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Project Management Knowledge areas and Skills for Managing Cloud Software Projects: Overcoming Challenges

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AUTHORIZATION FORM

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COMMITTEE DECISION

This thesis (Project Management Knowledge areas and Skills for Managing Cloud Software Projects: Overcoming Challenges) was successfully defended and approved on (10-5-2018)

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DETECTION

In memory of my father, I would like to dedicate this research study to his spirit,

To my mother, who taught me the value of education and supported me through my educating years and her endless love, prayers and continuous sacrifices,

I pray that Allah, the most gracious, the most merciful to grant them paradise as a reward for their patience and efforts,

To my brother and my two sisters for their continuous support to reach my dreams,

To my loved ones, teachers, friends, and family,

To my homeland Palestine.

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Praise be to Allah alone, and prayer and peace be upon our prophet Muhammad (P.B.U.H).

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ABSTRACT

The competency of project managers is one of the major characteristics of a highly efficient successful project. Many of cloud services are related to the software project management (SPM) field where the customers are the software project managers (SPMs) themselves. This indeed reveals many new knowledge areas, skills and consequently new challenges that need to be overcome so that SPMs can cope and make use of the new available cloud services.

Therefore, this research aims to identify the challenges faced by project managers in cloud computing and highlight the knowledge areas and skills needed to meet these challenges, through literature review, survey and interviews with experts in this field. As the project manager is the main person responsible for the success of the project, the study concern to improve their capabilities in managing cloud software projects. And, to draw recommendations so that possible systems and tools can be developed and integrated to overcome some of these challenges.

Data were collected mainly through the survey questionnaire and the literature review, then these data were analyzed by statistical basis on SPSS which it takes into consideration the mean value, standard deviation and test failure indicator using z-value method to determine the

critical required knowledge areas and skills for managers in managing cloud projects overcoming challenges, to accept or reject the hypothesis.

Identified challenges from the interviews and researches, were divided into six groups; (1) Project-related challenges, (2) Planning-related challenges, (3) Project Team-related challenges, (4) Client-related challenges, (5) Business & Market-related challenges, (6) Data & Security-related challenges. For each group there were 15 Knowledge areas and 10 skills which have been chosen as the top ranking important factors that can increase the productivity of the cloud project manager. The study focused on the experienced cloud software managers only, where the majority (70%) was more than 10 years of experience

Finally, it was concluded that, (1) an up-to-date information of the top 10 challenges that faced in managing cloud software projects were highlighted, and (2) the critical Knowledge areas and skills for the managers that help effectively in overcoming the challenges were determined through the IBM SPSS Statistics 20.

الملخص العربي

ترتبط العديد من الخدمات السحابية بمجال إدارة مشاريع البرمجيات حيث يكون العملاء هم مديري مشروعات البرمجيات . ويكشف هذا بالفعل عن العديد من مجالات المعرفة الجديدة ، والمهارات وبالتالي ظهور تحديات جديدة يتعين التغلب عليها حتى يمكن لأدوات المشروع أن تتعامل مع الخدمات السحابية الجديدة المتاحة وأن تستفيد منها. وبالتالي تعتبر كفاءة مديري المشاريع واحدة من الخصائص الرئيسية لمشروع ناجح ذو كفاءة عالية.

لذلك ، يهدف هذا البحث إلى تحديد التحديات التي يواجهها مديرو المشاريع في الحوسبة السحابية وتسليط الضوء على مجالات المعرفة والمهارات اللازمة لمواجهة هذه التحديات من خلال مراجعة الأدبيات والمسح ومقابلة الخبراء في هذا المجال. وبما أن مدير المشروع هو الشخص الرئيسي المسؤول عن نجاح المشروع ، فإن الدراسة تتعلق بتحسين قدرات مديري المشاريع في ادارة مشاريع البرمجيات السحابية. و وضع توصيات حتى يمكن تطوير الأنظمة والأدوات الممكنة للتغلب على هذه التحديات.

تم جمع البيانات بشكل رئيسي من خلال الاستبيان الرئيسي والبحوث السابقة بشكل ثانوي، وتم تحليلها حسب الأساس الإحصائي على برنامج SPSS حيث أخذ بعين الاعتبار مؤشر القيمة ، والانحراف المعياري ومؤشر فشل الاختبار باستخدام طريقة قيمة Z لتحديد مجالات المعرفة الحرجة والمهارات المطلوبة للمديرين في إدارة مشاريع السحابة التغلب على التحديات ، لقبول أو رفض الفرضية.

التحديات التي تم تحديدها من المقابلات والأبحاث ، تم تقسيمها إلى ست مجموعات. (1) التحديات المتعلقة بالمشروع ، (2) التحديات المرتبطة بالتخطيط ، (3) التحديات المتعلقة بفريق المشروع ، (4) التحديات المتعلقة بالعميل ، (5) التحديات المتعلقة بالأعمال والسوق ، (6) التحديات المتعلقة بالبيانات والامن. و لكل مجموعة كان هناك 15 منطقة معرفة و 10 مهارات تم اختيارها كأهم العوامل المهمة التي يمكن أن تزيد من إنتاجية مدير مشروع السحابة. وركزت الدراسة على مديري البرامج السحابية ذوي الخبرة فقط ، حيث كانت الأغلبية (70%) أكثر من 10 سنوات من الخبرة.

وأخيرًا، تم استنتاج أنه ، (1) تم تسليط الضوء على معلومات حديثة لأهم 10 تحديات واجهتها إدارة مشاريع البرامج السحابية ، (2) و تم تحديد مجالات المعرفة والمهارات الأساسية للمديرين بشكل فعّال في التغلب على التحديات من خلال برنامج IBM SPSS Statistics 20.

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LIST OF ABBREVIATIONS

NIST	National Institute of Standards and Technology
IaaS	Infrastructure as a Service
IDE	Integrated Development Environment
iPaaS	Integration Platform as a Service
PaaS	Platform as a Service
aPaaS	Application Platform as a Service
BPM	Business Process Management
SaaS	Software as a Service
IoT	Internet of Things
APEX	Application Express
ABCS	Application Builder Cloud Service
SFA	Sales Force Automation
CRM	Customer Relationship Management
QBS	Quality Business Solutions
DRaaS	Disaster Recovery as a Service
BaaS	Backup as a Service
TAGITI	Talal Abu-Ghazaleh Information Technology International
QBS	Quality Business Solutions
DRaaS	Disaster Recovery as a Service
CIO	Chief Information Officer