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Research Article
Modernization of the Defense System and the Potential for Technological Disruption in Indonesian Military Organizations

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Abstract

Background and Objective: The Industrial Revolution Era 4.0 has encouraged the creation of disruptive innovation and technology that is rapidly changing and drives the world of work, industry and business. Indonesia as a developing country is not immune to the effects of this global phenomenon which affects the military and defense. The modernization of the army's main defense system was carried out by buying Leopard battle tanks and placing them in several cavalry battalions. The objective of the study was to analyze the impact of changes in defense technology through weapon modernization on army disruption personnel. **Materials and Methods:** This study was conducted by studying documents and continuous observation of Battalion Cavalry 8/NSW. **Results:** The results indicate that the potential for disruption can occur not in reducing but in increasing the number of personnel. The process of adaptation to changes in the types of weapons such as modern leopard tanks, in addition to requiring increased personnel capacity, is also followed by an increase in the number of personnel operating operational vehicles. The Orgas ROK 2013 ROK Policy (MBT), as a consequence of the modernization of the main defense system tools, must be implemented. As an effort to anticipate this potential for disruption, the Indonesia Army has designed a system of guiding military personnel by implementing changes to the army's human resource management theory. The cavalry battalion as a unit determined to operationalize the Leopard 2 A4 and 2 Revolution (RI) main battle tank (MBT) has mastered the technology that accompanies the purchase of combat equipment through the Transfer of Technology (TOT) scheme. **Conclusion:** Modernization of the defense technology of the Indonesian army has not yet triggered an overall disruption of military organization personnel.

Key words: Disruption, leopard main battle tank, army force, transfer of technology, cavalry battalion

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Data Availability: All relevant data are within the paper and its supporting information files.

INTRODUCTION

The Industrial Revolution Era 4.0 has presented a new order called disruptive innovation (disruptive technology) that is rapidly changing and drives the world of work, industry and business[1]. Indonesia as a developing country is not immune to the effects of this globalisation phenomenon which affects the military and defense[2]. Globalisation encourages the creation of dynamics in a strategic security environment, which in turn encourages a country to improve its military technology[3]. External factors arising from the effects of globalisation can threaten the existence of Indonesia, so army organisation is responsible for preparing and fostering ground unit unity[4].

The Indonesian National Army-Army Force is demanded to empower land defense areas and carry out duties in maintaining the security of land borders with border countries. The Indonesian National Armed Forces as the official organisation of the Indonesian military is tasked with developing a terrestrial power force strategy while building ground defences[5]. Army organisations must master the latest technology which includes information technology and war equipment to produce professional military personnel[6].

The Leopard main battle tank (MBT) is a variant of modern combat vehicles established by the government of Indonesia to modernize its main defense system[7]. Leopard tanks are operated by military personnel under the command of the cavalry army with the main task of carrying out training and carrying out cavalry functions[8]. The Leopard MBT is used for military operations for war as well as military operations in addition to war as an army combat vehicle.

Military engineering has been carried out to form the posture of the army cavalry unit with the best explosive power. For this reason, the army cavalry unit is more directed towards combat and safety functions. This army military policy is very strategic and aligned with a minimum essential force policy and is guided by the concepts of capability-based defense, zero growth and right-sizing. At the operational level of the field, cavalry units have been reorganized so they can work effectively and efficiently and can be deployed to the battlefield anytime and anywhere[9]. Based on the phenomenon of changes in military organizational governance and the potential for disruption as a result of applied fertilization, the researcher is very interested in analyzing the impact of changes in defense technology through weapon modernization on army disruption personnel.

MATERIALS AND METHODS

This study was conducted by studying documents and continuous observation of Battalion Cavalry 8/NSW. The study was used in the document analysis research method[10]. The researcher conducted a systematic procedure for reviewing or evaluating documents-both printed and electronic (computer-based and Internet-transmitted) material[11]. Like other analytical methods in qualitative research, document analysis requires that data be examined and interpreted in order to elicit meaning, gain understanding and develop empirical knowledge. Documents contain text (words) and images that have been recorded without researcher intervention. Documents that may be used for systematic evaluation as part of a study take a variety of forms.

RESULTS AND DISCUSSION

Analysis of disruption in leopard main battle tank battalion: This research analysis applies the Kurt Lewin's Three Steps Model theoretical approach as a model for taking initiative, managing resources and stabilizing the change process to meet organizational goals[12]. This approach is used to describe the impact of changes in defense technology (modernization of war equipment) to the Leopard MBT and its resulting potential disruption of Battalion Cavalry 8/Narasinga Wiratama (NSW) 2.

Unfreezing stage: Unfreezing in an organization is the disbursement stage, where resources focus on creating motivation for change[13]. Battalion Cavalry 8/NSW was established by the supreme Indonesian military commander as a role model for the use of battalion cavalry tanks with Leopard MBT 2 A4 and 2 RI armoured main combat vehicles[14]. This battalion has a combat vehicle. The combat vehicle cavalry is mostly old with varied years of production. Among them are Ran AMX-13, which was subsequently replaced by ran family scorpion and stromer. Ran has not been able to support the main tasks to the optimal level for Battalion Cavalry 8/NSW, both as a combat unit and a security unit[15].

The rejuvenation of cavalry combat vehicles through the modernization programme of the main defense system will provide field support in carrying out tasks on the battlefield. As a manoeuvre unit directly under Infantry Division 2/Army Strategic Command, Battalion Cavalry 8/NSW was assigned to be the role model of the battalion cavalry in the cavalry unit of the Indonesian National Army-Army Force. The rejuvenation

and refreshment of combat equipment is the implementation of Lewin's theory of change, where the unfreezing stage is a period to create motivation to change from routine work towards continuous innovation[16]. Internal and external challenges of military organizational unity have also triggered the unfreeze stage to take place quickly[17].

Movement/changing stage: Movement/changing in organization is a stage of change as a consequence of when groups, individuals and organizations begin to adapt to information, models and attitudes as well as new ways as one work unit[18]. Stages of movement/changing in the organization of Battalion Cavalry 8/NSW can be seen with the presence of the main battle vehicle Leopard as the main tool of the defense system. The existence of Leopard tanks into the ranks of unitary combat has changed the organization of Battalion Cavalry 8/NSW Organization and duties that used the TOP ROK Yonkav Tank, which has become the Orgas TOP ROK 2013. The Orgas TOP ROK 2013 has been specifically designed for cavalry battalion personnel operating the MBT[19]. The implementation of the Orgas TOP ROK 2013 has changed the management of military personnel, equipment and infrastructure in the Indonesian National Armed Forces organization.

One of the impacts of movement in Indonesian military organizations is the increase in military training facilities and infrastructure. The military headquarters that stands firmly on an area of 54 ha has been equipped with combat vehicle support facilities which consist of the Leopard tank garage, a garage workshop with a capacity of 10 t cranes, the tank transporter garage, the ray band tank, obstacle combat vehicles and tank washing facilities. Supporting facilities to enhance the combat capabilities of military personnel operating the Leopard tank are also available in full. A variety of field equipment is specifically designed for Leopard tank crews, including a running track with a 400 m long shuttle tire, a swimming pool, Dojang Yongmoodo, an obstacle course, a soccer/basketball/futsal field, a rifle and pistol shooting range and a field fitness area. The conditions of the mental and spiritual stability of military personnel are maintained by providing religious facilities, including mosques, churches and temples. Battalion Cavalry 8/NSW has very complete facilities and infrastructure to support the implementation of basic tasks and the operation of military units.

Refreezing stage: Organizational change enables an organization to have renewable duties and philosophies[19]. New organizational attitudes and behaviour's that have adapted to change must be standardized[18]. The ongoing evaluation process of the new work culture is carried out to assess whether the organization can still adapt to the external environment[20]. If the organization requires that it has lagged behind the global trend, the unfreezing stage must be restarted.

The new Orgas TOP ROK 2013 procedure was implemented in Battalion Cavalry 8/NSW ahead of the arrival of the Leopard MBT to Indonesia. In fact, the technological enhancement of the main defense system equipment owned by the Indonesian military has not been matched by the availability of military personnel capable of carrying out combat tactics to optimize the use of the modern Leopard battle tank. The combat tactics used are conventional; it is patterned on the front, linear and still uses combat configurations with normative calculations[21]. This condition severely limits the ability of military personnel to optimize the capabilities of the main cavalry defense system tools. The inability to take advantage of cavalry combat capabilities causes interoperability of the battalion unit to be disrupted[19].

Potential disruption in leopard MBT battalion: The renewal of defense technology does not automatically trigger disruption, especially in reducing the number of military personnel. The Kartika Eka Paksi doctrine of the Indonesia National Army teaches that the main tool of the military is humans (soldiers who are armed)[8]. The implementation of the Orgas TOP ROK 2013 requires a change of the main defense system from a light tank (Scorpion variant) to a heavy tank/main battle tank (Leopard variant). The existence of regional territorial command as a consequence of the implementation of the defense system of the people requires human involvement in carrying out territorial development[22]. Military personnel who carry out territorial training are also required to carry out social communication to develop space, tools and strong fighting conditions[23].

Changes in defense technology (modernization of the main defense system) in the Industrial[24] Revolution Era 4.0 and the era of disruptive innovation will always have an impact on military personnel[3]. A situation analysis from the perspective of change management brings us to the understanding that the disruption of the Indonesian National Army and army personnel can occur. The capacity of military personnel is crucial in optimizing the use of defense technology[25], including Battalion Cavalry 8/NSW soldiers who operate the Leopard MBT. For this reason, cavalry members do not only have to master the old literacy skills (reading, writing and arithmetic/mathematics) but also new literacy skills (data literacy, technological literacy and human literacy)[26].

Policy to prevent disruption of leopard main battle tank battalion: The Indonesian National Armed Forces have designed a pattern of increasing the capacity of army resources in order to properly operate the modern Leopard MBT combat vehicle through strategic steps. Military personnel are selected to attend German language education at the Centre for Language Education, Ministry of Defense of the Republic of Indonesia[27]. Trainees will then be trained as potential trainers for the transfer of skills in the automotive, weapons and communication fields in Germany. The trainers have also formed the Mobile Training Team (MTT) to organize training and upgrading for potential military personnel. Policymakers at the Indonesian military organization in collaboration with the Singapore government organized the Personnel Exchange Programme (PEP) to improve the technical skills of military personnel to operate the Leopard MBT.

The army personnel staff formulated eight personnel policies through the Army Personnel Development System to prevent disruption by changes in defense technology. Change the grand theory of the management of the human resources of the Indonesian Army from personnel management theory to Talent Management[27]. This competency-based system is directed at selecting talented people to occupy the right positions to do the right work at the right time in accordance with the organization's strategic objectives, prioritizing organizational and other activities that are the main functions (core business) of the organization[27,16]. Talent management also carries out a selection, development and maintenance process in accordance with its competencies. Talent management plans personnel needs in the short term, medium-term and long term based on identifying the competency needs of the organization. There are 4 pillars applied to ensure the implementation of talented management: a development mindset, a high-performance culture, support of leaders and human resource information systems[27,16].

This study implies that technological change will always have an impact on army personnel in particular Battalion Cavalry 8/NSW. Army personnel will use land technology to the fullest if they can commensurate with the technology carried by the primary defense system. The results of this study can be applied to the air force and marine units within the scope of the Indonesian republic military organization for analyzing the potential for disruption resulting from changes in defense technology. This study recommends policymakers to maintain the continuing capacity building of Indonesian Army troops, so they are not distracted by changes in defense technology. The strategic policy adopted by changing the human resource management model from personnel management to Talent Management and formalized in the roadmap for the Indonesian National Army personnel. There may be some limitations that may be in this study. Limitations of data collection occur when non-probability sampling methods are used to determine various documents as objects of study. However, they do not reflect the overall condition of military organizations. Besides, in-depth interviews or focus group discussions cannot complete field observations due to limited access to military resources in battalion cavalry.

CONCLUSION

Changes in technology (modernization) of the primary defense system in the Industrial Revolution Era 4.0 21 and the era of innovation have the potential to disrupt Indonesian military organizations. The change management perspective indicates that disruption to the Indonesian National Army and army personnel can occur. However, the modernization of the defense technology of the Indonesian army so far has not triggered the overall disruption of military organization personnel. Implementing talent management plans based on identifying organizational competency needs can be a solution to anticipate the potential for disruption in personnel in the short, medium and long term.

SIGNIFICANCE STATEMENTS

The study discovered that the modernization of the defense system of the Indonesian military organization had changed the management of military personnel, equipment and infrastructure in the Indonesian National Army organization. However, the renewal of defense technology does not automatically trigger disruption, especially in reducing the number of military personnel. That can be beneficial for the defense department of the Republic of Indonesia technological updates to the defense system do not cause instability in military organizations. This study will help the researcher to cover the critical areas of military equipment expenditure policy that many researchers were not able to explore. Thus a new theory on the impact of changes in defense technology through weapon modernization on army disruption personnel may be arrived at.

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