

# Professional Competency Development Model to Enhance the Royal Thai Air Force's Air Power

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In 2008, the Royal Thai Air Force (RTAF) set out a mission statement to “Prepare its Forces and Defend the Country” for surveillance of the national air sovereignty. Meanwhile, safeguarding life and property, and being ready for possible future threats, conflicts, and crises to its country, as well as its neighbouring countries. To achieve the goals laid out in the mission and vision statements, The RTAF Commander-in-Chief announced the RTAF’s four core competencies, and fourteen managerial competencies, in addition to setting a competency-based performance appraisal program to evaluate the RTAF personnel. This study investigates the RTAF’s competencies through documentary reviews, in-depth interviews, and a focus group of experts. The Delphi method was employed for gathering data. The results revealed that the design of the Pilot and Aeronautical Engineering (AE) functional competencies were unique to the RTAF personnel. The researcher adopted the concept of predictive validity by applying a multiple regression analysis to test it. It was found that most Functional Competency (FC) can predict performance at a moderate to a high level. In summary, the nine methods of the Pilot and AE functional competency development model of each line presented above reflects the dynamic links and supports of the personnel preparation, and deployment, reciprocally. This is the core mission of the RTAF personnel, enhancing the RTAF air power characterised by an integrated collaboration in every line to become “One of the Best Air Forces in ASEAN” in 2019 targeted by RTAF in future.

**Keywords:** *Air power, Competency development model, Performance, Predictive validity.*

## **Introduction: RTAF competencies as a tool for managing and developing**

The concept of competency was significantly accepted in the publication of McClelland titled: “Testing for Competence Rather than for Intelligence”, in 1973, and has been popular among theorists of both agreeing, and disagreeing persuasions. However, there is no exact definition, as in the concept of McClelland. The study showed that the intelligence and aptitude tests cannot reflect the performance as an organisation expects. However, it demands to prioritise ‘competency’ more than ‘intelligence’, which can enhance employees to have distinguished performance and differentiated performances that affect the organisational success. The term ‘competency’ was then a source of wealth for investigation, and has been consistently used until today (Office of Civil Service Commission, 2005; Jermsittiparsert & Wajeetongratana, 2019; Saengchai, Joemsittiprasert, & Jermsittiparsert, 2020). Spencer and Spencer (1993) studied the subject of ‘competency to work’, which compares knowledge and skill as the tip of an iceberg floating in the ocean, which is only a small section compared to the whole. It is simple to see and to develop, whereas self-concept, traits, and motive are compared to the base of the glacier under the seawater. That is, it is a major and important part that is unseen and difficult to develop.

In 2005, the Office of the Civil Service Commission was counselled by the Hay Group to model the competency of the civil servants in the Thai bureaucracy. In the first phase, the Competency Based Human Resource Development was applied to the Senior Executive Service (SES) to specify the competency for the officers recruited in the future, and to specify the Competency Model to be used in evaluating the behaviours required by an organisation. This was founded on the belief that the officers own the working behaviours that their agencies want, as a specification. The Royal Decree on Principles and Governance, BE 2546 (2003), is the critical mechanism to drive the Thai bureaucrat agencies to change themselves (Faculty of Commerce and Accounting: Chulalongkorn University, 2006). The concept of competency is thus adopted in the government agencies and has performed a leading role in the public administration in Thailand. With the competency-based HR administration, all sectors prioritise with the two following objectives: enhancing the efficiency of HR administration, and organisational effectiveness; and enabling competitiveness with other organisations. The competency-based HR administration is a critical element to maximise the efficiency of the Thai bureaucracy and is essential as a fundamental tool to manage the talent personnel, performance management, and professional advancements in the future.

The Air Force is an important military institution in many countries, and it prioritises the application of the concept of competency. An example is the United States Air Force (USAF). It involves six competencies: Air Space Superiority, Global Attack, Rapid Global Mobility, Precision Engagement, Information Superiority, and Agile Combat Support. Considering the Air Forces of the Association of Southeast Asian Nations (ASEAN)

countries, it is found that the Republic of Singapore Air Force (RSAF) has developed the SAF Leadership Competency Model (SAF-LCM), which is comprised of the following four elements: conceptual thinking, social, mission, and developmental (Karuna Ramanathan, 2004).

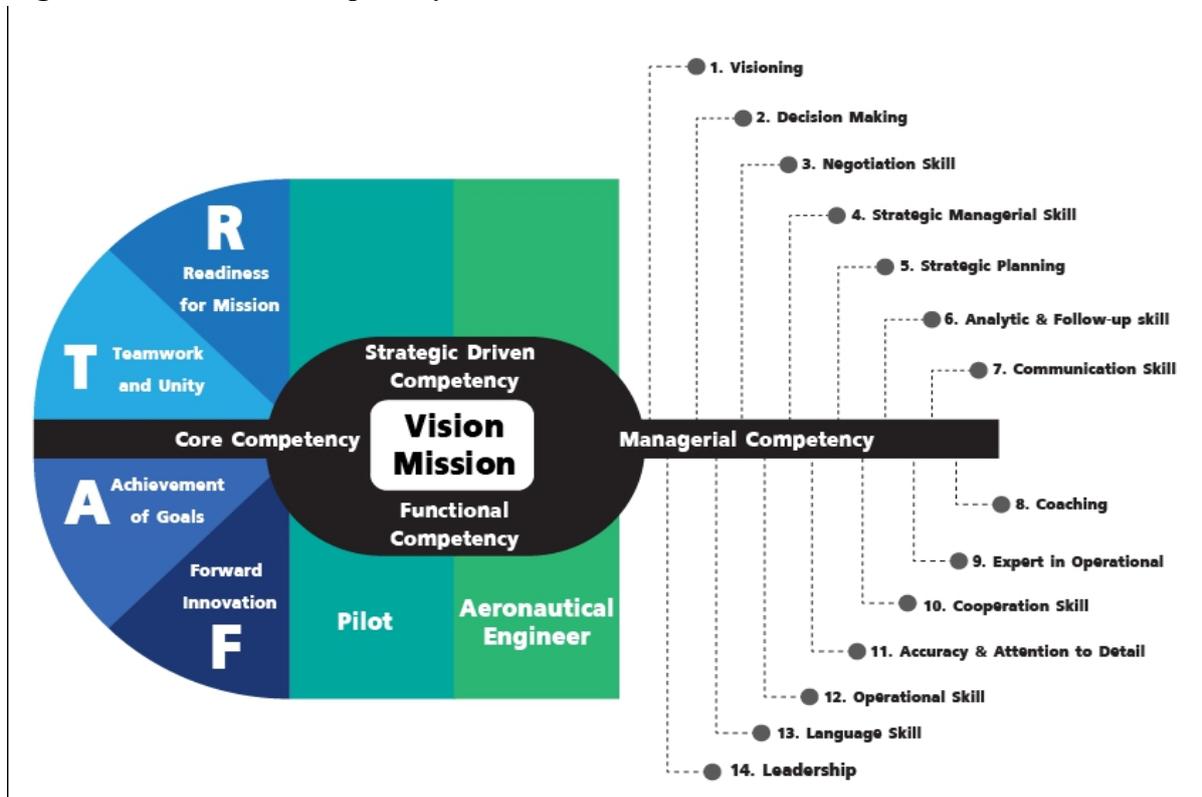
A competency framework has been implemented with airspace management to improve the efficiency of the Air Force. In Thailand, in 2008, the RTAF launched its mission statement to “Prepare its Forces and Defend the Country”. This was undertaken in an effort to protect the air sovereignty, the national interests, life, and property of its citizens, meanwhile being ready for possible future threats, conflicts, and crises to the country, and its neighbouring countries (The Policy of the RTAF Commander-in-Chief, 2013). In the RTAF’s 2013 policy, the Commander-in-Chief emphasised upon the importance of Air Force personnel in obtaining knowledge and applications of technology to fulfil national missions with appropriate self-reliance and full capacity through the worthwhile optimisation of its current resources, as well as to achieve the vision statement of being “One of the Best Air Forces in ASEAN”. Hence, the RTAF core values, four core competencies, fourteen managerial competencies, functional competencies, and strategic driven competencies have been developed and reviewed. The RTAF is required to ensure that the “core competencies” are implemented as a tool in managing and developing its personnel to efficiently modernise itself within ASEAN countries (The Policy of the RTAF Commander-in-Chief, 2013). Pilots and air engineers play a crucial role in the operational readiness of the RTAF, and in achieving the goals laid out in the RTAF’s mission statement and its vision. This study aims to investigate the functional competencies among the pilots and air engineers of the RTAF. This study also investigates a correlation between the competencies and personnel’s performance, and tests the predictive validity of the competencies. In addition, a competency development model is developed to further reinforce the RTAF’s air power.

### **Royal Thai Air Force Competency Model**

Since 2011, the RTAF has utilised the competency concept and specified the policy of the RTAF Commander-in-Chief, adopting the competency model. The model is divided into four main areas: core competency, managerial competency, functional competency, and strategic-driven competency. The core competency refers to the ability of all personnel to run the RTAF affairs with effectiveness. The managerial competency refers to the ability which is imperative to each rank to create superior performance, and to meet the organisational strategic plans, visions, and missions. The functional competency is the conventional role-based specialisation of the individual in each profession, which highlights professionalism by the disciplines appropriate to one’s career context. The strategic driven competency is a skill enabling the force to vigorously run operations in every volatile situation, meanwhile being able to adjust the working paradigms and methods to meet diverse operations with restricted

resources, tight timeframes, and limited budgets, delivering a superior and worthwhile performance. The RTAF Commander-in-Chief has proclaimed that the four core competencies, and fourteen managerial competencies must be tangibly implemented through appointing several task forces, including: administrative committees, sub-committees, and staff teams to drive the RTAF's competency. The RTAF competency framework covers knowledge, skills, and necessary attributes which enable a high-quality performance to meet or exceed the expected standard of the specified RTAF criteria. It emphasises that operations with knowledge, skills, abilities, and necessary attributes lead to expected and outstanding performance (The RTAF Competency Handbook, 2014 and the Amendment Copy, March 2015).

**Figure 1.** The RTAF Competency Model



The RTAF core competencies, managerial competencies, and the concept of a classic competency study design have been reviewed using the competency framework by McClelland (1973), and the concept of a short competency model process based on an expert panel by Spencer and Spencer (1993). The RTAF four core competencies, and fourteen managerial competencies aimed at being 'one of the best Air Forces in the ASEAN' by 2019. The vision statement was launched in 2008, and the first performance survey was conducted in 2014. This survey result shows the relatively slow progress of the RTAF. Specifically, when compared to other ASEAN nations, such as Singapore. The limited budgets, and human

resources seem to play a role in hindering the RTAF's progress. The RTAF's mission is still in the early stages, and most core competencies focus on passive operations, including internal overvaluing. On the contrary, if we look at the USAF competency concepts — airspace superiority, global attack, rapid global mobility, precision engagement, information superiority, and agile combat support — to meet the three USAF vision statements — integrity first, service before self, and excellent in all we do — it is found that the USAF competencies focus more on proactive operations. In the meantime, the RSAF has developed the Singapore Air Force-Leadership Competency Model (SAF-LCM), which is comprised of the elements of conceptual thinking, social, mission, and developmental. Both countries surpass beyond being 'one of the best', with determination and readiness to fly beyond their skies. Although Thailand has more or less the same personnel potential as the United States of America (USA), and Singapore, the country has never fully focussed on the idea that if the nation wants peace, it must be ready for war, which was addressed by His Majesty Rama VI, on 6 May 1911. The Air Force's professional development has never been considered as a political priority, where political conflicts and personal interests tend to be at the forefront.

### The RTAF Functional Competencies of Pilots and Air Engineers

In this research, the researchers established the functional competency via the RTAF's personnel proficiency. In relation to the pilot functional competencies, the pilots were divided into six career fields, and distributed into the fields of superior fighter/airstrike pilot, fighter/airstrike pilot, helicopter pilot, logistics pilot, reconnaissance pilot, and the pilot trainee, as detailed in Table 1 below.

**Table 1:** The functional competency of pilots divided into military groups

Academic Lines/ Proficiency Codes	Competency Name: Commissioned Officers	Competency Name: Non- Commissioned Officers
Superior fighter/airstrike pilot	<ol style="list-style-type: none"> <li>1. Proficiency of the superior fighter/airstrike pilot.</li> <li>2. Superior in managing and administrating the flight resources.</li> <li>3. Flight change advancement of the superior fighter/airstrike aircraft.</li> <li>4. Readiness for warfare on the superior fighter/airstrike flight.</li> <li>5. Prototype of the superior fighter/airstrike flight.</li> </ol>	None
Fighter/airstrike	1. Proficiency of the fighter/airstrike pilot.	None

<b>Academic Lines/ Proficiency Codes</b>	<b>Competency Name: Commissioned Officers</b>	<b>Competency Name: Non- Commissioned Officers</b>
pilot	2. Superior in managing and administrating the flight resources. 3. Flight change advancement of the fighter/airstrike aircraft. 4. Readiness for warfare on the fighter/airstrike flight.	
Helicopter pilot	1. Proficiency of the helicopter pilot. 2. Superior in managing and administrating the flight resources. 3. Flight change advancement of the helicopter.	None
Logistics pilot	1. Proficiency of the logistics pilot. 2. Superior in managing and administrating the flight resources. 3. Flight change advancement of the logistics.	None
Reconnaissance pilot	1. Proficiency of the reconnaissance pilot. 2. Superior in managing and administrating the flight resources. 3. Flight change advancement of the reconnaissance.	None
Pilot trainee	1. Proficiency of the flight training. 2. Superior in managing and administrating the flight resources. 3. Flight change advancement of the training.	None

As shown in the table above, the researcher concluded the functional competency of the RTAF personnel proficiency into several groups, as follows: five functional competencies of the superior fighter and/or airstrike pilot; four functional competencies of the fighter and/or airstrike pilot; three functional competencies of the helicopter pilot; three functional competencies of the logistics pilot; three functional competencies of the reconnaissance pilot; and three functional competencies of the pilot trainee.

As for commissioned officers, four functional competencies were used: competence in aircraft engineering, excellence in aircraft engineering professional development, aircraft engineering resource management to support the Air Force's missions, and professionalism in aircraft engineering services. Hence, the non-commissioned officers were divided into four career fields: aircraft mechanics, aircraft engine mechanics, aircraft maintenance technicians,

and aircraft ground equipment technicians. Upon the specification of the Aeronautical Engineer (AE) mechanic, the functional competencies are distributed by the military group, as provided in detail in Table 2.

**Table 2:** The functional competency names distributed by the AE groups

<b>Academic Lines/ Proficiency Codes</b>	<b>Competency Name: Commissioned Officers</b>	<b>Competency Name: Non-Commissioned Officers</b>
Aeronautical engineer(AE)	1. AE proficiency 2. Superior AE development 3. AE resource management and the RTAF support readiness. 4. AE service professional	1. AE proficiency 2. AE professional 3. AE expertise
Mechanics	None	1. AE mechanics proficiency 2. AE mechanics professional 3. AE mechanics expertise
Aircraft equipment mechanic	None	1. AE equipment proficiency 2. AE equipment professional 3. AE equipment expertise
Ground Equipment Mechanic (GEM)	None	1. GEM proficiency 2. GEM professional 3. GEM expertise

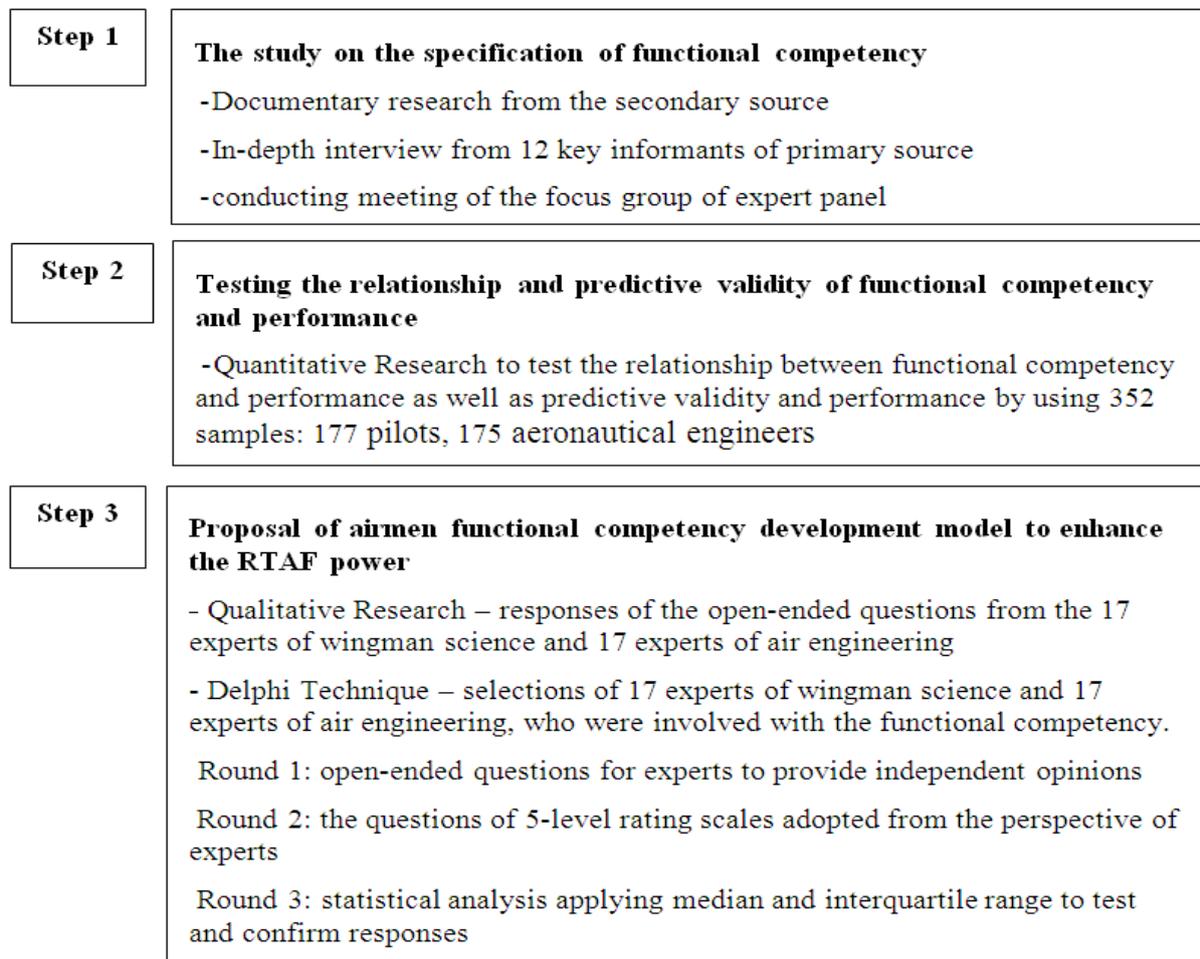
The Table 2 shows that the functional competency names distributed by the military engineering groups are the three functional competencies for the commissioned officers, three functional competencies for the non-commissioned officers of AE mechanics, AE equipment mechanic, and AE ground equipment mechanic for further performance appraisals, management, and development.

### **Research Methodology**

A mixed method research was employed to propose the competency development model of the RTAF personnel, in order to reinforce the RTAF personnel through in-depth interview,

focus groups of an expert panel, and future research by using the Delphi technique. The procedures of this research included three steps, as follows:

**Figure 2. Research Process**



### ***Relationship between the RTAF-Pilot Functional Competency and Performance***

The analysis results of the relationship between the pilot functional competencies and pilot performance Pearson-based relationship test (Pearson's Correlation Coefficient), and the direction of the relationship between the pilot functional competency and the pilot performance, are shown below.

**Table 3:** Correlation Coefficient of the factors to test the relationship between the pilot functional competency and the pilot performance

Variables		F C 1	FC2	FC3	FC4	FC5	P1	P 2	P3	Perfor mance
FC1	Pearson Correlation	1	0.909 **	0.760 **	0.930 **	0.957 **	0.000	0 . 1 5 8 *	0.295**	0.160*
FC2	Pearson Correlation	0 . 9 0 9 * *	1	0.791 **	0.902 **	0.955 **	0.010	0 . 2 1 3 * *	0.271**	0.183*
FC3	Pearson Correlation	0 . 7 6 0 * *	0.791 **	1	0.927 **	0.961 **	0.020	0 . 1 4 3	0.391**	0.195**
FC4	Pearson Correlation	0 . 9 3 0 * *	0.902 **	0.961 **	1	0.974 **	0.132	0 . 1 0 9	0.357**	0.226
FC5	Pearson Correlation	0 . 9 5 7 * *	0.955 **	0.020	0.974 **	1	-0.041	0 . 0 3 4	0.127	0.021
P1	Pearson Correlation	0 . 0 0 0	0.010	0.143	0.132	- 0.041	1	0 . 1 9 3 *	0.239**	0.779**
P2	Pearson Correlation	0 .	0.213 **	0.391 **	0.109	0.034	0.193*	1	0.473**	0.708**

		1 5 8 *								
P3	Pearson Correlation	0 . 2 9 5 * *	0.271 **	0.195 **	0.357 **	0.127	0.239**	0 . 4 7 3 * *	1	0.663**
Performance		0 . 1 6 0 *	0.183 *	0.195 **	0.226	0.021	0.779**	0 . 7 0 8 * *	0.663**	1

\*\*Correlation is significant at the 0.01 level (two-tailed).

\*Correlation is significant at the 0.05 level (two-tailed).

In Table 3, the Pearson correlation coefficient test revealed that the functional competencies which have a relationship, and in the same direction with a high level, are: FC1, the pilot proficiency; FC2, the superiority of the flight resource management and administration; FC4, the pilot prototype; and FC5, the flight operation warfare readiness. The coefficient of correlation values are between 0.909–0.957 and are statistically significant at the level of 0.05. Whereas, FC3, the advanced flight change, has a relationship in the same direction at the moderate level, having coefficient of correlation values between 0.76, which are statistically significant at the level of 0.05. The pilot functional competency, and the pilot performance have a relationship in the same direction and at a low level, with coefficient of correlation values between 0.160–0.357, which are statistically significant at the level of 0.05.

The functional competencies which have the highest relationship in the same direction are: FC1, the pilot proficiency; FC2, the superiority of the flight resource management and administration; FC3, the advanced flight change; and FC4, the pilot prototype. They are at the levels of 0.295, 0.271, 0.391, and 0.357, respectively, noting statistical significance at the level of 0.05. The FC1, FC2, and FC3 have a relationship in the same direction with the overall pilot performance, and at a low level, given the coefficient of correlation values are 0.160, 0.183, and 0.195, and are statistically significant at the level of 0.05. The relationship between the performance variables reveals that there is a low level direction. The P1, the core mission quantity, has a low-level direction with P2, the mission quality, given the coefficient of correlation value is 0.193, and is statistically significant at the level of 0.05. The P1, the

core mission quantity, has a low-level direction with P3, the mission development, given the coefficient of correlation value is 0.239, and is statistically significant at the level of 0.05. The P2, the mission quality, has a moderate level direction with P3, the mission development, given the coefficient of correlation value is 0.473, and is statistically significant at the level of 0.05.

The researcher tested the relationship between the functional competency, and the RTAF-AE personnel performance based on Pearson's Correlation Coefficient, as shown in Table 4 below.

**Table 4:** The test of the relationship between the RTAF-AE functional competency and performance

Issues		FC1	FC2	FC3	FC4	WORK	QUALIT Y	DEVELOP	PERFORM A
FC1	Pearson Correlation	1	0.936(** )	0.920(** )	0.883(** )	0.406(** )	0.362(**)	0.305(**)	0.437(**)
FC2	Pearson Correlation	0.936(** )	1	0.932(** )	0.878(** )	0.427(** )	0.378(**)	0.318(**)	0.457(**)
FC3	Pearson Correlation	0.920(** )	0.932(** )	1	0.902(** )	0.414(** )	0.382(**)	0.305(**)	0.449(**)
FC4	Pearson Correlation	0.883(** )	0.878(** )	0.902(** )	1	0.084	0.351(**)	0.341(**)	0.308(**)
WORK	Pearson Correlation	0.406(** )	0.427(** )	0.414(** )	0.084	1	0.576(**)	0.510(**)	0.838(**)
QUAL	Pearson Correlation	0.362(** )	0.378(** )	0.382(** )	0.351(** )	0.576(** )	1	0.445(**)	0.855(**)
DEV.	Pearson Correlation	0.305(** )	0.318(** )	0.305(** )	0.341(** )	0.510(** )	0.445(**)	1	0.764(**)
PERFOR MA	Pearson Correlation	0.437(** )	0.457(** )	0.449(** )	0.308(** )	0.838(** )	0.855(**)	0.764(**)	1

\*\*Correlation is significant at the 0.01 level (two-tailed).

\*Correlation is significant at the 0.05 level (two-tailed).

In Table 4, the Pearson-based analysis on the relationship of the various variables reveals that the relationship of the functional competencies which move in the same direction and at a high level are: FC1, the AE proficiency; FC2, the superiority of the AE development; FC3, the AE resource management ready to support the RTAF missions; FC4, and the AE professional services. They have coefficient correlation values between 0.878–0.936, and at the statistically significant level of 0.05. The relationship between the functional competencies, and performance moves in the same direction but at a moderate level among FC1, FC2, FC3, and FC4, with the coefficient correlation values between 0.362–0.457, and statistically significant at the level of 0.05. The relationship between performance moves in the same direction but at a moderate level, with the coefficient correlation values between 0.764–0.833, and statistically significant at the level of 0.05.

***Predictive Validity Test between the RTAF Functional Competencies and Performance***

The results of their performance appraisals were analysed based upon their relationship, and predictive validity between their functional competencies, and performances regarding the core mission, mission quality, and mission development.

**Table 5:** Test results of predictive validity of functional validity to the operations of Pilot Lines and AE Lines

Specialist Codes	Functional Competency	Performance			
		Core Mission Quantity	Mission Quality	Mission Development	Overall Performance
<b>Pilot Lines</b>					
Fighter/airstrike pilot	FC4, FC2	55%			
	FC4, FC2, FC3, FC1		74.1%		
	FC2			79.3%	
	FC4, FC2, FC3, FC1				80.9%
Helicopter pilot	FC2		16.4%		
	FC3, FC1, FC2			15.6%	
Transport pilot	FC3, FC1, FC2	30%		22.2%	
<b>Aeronautical Engineer Lines</b>					
Commissioned aeronautical engineer	FC4, FC2, FC1, FC3		43.9%		
	FC4, FC2, FC1, FC3			45.4%	
	FC4, FC2, FC1, FC3				39.5%
Non-commissioned aeronautical engineer	FC3, FC1, FC2	46%			
	FC3, FC1, FC2		36.9%		
	FC3, FC1, FC2			26.4%	
	FC3, FC1, FC2				44.3%

As it is evident that there is a high positive correlation between all functional competencies, the RTAF pilots' performance, and the RTAF commissioned engineers' performance, it can be said that the Thai RTAF pilots, and commissioned air engineers have been proven to be highly skilled. However, it was also found that there is a low to moderate positive correlation between the functional competencies, and the RTAF's non-commissioned engineering personnel's performance. It is observed that the RTAF should concentrate more on non-commissioned engineering staff development, since the tasks they perform are no less

important than the pilots or the commissioned officers in repairing and maintaining aircraft. The substandard performance of the non-commissioned engineering staff can put the lives of the pilots at risk. Moreover, highly skilled engineering staff could also help the RTAF to manufacture their own aircraft, and other devices. It is recommended that the RTAF should assign an appropriate budget and make non-commissioned staff development a priority.

***The RTAF Functional Competency Development Model to Enhance the RTAF Air Power***

The researcher has concluded issues of pilot, and AE functional competency development and proposed the approaches to design its code for the RTAF personnel of both pilot, and AE officers, as in Tables 6, and 7 below.

**Table 6:** Pilot functional competency development codes

	No.	Methodology	Code	Details developments
<b>Pilot Lines</b>	1	<b>Curriculum</b>	11-A-C1	The Navaminda Kasatriyadhiraj Royal Air Force Academy Course
			11-A-C2	Flying School Course
			11-A-C3	Combat Ready Pilot
			11-A-C4	Core Institutional Courses
			11-A-C5	Air Command and Staff Affairs Course
	2	<b>Training</b>	11-A-T1	Domestic and International Flight Training Course
			11-A-T2	Flight Training to meet modern technology and threats.
	3	<b>Pilot Training</b>	11-A-P1	Combat Ready Training
			11-A-P2	Simulator Flight Training
			11-A-P3	Syllabus
			11-A-P4	Semester Flight Drills
	4	<b>Brief-Debrief</b>	11-A-B1	Brief-Debrief
			11-A-B2	Morning Brief
			11-A-B3	Mass Brief
	5	<b>Activity</b>	11-A-A1	Lesson Learned
			11-A-A2	Case Study
			11-A-A3	Scenario
	6	<b>Work Manual</b>	11-A-W1	Employment Manual
			11-A-W2	Work Instruction (WI)
			11-A-W3	Standard of Procedure (SOP)
7	<b>Study Visit</b>	11-A-SV1	Domestic Study Visits	
		11-A-SV2	International Study Visits	

No.	Methodology	Code	Details developments
8	<b>Qualify</b>	11-A-Q1	Drills Appraisals
		11-A-Q2	Flight Standards Appraisals
9	<b>Organisation Culture</b>	11-A-O1	No Blame Culture

Table 6 shows the nine methods of the pilot functional competency development and the codes of development in each method, in order to fulfil the pilot functional competency development model for more objectivity.

**Table 7:** The AE functional competency development codes

	Ser. No.	Development Method	Codes	Development Details	
<b>Aeronautical Engineering Lines</b>	<b>1</b>	<b>Curriculum</b>	43-A-C1	AE Courses	
			43-A-C2	AE Officers Courses	
			43-A-C3	Advanced Diploma of Aircraft Engineering	
				43-B-C1	Air Technical Training School
	<b>2</b>	<b>Training</b>	43-A-T1	Mentoring	
			43-A-T2	Coaching	
			43-B-T1	Aircraft Inspector	
			43-B-T2	Aircraft Theory and Practice Training	
				43-B-T3	On the Job Training (OJT)
	<b>3</b>	<b>Program</b>	43-A-P1	AE Development Program	
			43-A-P2	Using Air Logistics	
	<b>4</b>	<b>Seminar</b>	43-A-S1	AE Seminar Participation	
			43-B-S1	The Internal RTAF AE Affairs Seminars	
			43-B-S2	The External RTAF AE Affairs Seminars	
	<b>5</b>	<b>Activity</b>	43-A-A1	AE Workshop Seminars	
			43-A-A2	AE Team Building	
			43-A-A3	The Efficient AE Check and Maintenance Planning	
			43-A-A4	Maintenance Records	
			43-A-A5	Maintenance Data Learning and Exchanges	
	<b>6</b>	<b>Lecturer</b>	43-A-L1	Speaker of Aircraft and Apron	
	<b>7</b>	<b>Study visit</b>	43-A-SV1	Domestic Study Visits	
43-A-SV2			International Study Visits		
<b>8</b>	<b>Qualify</b>	43-A-Q1	Estimate (Aircraft Maintenance) Licence		
		43-A-Q2	Standard Round Check		
<b>9</b>	<b>Innovation</b>	43-A-I1	Maintenance Innovation Building		



The functional competency development model has been designed to accommodate both disciplines — the pilots', and air engineers' competencies — using nine professional development methods. The model shows dynamics and reciprocal supports to Air Force operations in the air personnel preparation, and the personnel deployment to achieve the RTAF's core mission, which is to reinforce its airpower, as stated in the RTAF vision statement, to become “One of the Best Air Forces in ASEAN” by 2019. This internal professional development plan can support the pilots, commissioned engineers, and non-commissioned engineering staff to achieve an outstanding performance. As a result, they will not only be able to remarkably serve the country but will also attain a world-class standard. Repeatedly, this study would like to stress the importance of deploying air power to protect the country. It is undertaken in order to keep peace, help people, and support national development to enable peace and humanity through appropriate professional development programs for personnel development.

## Conclusions

The results of the relationship between the RTAF personnel functional competencies and performances, are concluded as follows:

1. All the pilot functional competencies have a relationship within the same direction and at a high level, as well as have a relationship within the same direction of the mission quantity, quality, development, and overall performance, which is at a low level. On the other hand, the relationship between the performances reveals that there is a relationship within the same direction, which is at the modest to high level.
2. The commissioned AE functional competencies have a relationship within the same direction and at a high level with the performances, which are: the AE proficiency (FC1), the superiority in developing AE resources (FC2), the superiority in managing and administrating AE resources ready to support the RTAF missions (FC3), and the AE professional services (FC4). This is supported by a coefficient of correlation between 0.878–0.936, which is statistically significant at the level of 0.05. The relationship between the functional competencies and the performance is in the same direction and at a modest level, with the coefficient of correlation between 0.305–0.456. It is at a statistically significant level of 0.05, and found with FC1, FC2, FC3, and FC4. The relationship between the performances was found to be in the same direction and at a modest level, with the coefficient of correlation between 0.764–0.833, and statistically significant at the level of 0.05.

3. The non-commissioned AE functional competencies have a relationship within the same direction and at a low level with the performances. On the other hand, the relationship among performances is in the same direction but at a modest level.

The results of testing the predictive validity between the RTAF functional competencies and the performances revealed that:

1. With the pilot functional competencies, it is found that the first three functional competencies — the flying proficiency (FC11-1), the superiority in managing and administrating flight resources (FC11-2), and the flight change advancement (FC11-3) — applied in appraising all types of pilot can predict the performances on quality, and overall performance at a high level. Whereas, it predicts the performance upon quantity, and development at a modest level, which is around 22.2–80.9 per cent. On the contrary, in the fourth functional competency on combat ready flying (FC11-4), it can predict job quantity, quality, and development at the modest to high levels, which is between 55.0–80.9 per cent. The fifth competency is the flight operation prototype (FC11-5), which is the only one that cannot predict the performance of the superior fighter and/or attack pilot.
2. The results of the predictive validity test between the commissioned AE functional competency, and performance reveal that all AE functional competencies — the AE proficiency (FC43-A1), the AE job development superiority (FC43-A2), the AE resource management (FC43-A3), and AE professional service (FC43-A4) — can predict AE performance quality, job development, and overall performance at a modest level of 39.3–45.4 per cent.
3. The results of the predictive validity test between the non-commissioned AE functional competency, and performance reveal that all AE functional competencies — the AE proficiency (FC43-B1), the AE professional (FC43-B2), and the AE expertise (FC43-A3) — can predict all AE performances, even the core quantity, job quality, job development, and overall performance, which is at a low to modest level of 26.4–46.0 per cent.

## **Recommendations**

1. The research results in testing the predictive validity between designing the functional competency and the performance, which is able to check and assert that the functional competency design has a relationship and can predict the performance by statistical significance and enabling to be used with predictive validity to design the RTAF core competencies and management competencies.

2. The pilot and AE functional competency model shown in this research can be used as a guide to further expand the results to the functional competency model in every academic line and in the entire Air Force.
3. The functional competency models are different and attract the conduction of in-depth research in each academic line, such as the ninth development method of the pilot, which is the 'organisation/corporate culture', as characterised in the 'no blame culture'. It will result in creative learning to use flying data for the maximum safety of both pilots, and aircraft. Furthermore, the ninth development method of the AE, which is 'innovation', can be reflected through creation and AE craft maintenance innovation to raise the flying safety and the aircraft maintenance innovation, which is worth the RTAF context with rigid budgets, and personnel.

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## REFERENCES

- Akraborworn C. (2011). *Solution to competency...creating the right person*, <http://www.manager.co.th>, Access on: 12.07.2017.
- Akraborworn C, (2012). *What is Competency? A graduate study on human resource development*, Bangkok, Thailand: NIDA, <http://www.dms.moph.go.th/competency/modules.php?name=content&pa=showpage&pid=2>, Access on: 22.11.2017.
- Amornwatana J. (2010). *Competency-based human resource management: theory to practice*, Thailand, Mahidol University.
- Bamroongsuk S, (2010). *Information operations*, Journal of Security Studies, 78, -5-14.
- Boyatzis R, E. (1982). *The competence manager: A model for effective performance*. New York, NY, John Wiley & Sons Inc.
- Dandeker C. (1995). *flexible forces for a post-cold war world: A view from the United Kingdom*, La revue Tocqueville the Tocqueville Review, 17,1, 25-38.
- Denzin, N.K. (1970). *The research act in sociology*, Chicago, Aldine.
- Directorate of RTAF Personnel, (2009). *The RTAF Rules on Categorization of the RTAF Personnel*.
- Directorate of RTAF Personnel, (2014). *The RTAF Competency Handbook*.
- Faculty of Commerce and Accounting, Chulalongkorn University, (2006). *Reports of a study on preliminarily model development in the state agencies high performance organization*, <http://www.opdc.go.th/oldweb/thai/High/HighPerformanceOrganize.pdf>, Access on: 18.12.2017.
- Jermittiparsert, K. & Wajeetongratana, P. (2019). The role of organizational culture and it competency in determining the supply chain agility in the small and medium-size enterprises. *International Journal of Innovation, Creativity and Change*, 5(2), 416-431.
- McClelland D, C. (1973). *Testing for competence rather than intelligence*, American Psychologist, 28(1), 1-14.
- Office of Civil Service Commission, (2005). *Adaptation of competency in human resource management*, Seminar Handouts on “Competency of Government Officers”, January, 31, 2005.



- Pirihi, R.G. (1998). *Core competency for the royal New Zealand Air Force*, Maxwell Air Force Base, Alabama, 23-38.
- Ramanathan, K. (2004). *Leadership development through the singapore armed forces (SAF) competency-based learning project*, Singapore Armed Forces Military Institute.
- Royal Thai Air Force, (2013). *The policy of the RTAF commander-in-chief*, <http://www.rtaf.mi.th>, Access on: 18.02.2017.
- Saengchai, S., Joemsittiprasert, W., & Jermsittiparsert, K. (2020). Human resource development and success of engineering procurement construction project: What role engineering education and human resource competency can play?. *Test Engineering and Management*, 82, 3476-3487.
- Singapore Air Force, (2004). *The SAF Leadership Framework SAF Leadership Competency Development Handbook*.
- Spencer, L. M..Jr, & Spencer, M. S. (1993). *Competency at work: Models for superior performance*, New York, John Wiley & Sons, Inc.
- Taylor, F.W. (1910). *The principle of scientific management*, New York, The Norton Library.