



Research Article

# Transformation Management Human Resources in the Defense Economy of the Global Era: Approaches Integrative between Policy, Industry and International Cooperation

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**Abstract:** This study explores how human resource (HR) management functions as a strategic pillar in developing a resilient and adaptive defense economy in the global era. The research integrates national policies, defense industry power competition, and international collaboration through an HR-based global competence approach. The study employs a systematic literature review (SLR) method, analyzing over 50 peer-reviewed articles published in Scopus/WoS indexed journals between 2021 and 2025. The research synthesizes a framework that combines strategic human resource management, defense economics, and global collaboration. The findings reveal that HR is not merely an administrative function but plays a strategic role in strengthening defense through the development of human power, digital literacy, and international collaboration. The study further highlights that the success of defense industry synergies is largely influenced by the readiness of human resource actors to integrate innovation, diplomacy, and transnational knowledge. For practical implications, the study suggests that national defense policies must invest in specialized human resource development centers, design curricula aligned with global threats and technologies, and build strategic partnerships with international defense actors. This study is the first to conceptualize an integrative framework that places HR at the core of defense economy transformation in the post-pandemic, digitally driven global landscape, offering both theoretical novelty and practical relevance for policymakers and defense educators.

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## 1. Introduction

Defense economy This No Again can interpreted solely as affairs allocation budget or fulfillment need military , but rather as something system complex involving policy public , power competition industry defense , as well as relation strategic between countries ( Sundari, 2022; 2024 ). In structure systemic said , the role source Power human (HR) becomes the more central , especially in support effectiveness implementation policy and performance institutional sector defense ( Goldman et al., 2022 ). The quality of human resources determines success institutions defense in respond dynamics geopolitics and technology continue changed ( Anwar & Abdullah, 2023 ).

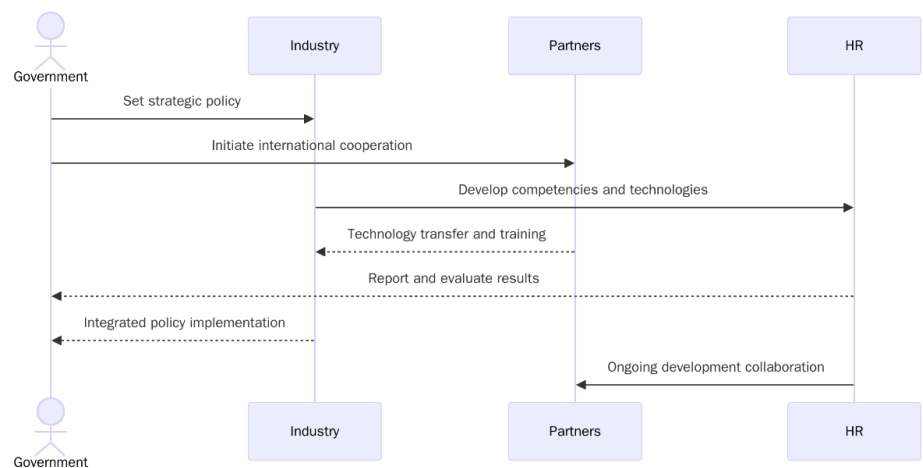
Policy national like Plan The Ministry of Defense 's Strategic Plan 2020–2024 ( Ministry of Defense of the Republic of Indonesia, 2023 ) emphasizes the importance of defense human

resource reform in framework system defense universe . The Resource-Based View approach ( Barney, 1991 ) and the Dynamic Capabilities theory provide framework For understanding HR as superiority competitive that can customized with change environment strategic . Study most recently by Zhang et al. (2023) show that successful digital transformation depends heavily on the readiness of human resources in adopt technology and managing change organization .

However Thus , the study literature that is explicit integrate dimensions policy economy defense with the HR development strategy still limited , especially in developing country context . Therefore that , article This aim compile synthesis conceptual integration the role of HR in architecture economy defense increasingly national affected by dynamics geopolitics , digital transformation and needs collaboration cross- country ( Wahyu et al., 2025 ; Zhang et al., 2023 ).

Besides that , growth logistics defense and needs multidomain operations require integration strategic between system human resource management and capabilities chain responsive supply ( Antai , Hellberg , & Skoglund, 2023 ). In matter this , defense human resource management No can separated from readiness logistics and planning oriented operations term long . Study Antai et al. (2023) emphasize importance approach theoretical new that combines the role of HR in support growth logistics scale large , efficient and sustainable in the body force armed . This is relevant in system defense of developing countries facing challenge in transformation organization , limitations source power and change environment fast geopolitics .

Digital change in the sector defense demand creation culture supporting organizations adoption technology as well as development system agile and collaborative work . Study by Bahri , Agustina, and Ridha (2025) mention importance culture digital-first organization in strengthen resilience institutional and response to challenge new . Emphasis on the approach capability dynamic (dynamic capabilities) is also strengthened by Anwar and Abdullah (2023) , who see that institutions defense need build ability For absorb , adapt , and integrate technology as well as knowledge new in a way fast and adaptive . With Thus , integration between HR, logistics , technology , and policy strategy national is the main pillar for transformation economy sustainable defense .



**Figure 1:** Defense Human Resource Transformation.

This diagram describe interaction sequentially between actor the keys involved in transformation source Power human resources (HR) in the sector defense . The process started with government set policy strategic guiding priority defense national and development power work . Policy This communicated to industry defense , which is responsible answer For apply directions the with develop required competencies and technologies For need modern defense . Simultaneously with that , the government involving partners international For build framework Work the same , which allows innovation together and alignment with standard global defense .

Industry Then collaborate with HR sector for apply training and adoption aligned technology with policy domestic and trends international . Partners contribute through

technology transfer and training special , which increases capacity industry . Along developments , the HR unit reports results and evaluation return to government , which allows supervision and improvement policy . The industry also provides bait come back on the implementation process . Cycle This ended with collaboration sustainable between HR and partners international , which strengthens development sustainable in source Power man defense through innovation and learning sustainable .

## 2. Methodology Study

Study This use Systematic Literature Review (SLR) approach as explained by Priyanto (2025) , which aims to For examine in a way systematic and comprehensive various source literature relevant academic with issue development source Power human resources (HR) in framework economy defense . The SLR approach was chosen Because own ability For consolidate findings conceptual and empirical from various discipline science , and build foundation strong theoretical in formulate framework analysis integrative ( Sundari, 2024 ; Goldman et al., 2022 ).

SLR process in study This done through three stage Main steps : identification , selection and synthesis . Stages identification done with browse publication academic through scientific databases reputable international such as Scopus, Web of Science, RAND Corporation, and Google Scholar, with using keywords : “defense human resources”, “strategic HRM”, “defense economy”, “global defense cooperation” and “digital transformation in defense” . Focus search directed at published publications between 2020 to 2025 , covering article journal scientific , books academic , and reports policy strategic .

Criteria inclusion in selection literature includes : (1) suitability topic with strengthening human resources in context economy defense , (2) interconnectedness literature with policy defense and work The same international and (3) contributions to conceptual model formation based innovation and technology ( Sundari & Almubarq , 2023 ; Zhang et al., 2023 ). From this process , identified a total of 58 primary sources met criteria and categorized based on substantial domain : policy economy defense , human resource development strategy and integration Work The same across countries and industries .

All data is analyzed with use approach thematic-qualitative , which allows grouping of ideas and findings based on pattern narrative conceptual . Procedure synthesis done in a way integrative and model construction oriented , with consider framework Work theoretical such as Resource-Based View ( Barney, 1991 ), Human Capital Theory ( Wright & McMahan, 2011 ), and the approach dynamic HR capabilities in the digital era ( Anwar & Abdullah, 2023 ).

### Question Study

- a) How management source Power human resources (HR) in sector defense conceptualized in relation with policy national needs industry defense , and dynamics Work The same international ?
- b) What connection between HR development strategies , capabilities technology , and the role Work The same across countries in strengthen Power competition economy defense national ?
- c) Conceptual model or framework Work what has been proposed in literature For explain integration between policy , industry , and human resources in economy defense , as well as gap theoretical and practical what is needed ?

### Search Strategy

Database used including Scopus, Web of Science, ScienceDirect, SpringerLink, SAGE, Wiley, JSTOR, DOAJ, and Google Scholar. Criteria inclusion : published articles between 2011 and 2025, written in Language English or Indonesia, has through a peer-review process, and focuses on context sector public or defense .

### Criteria Inclusion / Exclusion

- a) Includes : Studies empirical , theoretical model , research organization related defense .
- b) Excluded : Engineering articles pure defense nature technical , articles opinion that is not through review colleagues .

### 3. Findings Thematic and Synthesis

#### National Policy

Human Resource Management in defense in harmony with policy national which establishes HR as an integral part of resilience national . According to Sundari (2022) , strengthening defense human resources must reflected in planning strategic and designed country For answer challenge geopolitics and threats hybrid . Ministry of Defense of the Republic of Indonesia (2023) in Plan The 2020–2024 Strategy also emphasizes importance training , education and development career based technology and STEM (Wahyudin , 2024).

#### Need Industry Defense

Industry defense requires human resources that are not only own skill technical , but also understanding will chain supply strategic and capabilities adaptive in environment disruptive . Goldman et al. (2022) explain that development competence industry defense need approach flexible and indicator - based HR management performance strategic . Loska et al. (2024) add that collaboration chain supply in industry military demands capable human resources Work cross discipline and state.

#### Dynamics International Cooperation

Work The same defense between countries demands human resources who have ability in diplomacy defense , communication strategic cross culture , and interoperability . Sundari (2024) emphasize importance building human resources with competence transnational For support mission peace , training combination , and adaptation to standard international . In context this , Op den Buijs & Olsthoorn (2024) explain that human resource management must directed For capable answer global dynamics and needs cross- border.

### 4. Connection between Human Resource Development Strategy , Capabilities Technology and the Role of Cross-Border Cooperation in Strengthening the Competitiveness of the National Defense Economy

Connection between third variables This nature each other strengthen and synergize in form structure economy a strong defense . A future- oriented human resource development strategy emphasize improvement digital competence , literacy geopolitics and culture innovative as foundation main development modern defense ( Sundari, 2023 ; Sundari & Almubaroq , 2023 ).

Capability technology such as the Internet of Things, digital twins and machine learning become part from system HR training and operationalization that accelerates adaptation to challenge multidimensional ( Galán et al., 2024 ; Le & Fan, 2023 ). Implementation technology This enable HR to manage logistics military , system intelligence and command in a way efficient .

Temporary that , work The same cross- country provides opportunity for HR to expand outlook strategic through exchange programs , multilateral alliances , and training together with the planting mark collaborative and competent interoperability ( Kepe , 2023 ; Wahyu RB et al., 2025 ). In synergy this , HR becomes catalyst that connects infrastructure defense national with global network , strengthening independence at a time increase credibility international Indonesia in issue security .

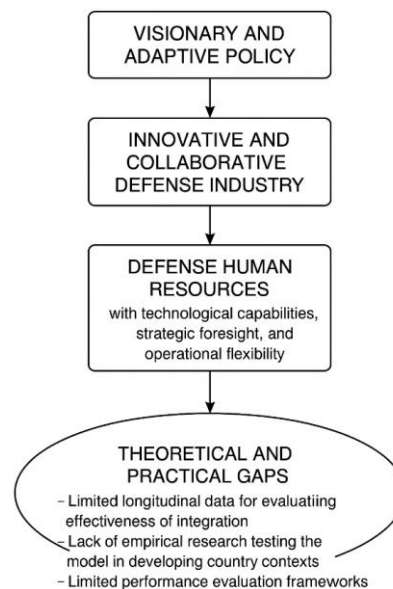
#### 5. Conceptual Model of Integration Between Policy , Industry and Human Resources in Defense Economics

Conceptual model integration between policies , industry and resources Power human resources (HR) in economy defense is approach multidimensional designed For answer complexity challenge geopolitics , digital transformation , and demands effectiveness organization military and non- military in system defense national . In literature latest , especially in works Sri Sundari (2022, 2023, 2024) , has developed something framework think strategic that combines dimensions regulations national ( policy ) , strengthening capacity industry defense ( industry ) , and development human resource (HR) capabilities as One unity interconnected systemic strengthen . This model lean on self on principle that strength economy defense No can built in a way sectoral , but rather must designed through collaboration cross functions and actors .

Sundari (2022) emphasize that policy economy defense need functioning as umbrella regulations that are not only arrange budget or procurement , but also creating ecosystem strategic that allows technology transfer , work The same international , and development industry domestically . On the other hand , in work sequel , Sundari (2023) highlight importance human resource management based on competence strategic as bridge implementative between formulation policies and needs operational industry . This is Then deepened in book Sundari (2024) , where it was developed framework human resource capability based technology and culture aligned innovation with dynamics revolution Industry 4.0 and Society 5.0. HR is not only positioned as implementer technical , but as agent transformation that has digital literacy , understanding system global defense , as well as ability cross culture For involved active in Work The same defense international .

This integration is also emphasized by Sundari and Almubaroq (2023) , who emphasized that that HR policies in economy defense must involving synergy between institution education , government , and industry For creating a sustainable competency pipeline . By adopt modified triple helix approach , this model positioning HR as actor main in connect innovation industry with orientation policy . RAND Corporation ( Goldman et al., 2022 ) also emphasize that strategic human resource planning must directed at planning term long based prediction need competence , strengthening system training based technology , as well as collaboration with sector civil and academic .

Framework work proposed by Antai , Hellberg , and Skoglund (2023) show that growth logistics defense and improvement efficiency operation the military is highly dependent on integration between technology , industrial processes , and logistics human resource development . In context this industry defense No Again stand alone , but must supported by policy facilitative that provides incentive For innovation and integration of human resources that have competence specific . Kepe (2023) also underlines importance development logistics and systems maintenance coordinated defense equipment with Good between agencies and global partners , who require human resources with skill managerial and technical tall . Conceptual model This show existence need For align three component main :



**Figure 2:** Conceptual model of integration between policy , industry and human resources in the defense economy.

In level practical , integration This often hampered by silos between ministry , overlapping overlap regulations , and gaps literacy technology among existing human resources . Therefore that , is necessary effort together For designing defense human resources policy based technology as suggested by Zhang et al. (2023) , develop collaboration industry through co-development and digital supply chain approaches ( Le & Fan, 2023 ; Loska et al., 2024 ) , as well as build system training adaptive with digital-first approach ( Bahri et al., 2025

; Galán et al., 2024). The overall conceptual model this, if implemented in a way integrated, believed can strengthen Power competition economy Indonesia's defense in term long and position HR as strength driving force in form ecosystem defense adaptive, collaborative and empowered national global competitiveness.

## 6. Implications Policies and Recommendations Strategic

For implement this model in a way effective defense HR policy must aligned with a long-term roadmap long national and projections regional threats. Government need build centers defense human resource excellence (center of excellence) that works The same with industry and institutions abroad. Initiative This should developed under framework policy national digital transformation and defense reform (Ministry of Defense of the Republic of Indonesia, 2023).

On the other hand, the institution education and training defense must pushed For revise more curriculum contextual with global challenges and make literacy geopolitics as competence basic. Improvement capacity lecturer, adoption technology modern learning, as well as cooperation research international must also become priority.



Figure 3: Recommendations Strategic.

## 7. Conclusion

Transformation management source Power human resources (HR) in economy defense No can released from synergy strategic between policy national, capability industry defense, and work The same sustainable international. HR is not Again positioned just as implementer technical, but rather as actor main in push innovation, adaptation technology, as well as bridge implementation policies and needs industry. Study This confirm that development economy tough defense in the global era requires approach integrative which places HR as foundation main in build sovereignty and superiority competitive country.

The conceptual model offered in article This show importance alignment between three component main: visionary and adaptive policies to global change, industry capable defense develop ecosystem innovative, as well as human resources who have digital competence, insight geopolitics, and capabilities collaborative cross-border. This integration, if done in a way systemic and planned, will create ecosystem defense a nation that is resilient, efficient and adaptive to threat multidimensional.

That technology such as the Internet of Things (IoT), digital twins and machine learning play a role important in accelerate the learning process and operationalization of defense human resources. On the other hand, the work The same international give contribution significant in improvement capacity, technology transfer, and harmonization global standards. Therefore that, the challenges faced by Indonesia in strengthen economy defense can overcome through investment term long on superior human resources and development centers capable flagship synergize industry, policy, and diplomacy defense in a way simultaneous.

That success Defense human resource transformation is highly dependent on structural reform policy, strengthening network research and development international, as well as utilization digital technology in all over cycle human resource management. With blend

approach theoretical from Resource-Based View, Human Capital Theory, and Dynamic Capabilities, research This offer contribution conceptual that can used by the taker policy , academics , and actors industry defense in formulating relevant human resource development strategies in the digital era and dynamic global geopolitics .

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