking skills in the manufacturing sector (Buer et al., 2018; Sony & Naik, 2019).

Comprehensive competency frameworks are now more necessary than ever with the advent of Industry 4.0. Effective supervision in manufacturing requires integrating technical competence with leadership, continuous improvement, decision-making, communication, and change management skills to oversee digital technologies, automation, robotics, artificial intelligence, and smart manufacturing systems (Hecklau et al., 2016; Tortorella et al., 2020). Despite the growing adoption of competency-based approaches, many manufacturing firms still rely primarily on performance indicators that assess outcomes rather than underlying competencies. This reliance restricts the identification of competency gaps and limits the implementation of targeted developmental interventions. As a result, there is a growing need for standardized, behaviorally anchored competency evaluation instruments.

RATIONALE FOR THE REVIEW

The growing emphasis on competencies has led to multiple definitions and competency frameworks, showing differences in how competencies are conceptualized and applied across organizational contexts. While individual and managerial competencies have contributed to understanding employee and managerial performance, researchers often examine them separately, limiting an integrated understanding of the competencies required across organizational roles. At the same time, organizations progressively require competency-based talent systems to support recruitment, performance management, employee development, leadership development, and succession planning. Therefore, an integrated review is needed to bring together the different conceptualizations and frameworks of competencies and examine how individual and managerial competencies contribute to effective organizational performance and human resource practices.

COMPETENCY FRAMEWORK APPROACHES

McClelland's Competency Model (1973)

David C. McClelland (1973) challenged the widespread reliance on intelligence and aptitude tests as primary indicators of occupational success, initiating an influential shift in hiring practices and performance evaluations. He argued that traditional intelligence assessments were insufficient for identifying individuals likely to excel in real work environments and frequently failed to predict job performance. Instead of focusing solely on cognitive ability, McClelland recommended that organizations identify the competencies demonstrated by high-performing employees, emphasizing observable behaviors and underlying personal characteristics (McClelland, 1973).

According to McClelland (1973), competencies are fundamental qualities that distinguish outstanding performers. These qualities include knowledge, skills, motivations, traits, self-concept, and social roles, all of which affect effective work performance. Rather than relying on standardized intelligence tests, he promoted criterion-referenced techniques such as behavioral event interviews to uncover competencies directly linked to successful performance in specific positions (McClelland, 1973). His competency-based approach changed organizational focus from gauging academic performance to assessing behaviors that could be cultivated and used in professional settings (Campion et al., 2011).

Boyatzis (1991), Spencer and Spencer (2008), and many other modern competency frameworks draw on his work, which laid the theoretical groundwork for competency-based HRM and modern competence modeling (Campion et al., 2011). Because it established competency assessment as a reliable and useful technique for forecasting job performance and guiding employee selection, development, and performance management, McClelland's theory remains one of the most significant contributions to I/O psychology.

Boyatzis Model of Managerial Competence

Boyatzis (1991), building on McClelland's (1973) competency model, shifted the emphasis from identifying individual competencies to understanding how competencies translate into successful managerial performance. Based on a thorough review of more than two thousand managerial jobs across numerous firms, he suggested that exceptional performance results from the interaction among personal competencies, work demands, and the organizational environment, rather than from competencies alone. This interaction, known as the contingency model of effective performance, suggests that even highly competent individuals may underperform if their skills do not align with the organizational context or the role's behavioral requirements.

Boyatzis's (1991) work also contributed significantly by distinguishing between differentiating and threshold competencies. While distinguishing competencies separate great performers from average performers, threshold competencies are the minimum knowledge and abilities needed to perform the task well. Boyatzis (1991) identified managerial competencies consistently linked to behavioral event interviews, including achievement orientation, initiative, analytical thinking, leadership, self-confidence, interpersonal understanding, and concern for impact. Because of this contrast, organizational focus has switched from evaluating basic job requirements to finding behaviors that indicate outstanding performance.

Boyatzis' model laid the foundation for competency-based hiring, leadership development, succession planning, and performance management, and was the first managerial competency model to be empirically validated. The model's focus on organizational context and behavioral evidence continues to influence contemporary competency modeling and psychometric evaluation, especially in developing role-specific competency tools for managerial populations (Campion et al., 2011; Spencer & Spencer, 2008).

The Iceberg Model of Competency (2008)

One of the most important frameworks in HRM and competency research is the Iceberg Model of Competency, which was introduced by Spencer and Spencer (2008). The model distinguishes between hidden competencies (below the surface), such as motivation, characteristics, and self-concept, and visible competencies (above the surface), such as knowledge and skills. Visible competencies are relatively straightforward to identify, teach, and develop through education and training. In contrast, hidden competencies are underlying, stable personal characteristics that consistently influence workplace behavior and long-term job performance. This distinction highlighted that an employee's ability to work effectively depends not only on knowledge and skills but also on core psychological attributes that influence behavior.

A key contribution of the model was organizing competencies into six broad behavioral clusters: Achievement and Action, Helping and Human Service, Impact and Influence, Managerial, Cognitive, and Personal Effectiveness. According to Spencer and Spencer (2008), these competency clusters gave organizations a formal framework for identifying and evaluating behaviors linked to better performance across many occupational categories.

Competency-based HR practices have been strongly influenced by the iceberg model, especially in competency modeling, assessment centers, behavioral event interviews, leadership development, and psychometric testing. It was one of the most influential frameworks for creating competency dictionaries. It behaviorally anchored assessment tools because it focuses on identifying observable behaviors while acknowledging the

psychological traits that underlie them (Campion et al., 2011). As a result, the model still offers a strong theoretical basis for creating competency assessments for management and supervisory populations, as well as role-specific competency assessments.

Korn Ferry Leadership Competency Framework (formerly known as Lominger Leadership Architect)

Created as the Lominger Leadership Architect, the Korn Ferry Leadership Competency Framework is one of the most extensive frameworks for personnel management and leadership evaluation in contemporary firms. Lombardo and Eichinger initially developed the framework (1997), and Korn Ferry later expanded it. It includes sixty-seven behavioral competencies, leadership derailers, and learning agility, which describes a person's capacity to learn from experience and adjust effectively to circumstances (Lombardo & Eichinger, 1997, 2004). Unlike earlier competency models that highlight only traits linked to effective performance, the Leadership Architect offers organizations a structured competency library they can customize to different leadership levels and organizational contexts.

The framework contains competencies that collectively represent the cognitive, interpersonal, and strategic skills required for effective leadership in complex business environments. These competencies include decision quality, strategic mindset, customer focus, managing ambiguity, courage, and resourcefulness. Notably, the theory incorporates the concept of leadership derailers, which are behaviors that may hinder leadership effectiveness even in the presence of strong competencies. This inclusion offers a more balanced approach to leadership development and assessment. International corporations widely use the Korn Ferry framework for competency-based hiring, succession planning, executive development, performance management, and leadership evaluation because of its adaptability and behavioral specificity. According to Campion et al. (2011), the model's practical orientation has also made it a key reference for creating organizational competency frameworks and competency dictionaries.

Great Eight Competency Model

In response to the growing number of competency frameworks being developed across various enterprises, Bartram (2005) developed the Great Eight Competency Model. This universal taxonomy can integrate talents across industries and occupations. The model emerged from extensive research and consisted of eight broad domains: Leading and Deciding, Supporting and Cooperating, Interacting and Presenting, Analyzing and Interpreting, Creating and Conceptualizing, Organizing and Executing, Adapting and Coping, and Enterprising and Performing (Bartram, 2005). Instead of defining job-specific competencies, the framework provides a higher-order classification system that can accommodate competencies required across a range of organizational positions.

The Great Eight model is unique because of its empirical foundations. Through a factor-analytic study of pre-existing competence models, Bartram (2005) developed the framework and showed that a wide range of behavioral abilities could be consistently arranged into eight broad categories. This hierarchical structure made comparisons across professions, sectors, and organizational settings easier and increased consistency in competency modeling (Bartram, 2005). As a result, the framework has been widely used in competency-based HRM, leadership development, occupational evaluation, and personnel selection.

By offering a standardized behavioral framework for creating competency models with broader cross-industry application, the Great Eight Competency Model has also influenced psychometric assessment. According to Campion et al. (2011), it provides a useful basis for

creating and validating competency assessment tools because its extensive, yet adaptable structure lets organizations modify competency domains to fit job responsibilities while preserving theoretical consistency.

These frameworks together show us how competency modeling has developed from identifying the individual traits (McClelland, 1973) to clarifying the connection between organizational performance and competencies (Boyatzis, 1991), behaviorally structured competency assessments (Spencer & Spencer, 2008), competency libraries for leadership development, and, finally, industry-neutral universal competency taxonomies (Bartram, 2005). These frameworks have helped share competency-based HRM, but they remain largely general and must be contextually modified to meet the unique behavioral requirements of some industries, particularly manufacturing.

INDIVIDUAL COMPETENCIES

Achievement Orientation

The competency “Achievement Orientation” refers to the person’s persistent desire to strive for excellence, accomplish challenging goals, and maintain high-performance standards through tenacity and constant effort. It was McClelland (1973) who first suggested that job performance was strongly predicted by achievement motivation, not Intelligence Quotient. Relying on this foundation, achievement goal theory views achievement orientation as a motivational framework that determines how people manage effort, interpret feedback, and pursue performance and learning goals (Kozlowski & Bell, 2006). People with high achievement orientation set challenging goals, monitor progress, evaluate performance, and actively seek ways to improve, which enhances learning and performance outcomes (Kozlowski & Bell, 2006). Additionally, Companies with achievement-oriented cultures are more likely to achieve their strategic objectives (Hardjowikarto et al., 2023).

Research shows that achievement-oriented individuals tend to have higher levels of persistence, self-control, adaptability, and task performance, which can lead to stronger leadership qualities. Payne et al. (2007) identified a positive correlation between goal orientation and self-efficacy, persistence, feedback-seeking behavior, learning techniques, and work performance. This suggests that individuals with a strong achievement orientation set performance standards, seek information about their performance, and use strategies to improve their effectiveness. Alveranga et al. (2019), using factor analysis, demonstrated that achievement orientation fosters commitment, initiative, accountability, and a persistent pursuit of organizational objectives, all of which contribute to enhanced leadership traits. They also found that commitment ranked among the three most important competencies for project success, highlighting the importance of sustained responsibility for performance outcomes (Alveranga et al., 2019). This finding shows that achievement orientation supports both individual and organizational success through proactive and continuous performance management.

Hence, within organizational competency frameworks, achievement orientation is recognized as a core competency linked to successful project outcomes and effective leadership.

Analytical Ability

Analytical ability involves systematically collecting, organizing, evaluating, and analyzing facts to support problem understanding, root-cause identification, and the generation of substantiated alternatives. Individuals with advanced analytical skills can interpret complex information, distinguish relevant from irrelevant data, and fully understand operational challenges before choosing an appropriate course of action. Such skills foster objective

reasoning in organizational contexts. Analytical thinking prioritizes systematic reasoning and evidence-based evaluation rather than relying exclusively on intuition throughout the problem-solving process (Mohaghegh & Furlan, 2020).

According to systematic problem-solving literature, analytical skills before making a decision are necessary for effective organizational learning and continuous improvement. Mohaghegh and Furlan (2020) define systematic problem solving as a deliberate and sequential process that involves problem identification, information collection, root cause investigation, hypothesis formulation, and evaluation of potential solutions. Before putting corrective measures in place, workers can use manufacturing analytics to systematically analyze data from various production sources, find deviations in manufacturing processes, investigate the underlying causes of operational issues, and objectively assess alternative explanations, thereby reducing reliance on trial-and-error and improving the sustainability of solutions (Meister et al., 2019).

Farivar et al. (2022), using data from 240 supply-chain managers, highlight that employees' analytical skills are essential for transforming organizational data and analytics into improved performance. In manufacturing, systematic analysis underpins strategic and operational planning. This approach allows employees to evaluate alternatives before implementation, optimize resource allocation, and support ongoing organizational effectiveness (Rusjan, 2005).

Interpersonal Skills

Interpersonal skills are the ability to create and sustain positive working relationships through effective communication, teamwork, mutual trust, empathy, and constructive interactions that would enhance organizational effectiveness. According to Sato et al. (2019), interpersonal skills go beyond communication to include behaviors that enhance teamwork, reduce conflict, and strengthen workplace relationships; they are critical markers of employee performance and important for the organization as a whole. A study of employees in a Japanese manufacturing company further demonstrated the relevance of interpersonal skills training to workplace performance, finding that participation in such training was strongly associated with subsequent performance assessments and promotion probability (Sato et al., 2019).

Interpersonal skills in manufacturing organizations have become increasingly important because cross-functional teams must coordinate production tasks continuously. Gocevska and Galevska (2015) found that positive interpersonal interactions improve communication, teamwork, organizational climate, and worker productivity; reduce misunderstandings; and support the prevention and resolution of workplace conflicts, particularly in manufacturing contexts where work is heavily interrelated. Holm (2018) observed that modern production relies more on cooperative shop-floor teams, requiring employees to share information, support one another, and communicate productively rather than perform discrete technical tasks.

The quality of interpersonal communication also affects workplace functioning. Zanozovska (2017) asserts that trust, communication, cooperation, and positive employee-manager relationships are all directly related to productive work and organizational performance. In manufacturing supply chains, Durach and Machuca (2018) found that interpersonal complementarity and interpersonal skills promote relational organizational resilience at the interorganizational level.

Furthermore, the transition to Industry 4.0 increases the importance of interpersonal skills. Guzmán et al. (2020) assert that social perceptiveness, coordination, bargaining, and persuasion are essential interpersonal skills for promoting participation, trust, teamwork, and a more cooperative workplace culture.

Planning & Attention to Detail

The competency of “Planning and Attention to Detail” includes organizing work systematically, anticipating business needs, prioritizing activities, and closely monitoring information to ensure tasks are completed accurately, efficiently, and on time. Effective planning helps employees assign resources, coordinate tasks, and prepare for possible crises. Attention to detail decreases errors, maintains quality, and achieves compliance with procedures. Together, these competencies support consistent organizational performance and operational dependability (Mintzberg, 1994).

Production planning is a crucial managerial responsibility in manufacturing companies that involves coordinating employees, materials, machinery, and production schedules to ensure efficient, effective operations. The planning of production synchronizes activities across departments, optimizes resource utilization, reduces production cycle time, and boosts organizational efficiency by guaranteeing that the production process stays balanced, ensuring that required resources are available in the appropriate quantities and within stipulated timeframes, and ensuring that the process is responsive to any changing operational demands (Sunday et al., 2021; Zanozovska, 2017).

Attention to detail is critical in manufacturing environments, as even minor omissions or systematic errors can significantly compromise worker safety, equipment reliability, and product quality. Schwarz (2020) contends that many process safety incidents stem from human error caused by inadequate planning, operational mistakes, and insufficient attention to detail. Evidence shows that systematic adherence to operational details, including defined procedures, comprehensive documentation, and careful execution, substantially reduces operational errors and enhances process safety (Schwarz, 2020).

Barros and Ramos (2025) demonstrated that excessive information disrupts organizational concentration and impairs the ability to identify relevant information, maintain priorities, and respond effectively to ongoing events. These results underscore the necessity of focused, selective attention in information-rich manufacturing environments.

Communication and Listening

Communication and listening involve conveying information clearly, actively listening to others, and offering feedback, which fosters mutual understanding and effective cooperation. Accurate communication between individuals and across organizational levels is necessary to coordinate actions and achieve common objectives. Effective communication is therefore particularly important in organizational settings. In their study of project management competencies, Alvarenga et al. (2019) concluded that communication was one of the three most crucial talents for project success, highlighting its importance for effective organizational operation.

Effective communication is essential in manufacturing organizations to coordinate production activities, implement operational goals, and maintain alignment between the shop floor and managerial staff. Alcaide-Muñoz et al. (2018) state that shop-floor communication is critical to executing manufacturing strategy successfully. Their findings show how feedback and instructional communication strategies improve plan execution and enable prompt responses to change, underscoring the importance of clear communication in operational situations.

Workers must convey work-related information clearly and adapt messages to the recipient's needs and the situation. Maswangani and Hedley (2014) found that ineffective communication in South African manufacturing businesses led to financial loss and loss of market share, further highlighting the importance of effective communication.

Listening is equally important because it helps managers and employees understand problems, give clearer instructions, and offer constructive criticism. Active listening involves examining verbal and nonverbal cues, seeking clarification, and responding appropriately to enhance cooperation and task completion. By letting people share concerns and ideas, attentive listening improves organizational learning and decision-making and promotes cooperation, trust, psychological safety, and employee engagement (Kluger & Itzchakov, 2021). As a result, explicit communication, situational and audience adaptation, active listening, obtaining clarification when information is unclear, and verifying mutual understanding before moving forward are all indicators of effective professional dialogue.

Research in manufacturing businesses provides further evidence of the value of improving managers' communication and listening skills. van Vuuren et al. (2015) found that managers who had undergone communication training showed higher listening and feedback abilities than those who had not. Their findings also show a positive correlation between listening and feedback skills, suggesting that communication training enhances managerial effectiveness, employee relationships, and organizational performance.

Creativity & Innovation

Creativity and innovation are important competencies that help organizations stay ahead of the competition by sustaining competitive advantage and adapting to changing market conditions (Woodman et al., 1993). Creativity is defined as the process of generating a unique and successful application of concepts to products, processes, or organizational practices that create value (Acar et al., 2018).

Creativity and innovation as a competency extend beyond product development in manufacturing companies to include process improvement, operational efficiency, cost reduction, inefficiency reduction, and continuous adaptation to changing consumer and market expectations (Štok et al., 2009). Stojcic et al. (2018) also found a positive correlation between innovation effectiveness and product efficiency, showing that companies with greater innovation effectiveness also achieve higher productive efficiency and stressing the importance of creative capacities to organizational success. Similarly, Harari et al. (2016) found that task performance and organizational citizenship behaviors are positively correlated with creative and imaginative performance, highlighting creativity as a relevant professional ability.

Organizational contexts significantly influence creativity development. Çekmecelioğlu and Özbağ (2016) proposed that psychological empowerment and organizational support for innovation encourage employees to develop and implement new ideas, increasing individual and organizational creativity. Similarly, Štok et al. (2009) emphasized that collaborative work environments, corporate values, and supportive leadership promote creative thinking and ongoing growth. According to Štok et al. (2009), managers play a critical role in promoting innovation, although teamwork, employee involvement, and organizational principles can enhance creative behavior.

Technical Knowledge

Meyer et al. (2015) stated that one of the most crucial abilities employees need to perform effectively in modern manufacturing organizations is technical knowledge. Hence, technical

knowledge was operationally defined as the application of job-specific expertise, professional knowledge, and practical skills required to perform accurately and efficiently, in accordance with organizational standards. Technical proficiency helps employees in manufacturing organizations carry out operational tasks efficiently, maintain quality standards, resolve production issues, and adapt to evolving technologies. As a result, technical knowledge now plays a vital role in determining both individual and organizational success (Meyer et al., 2015).

The scope of technical knowledge has expanded beyond conventional operational skills because industrial technologies evolve so quickly. Industry 5.0, according to George and Hovan (2020), strongly emphasizes the collaboration between human intelligence and advanced technology, requiring people to work alongside manufacturing systems and supervise technology-enabled processes. Similarly, modern manufacturing increasingly needs personnel with both domain-specific expertise and analytical skills to assess data, run complex systems, and support technology-driven decision-making, highlighting the need to improve the workforce as Industry 4.0 evolves (Li et al., 2021).

Research has consistently shown that employee competence directly contributes to industrial effectiveness. According to Lee et al. (2011), worker expertise, which is reflected in skills, knowledge, and experience, facilitates the successful implementation of operational improvements, enhances problem-solving skills, and encourages high-level information sharing, all of which support innovation in the manufacturing process. They also show how information sharing enables employees to exchange crucial knowledge and enhances problem-solving abilities. Harari et al. (2014) similarly focus on information sharing as an organizational process and found that extraversion, conscientiousness, and openness predict knowledge transfer.

According to Morgeson et al. (2005), workers who are more adept at the technical aspects of their jobs are more likely to expand their responsibilities, be more open to new ideas, and be more creative because they learn about and successfully apply new ideas in enriched tasks and roles. Technical knowledge improves not only individual performance but also organizational sustainability. Genaidy et al. (2010) assert that manufacturing firms that invest in employees' technical knowledge and create work systems that effectively integrate human abilities with technological resources achieve increased long-term performance, productivity, and safety.

Customer Orientation

Customer orientation refers to employees' ability to understand, anticipate, and meet client needs while maintaining long-term relationships and improving customer satisfaction and corporate performance. In manufacturing firms, this competency extends beyond direct client encounters to include aligning operational decisions with customer wants and continuously improving products and services in response to customer feedback. Kohli and Jaworski (1990) defined customer orientation as the process of generating, disseminating, and responding to consumer intelligence throughout organizational departments. Narver and Slater (1990) conceptualized customer orientation as a fundamental element of market orientation, stressing the creation of superior customer value through a complete understanding of customer wants and needs. This view is further supported by Dahir et al. (2026), who found that customer orientation was positively associated with performance in Kenya's pharmaceutical manufacturing industry. Together, these perspectives suggest that effective customer orientation requires proactive information gathering and coordinated organizational responses, not just addressing customer concerns.

Dwivedi and Sharma (2002) argue that customer perceptions and needs are fundamental to product and process development. They emphasize the importance of ongoing customer information collection and integrating customer feedback into design, manufacturing, quality, and service processes. Additionally, they identify responsiveness, delivery, quality, reliability, and service as key dimensions of customer value. The analysis done by them also highlights the role of internal customers within manufacturing processes, promoting a comprehensive understanding of customer orientation across organizational functions.

Additionally, customer orientation requires businesses to go beyond addressing current issues and cultivate awareness of evolving and new demands. Customers are a "moving target," according to Dwivedi and Sharma (2002), whose expectations vary as technology and the market do. They emphasize ongoing observation and prompt integration of consumer feedback into process and product development. Similarly, Tottie et al. (2016) showed how businesses can translate the "Voice of the Customer" into operational and technical requirements by collaborating with industrial lead users, enabling continuous process and product development. Their research also highlighted the need to understand shifting consumer preferences, maintain collaborative relationships, and systematically incorporate customer intelligence into business decision-making.

Koo et al. (1999) argued that customer expectations vary by industry niche and that businesses must identify clients' different expectations and modify their goods and services accordingly. This strengthens efforts to understand customer wants and adjust organizational responses. Percy (2007) argued that effective customer orientation requires strong integration between marketing and operations, ensuring that customer data is shared across departments and transformed into operational improvements.

Discipline

Discipline is defined as an employee's constant adherence to organizational policies, standard operating procedures (SOPs), safety protocols, and expected work behaviors that ensure reliable and effective performance. Although discipline has traditionally been associated with enforcing conformity in industrial environments, recent perspectives conceptualize it as a behavioral mechanism that fosters accountability, operational consistency, and continuous improvement (Kaizen), as opposed to mere obedience (Clark, 1994). In manufacturing industries, discipline is essential for sustaining output, quality, and worker safety, as production systems rely on coordinated activities and standardized procedures.

Klein (2005) defined operational discipline as a firm allegiance to executing all tasks accurately and consistently. His research shows that operational discipline goes beyond compliance, improving safety, productivity, quality, waste reduction, and cost-effectiveness.

The study identifies consistent adherence to procedures, an absence of shortcuts, up-to-date documentation, and adequate resources as key characteristics of operational discipline. Forest (2012), utilizing the Conduct of Operations model, argues that managerial discipline reduces human error and enhances operational reliability by establishing clear expectations, defining responsibilities, maintaining ongoing communication, and implementing accountability systems. This model links disciplined execution to consistent, repeatable operational outcomes, emphasizing the importance of identifying and correcting deviations rather than normalizing them.

According to Hardjowikarto et al. (2023), work discipline positively and significantly affected manufacturing workers' performance, and disciplined workers were better able to meet operational and quality criteria. Similarly, Kumala et al. (2023) discovered a substantial

positive correlation between work discipline and employee performance in manufacturing. Ichdan (2024) found that work discipline positively affects employee productivity, particularly when paired with employee motivation and Kaizen concepts. Hardjowikarto et al. (2023) demonstrated that work discipline significantly enhances employee performance when combined with employee ability. This finding suggests that disciplined behavior enables organizations to achieve operational objectives more effectively.

MANAGERIAL COMPETENCIES

Impact & Influence

The competency of “Impact and Influence” involves the ability of the employee to shape other people’s attitudes and behaviors by establishing credibility, convincing others, understanding the perspectives of the stakeholders, and gaining commitment to goals. Influence in managerial roles extends just beyond formal authority; managers must build relationships and create an atmosphere where employees support the organizational objectives. These behaviors are especially critical in manufacturing environments, because implementing operational changes and continuous improvement frequently requires coordination across functions and organizational levels.

In manufacturing environments, influence matters because operational benefits require collaboration across functional and organizational barriers. Transformational leadership can boost both affect- and cognition-based trust in management and create an atmosphere that encourages shop floor employees to exchange constructive criticism and participate in problem-solving (Li et al., 2014). This suggests that when managers establish credibility and build trust-based relationships, stakeholders feel comfortable raising issues and offering helpful suggestions. In lean production settings, this reduces resistance and supports continuous improvement.

Effective influence also requires communicating the concepts in a way that encourages participation and acceptance. In an automotive manufacturing business, Mirkamali et al. (2011) found that transformational leadership was associated with organizational learning by promoting diverse perspectives, knowledge sharing, and effective communication. These procedures allowed managers to express priorities, address divergent viewpoints, and encourage commitments to team goals. The study also highlights the importance of intellectual stimulation, idealized influence, individualized consideration, and inspirational motivation in cultivating commitment to organizational goals.

Influence does not necessarily equate to improved performance outcomes. Ugwu et al. (2015) found that transformational leadership positively predicted employees’ in-role performance, whereas trust in leadership neither predicted nor independently mediated performance. This distinction highlights the importance of separating relationship-building from performance effects. In contrast, Schaubroeck et al. (2007) demonstrated that transformational leadership was associated with higher team performance through enhanced team potency, suggesting that a leader's actions can influence team efficacy and confidence.

People Leadership

People leadership means the ability to motivate, guide, empower, and develop employees while modeling professionalism and adapting leadership style to changing conditions. Transformational leadership is a pertinent framework because it emphasizes motivation, individualized consideration, intellectual stimulation, and behaviors that encourage employees to surpass standard expectations. These elements emphasize role modeling, a shared objective, encouraging individuals to think differently, and providing individualized

support to increase motivation, empowerment, and employee growth (Transformational Leadership, 2015; Chandrasekara, 2019). These practices are particularly relevant to managerial roles that require direction, motivation, and development.

Data from manufacturing contexts reveals the relationship between leadership and employee outcomes. Chandrasekara (2019), using a sample from an apparel manufacturing organization in Sri Lanka, found a strong relationship between transformational leadership and job satisfaction and job performance. The study claims that transformational leaders motivate their employees, provide clear goals, participate in decision-making, share authority, and pay close attention to each individual. Similarly, Xuefeng (2023) found that leadership style influenced employees' motivation in manufacturing firms, underscoring the importance of motivation strategies in sustaining worker effort. Furthermore, Rawashdeh et al. (2021) found that transformational leadership was associated with organizational performance through quality innovation, highlighting leaders' role in encouraging employee contribution and improvement.

Another facet of people leadership is creating the appropriate conditions for participation and empowerment. Wei and Vasudevan (2002) found that democratic leadership was positively associated with company performance in the Chinese manufacturing setting, supporting employee engagement in decision-making. Alat and Suar (2020) emphasized the need to respond to changing situations, staff capabilities, and operational demands. This shows the need to modify leadership styles based on the situation, rather than sticking to one.

Initiative & Anticipation

Initiative and anticipation include behaviors such as proactively identifying new risks, opportunities, and changing conditions before they become operational problems. Rather than responding immediately to interruptions, these skills emphasize anticipatory monitoring, preparedness, and timely preventive action. These behaviors are particularly important in manufacturing because interrelated production processes can allow small deviations to escalate into major ones.

Early warning systems provide a systematic approach to anticipate such problems. Bertoncel et al. (2018) demonstrated the value of early warning systems in smart-factory settings, where monitoring signals help managers uncover new difficulties and enable rapid responses. This supports the behavioral emphasis on steadily monitoring early warning indicators rather than waiting for problems to appear as performance failures. By outlining scenario modeling, live monitoring, and predictive analytics as techniques for identifying disruptions before they occur, Igbagbosanmi (2019) further supports the anticipatory perspective. By linking early detection to resource reallocation, adaptive scheduling, and contingency planning, the authors highlight preparedness as part of proactive action.

Widiasih et al. (2015) argued that risk identification as a structured process required an integrated risk management technique during lean manufacturing adoption, stressing the importance of identifying and evaluating potential risks and preparing responses to maintain implementation effectiveness. This perspective sees anticipation as an ongoing process rather than a one-time risk assessment. Importantly, the study shows how considering interrelationships can shift risk priorities, highlighting the need to anticipate how new issues might affect connected operations.

Decision Making

Decision-making is a managerial process in which supervisors evaluate options, analyze data, and determine the best course of action for different organizational circumstances. In

manufacturing environments, managerial decisions directly affect production consistency, resource utilization, operational costs, and organizational success. Verma et al. (2015) emphasize the importance of management decision-making in organizational contexts, stressing managers' role in assessing available information and choosing the best courses of action in response to organizational requirements. Because strategic direction and operational effectiveness are closely linked to managerial decision-making in manufacturing organizations, managers must integrate relevant information with organizational circumstances and priorities while considering factors such as operational efficiency, cost reduction, resource utilization, and changing conditions (Halili et al., 2021).

Tambe and Krishnan's (2000) study, in a large Indian manufacturing organization, supported a rational approach to managerial decision-making. The authors differentiate between avoidant, dependent, rational, and spontaneous decision-making styles. Their findings indicate that rational decision-making, defined by thorough information analysis and attention to long-term consequences, is positively associated with perceived leader effectiveness and subordinate satisfaction. In contrast, avoidant decision-making, marked by postponing or refusing to make decisions, correlates with lower reported efficacy and satisfaction.

Expanding on the participatory element of decision-making, Vroom (2000) contends that situational factors such as the choice's relevance, the leader's experience, the importance of commitment, and the group's expertise should all be considered when determining the appropriate degree of involvement. His idea provides a range that encompasses delegation, consultation, facilitation, and independent decision-making. As a result, the essay emphasizes that effective managers adapt their decision-making approach to the circumstances rather than relying on a single style.

Team Management & People Development

Team Management and People Development was operationally defined as the degree to which an individual builds team capability through identifying developmental needs, coaching and supporting staff, giving developmental feedback, assigning tasks based on capability, encouraging ongoing learning, and establishing chances for knowledge exchange and career advancement. According to Hartenian (2003), team member development is an ongoing process in which individuals acquire knowledge, abilities, and skills relevant to the team through involvement, training, team experience, and interaction. Therefore, beyond formal training, managers facilitate competency development through opportunities to learn through teamwork and shared experience.

Human resources strategies are particularly crucial in manufacturing because staff capability is closely related to operational success. Jayaram et al. (1999) found a connection between manufacturing performance and HRM strategies, including training- and development-oriented strategies. Their findings indicate that HRM initiatives may support strategic criteria such as cost, quality, flexibility, and time. Fawcett and Myers (2001) conducted similar research on employee development in advanced manufacturing, highlighting a substantial relationship between employee development and firm performance; therefore, the importance of integrating factory implementation with employee development. These findings suggest that both individual growth and organizational performance depend on human development.

Another part of managers' evolving responsibility is fostering a collaborative atmosphere. Abdul-Azeez et al. (2009) discovered a relationship between team management strategies and business success, emphasizing team member coordination and management as elements that

support organizational effectiveness. Mulwa (2018) found a relationship between HRM strategies and employee performance, underscoring the need for structured employee development initiatives.

Human capital development can enhance organizational performance in the industrial sector. Chigozie et al. (2018) found a positive correlation between human capital development and organizational effectiveness in manufacturing industries.

Resource Management

Resource management is defined as the process of organizing, allocating, coordinating, monitoring, and optimizing organizational resources to meet priorities with the least preventable loss. In manufacturing, resource management includes ensuring the availability of tangible inputs and coordinating workers, equipment, supplies, and capabilities. To distribute resources efficiently, managers must understand operational requirements, establish priorities, and coordinate resources across independent tasks.

Sheard and Kakabadse (2007) found that deploying organizational resources is closely linked to leadership roles, relationships, and goal fulfillment. When interpersonal ties obstruct discussion of sensitive operational issues, resource deployment may be compromised, and an excessive focus on relationships may divert attention from urgent objectives; this highlights the importance of coordinating resources across organizational boundaries.

Resource monitoring, coordination, prioritization, and responsible use are components of resource management, a dynamic organizational process. Effective use of these interrelated resources is essential to maintain workflow, increase productivity, reduce avoidable losses, and sustain overall operational performance within manufacturing settings.

CONCLUSION

The concept of competencies has shifted from being viewed solely as individual characteristics related to job performance to encompassing observable behaviors, underlying attributes, and contextual factors that influence organizational effectiveness. The frameworks reviewed above illustrate this progression, moving from McClelland's emphasis on traits, not intelligence, that distinguish high performers to more structured, behaviorally anchored, managerial, and universal competency models. The individual competencies identified—such as achievement orientation, analytical ability, interpersonal skills, planning, communication, creativity, technical knowledge, customer orientation, and discipline—represent essential capabilities for effective workplace performance. Managerial competencies further expand these capabilities by incorporating influence, people leadership, anticipation, decision-making, people development, and resource management. These findings indicate that organizational effectiveness relies on integrating individual and managerial competencies, rather than examining them in isolation. Competency-based human resource management (HRM) thus provides a systematic basis for recruitment, performance management, employee development, leadership development, and succession planning. Regardless, competency frameworks must remain evidence-based, behaviorally specific, and context-sensitive, particularly in manufacturing environments where technological and operational requirements continue to evolve.

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APPENDIX

Table A1

Comparative Analysis of Major Competency Frameworks

Competency Framework	Authors	Primary Focus	Key components/ domains	Distinctive Contribution
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McClelland's Competency Model	McClelland (1973)	Identifying that competencies, and not intelligence, distinguish superior performers from average performers.	Knowledge, skills, motivations, traits, self-concept, and social roles	Shifted from assessments of intelligence and aptitude to criterion-referenced assessments of knowledge, skills, motivations, traits, self-concept, and social roles linked to effective job performance.
Boyatzis Model of Managerial Competence	Boyatzis (1991)	Providing an understanding of how competencies translate into successful managerial performance within organizational contexts.	Personal competencies, work demands, organizational environment; differentiating and threshold competencies; achievement orientation, initiative, analytical thinking, leadership, self-confidence, interpersonal understanding, and concern for impact	Introduced the contingency model of effective performance, emphasizing the interaction between competencies, job demands, and organizational context; distinguished differentiating competencies from threshold competencies
The Iceberg Model of Competency	Spencer and Spencer (2008)	Distinguishing between visible (the top of the iceberg) and underlying competencies (part of the iceberg submerged) that influence workplace behavior and job performance	Visible: knowledge and skills Hidden: motivation, characteristics, and self-concept Six behavioral clusters: Achievement and Action, Helping and Human Service, Impact and Influence, Managerial, Cognitive, and Personal Effectiveness	Highlighted the distinction between easily identifiable/developable competencies and deeper psychological characteristics, providing a structured basis for competency identification, behavioral assessment, and competency dictionaries
Korn Ferry Leadership Competency Framework	Lombardo & Eichinger (1997, 2004); expanded by Korn Ferry	Leadership evaluation, personnel management, and leadership development across different organizational levels and contexts	67 behavioral competencies, leadership derailers, and learning agility; includes decision quality, strategic mindset, customer focus, managing ambiguity, courage, and resourcefulness	Provides a structured and customizable competency library that incorporates both effective leadership behaviors and behaviors that may hinder leadership effectiveness
Great Eight Competency Model	Bartram (2005)	Providing a universal taxonomy of competencies applicable across industries and	Eight domains: Leading and Deciding, Supporting and Cooperating, Interacting and Presenting,	Developed an empirically derived, hierarchical classification system that organizes behavioral abilities into eight broad categories, enabling

		occupations	Analyzing and Interpreting, Creating and Conceptualizing, Organizing and Executing, Adapting and Coping, and Enterprising and Performing	comparison and consistency across professions, sectors, and organizational settings
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Table A2
Competency Framework Architecture

Competency	What it is	What it is not
Achievement Orientation	- Taking ownership of responsibilities - Following through on commitments - Monitoring progress toward goals - Delivering measurable results within timelines and quality standards of the organization	- Shifting blame or avoiding accountability for failures - Compromising quality standards to meet timelines - Giving up easily when faced with challenges or setbacks
Analytical Ability	- Identifying the root causes of problems - Interpreting relevant data - Making objective, evidence-based decisions	- Making decisions based solely on intuition or gut feeling without any supporting data - Jumping to conclusions or assuming root causes without thorough analysis - Ignoring or disregarding relevant facts and evidence during the problem-solving process
Interpersonal Skills	- Communicating effectively - Resolving conflicts respectfully and constructively - Promoting trust, collaboration, and a supportive work environment	- Engaging in passive or dismissive communication instead of active listening - Handling conflicts disrespectfully, destructively, or avoiding them entirely - Withholding information or behaving in ways that erode trust and team collaboration
Planning and Attention to Detail	- Planning workforce requirements - Coordinating work schedules - Ensuring compliance with standard operating procedures (SOPs) and organizational processes	- Failing to plan or coordinate work schedules effectively, leading to operational inefficiencies - Ignoring or bypassing standard operating procedures (SOPs) and organizational processes - Prioritizing speed over accuracy, leading to frequent errors, mistakes, or incomplete work - Overlooking small details that impact the quality and consistency of workforce management
Communication and Listening	- Conveying information clearly - Actively listening to others - Encouraging open, two-way dialogue	- Formal presentation or public speaking skills that do not involve active listening or interactive communication. - Sharing information without ensuring mutual understanding or encouraging feedback.
Creativity and Innovation	- Encouraging continuous improvement - Supporting the generation and implementation of Kaizen ideas	- Implementing changes without contributing new ideas or improvement opportunities.

	- Fostering innovative thinking	- Change management activities focused solely on executing organizational changes rather than generating or promoting innovative ideas. - Individual creativity that is not applied to improving processes, products, services, or organizational outcomes.
Technical Knowledge	- Applying expertise to perform tasks effectively - Supporting troubleshooting and problem resolution - Contributing to the efficient and reliable execution of organizational processes	- Interpersonal communication or customer service that is not related to providing technical guidance or support. - Administrative or managerial responsibilities that do not require the application of job-specific technical competence.
Customer Orientation	- Identifying and responding proactively to the needs of internal and external customers - Delivering timely, high-quality service and effective solutions	- Fulfilling customer requests that violate organizational policies, ethical standards, or safety requirements. - Agreeing to unreasonable or unrealistic customer demands that cannot be delivered. - Providing inconsistent or preferential treatment to certain customers. - Focusing solely on completing tasks without considering customer needs or service quality. - Responding to customer concerns only after repeated follow-ups or escalations. - Delivering services or solutions that compromise quality, accuracy, or organizational standards. - Prioritizing short-term customer satisfaction at the expense of sustainable organizational interests.
Discipline	- Consistently complying with organizational policies, standard operating procedures (SOPs), and safety regulations - Fostering accountability and operational consistency - Creating and maintaining a safe, compliant work environment	- Selectively following policies or procedures based on personal preference or convenience. - Ignoring, bypassing, or taking shortcuts that compromise established standards or safety requirements. - Inconsistent adherence to organizational rules across different situations. - Neglecting mandatory documentation, reporting, or record-keeping requirements. - Engaging in unsafe work practices or failing to use required safety measures.
Impact and Influence	- Building trust - Gaining cooperation - Encouraging positive team behaviors	- Coercing or manipulating others for personal gain - Ignoring team members' perspectives or contributions - Dismissing or bypassing cooperative behaviors to force outcomes
People Leadership	- Motivating and inspiring others - Modeling desired behaviors and	- Micromanaging or excessively controlling the daily work of the team

	professional standards - Fostering an environment that encourages engagement, accountability, and the achievement of shared organizational objectives	workers. - Giving destructive feedback or failing to set clear expectations - Demonstrating favoritism or holding team members to inconsistent standards
Initiative and Anticipation	- Anticipating potential problems - Identifying emerging risks - Implementing preventive measures	- Reacting only after problems have occurred - Crisis management or emergency response once an issue has already escalated. - Routine task execution or compliance with established procedures without proactively identifying opportunities for improvement. - Risk analysis conducted solely for formal compliance or audit purposes rather than preventive action. - Problem-solving focused only on resolving existing issues without taking steps to prevent recurrence in the future.
Decision Making	- Analyzing available information - Weighing alternatives - Making timely, balanced decisions	- Collecting or analyzing data without reaching a decision. - Delaying decisions due to excessive analysis or indecision ("analysis paralysis"). - Making impulsive decisions without considering available information, risks, or consequences. - Long-term strategic planning or policy formulation beyond the scope of operational decision-making. - Seeking consensus without exercising independent judgment when a decision is required.
Team Management and People Development	- Providing constructive coaching - Delegating responsibilities based on capability - Fostering continuous learning and skill development	- Directing or supervising day-to-day work without developing employees. - Assigning tasks solely to distribute workload rather than to develop capability. - Evaluating employee performance for administrative purposes without providing developmental feedback. - General communication or information sharing that does not contribute to employee growth and development.
Resource Management	- Optimizing the utilization of workforce, materials, and machinery - Allocating resources efficiently based on operational requirements. - Monitoring and ensuring the effective use of organizational resources to maximize productivity and minimize waste.	- Supervising day-to-day work activities without managing resource allocation. - Procuring or purchasing resources as part of procurement or supply chain functions. - Making strategic investment decisions regarding capital resources or organizational budgeting beyond operational resource management.