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ABSTRACT
TEZĂ DE DOCTORAT

METODE AVANSATE ÎN MANAGEMENTUL
ORGANIZAȚIILOR DIN INDUSTRIA IT&C

ADVANCED MANAGEMENT METHODS IN THE
IT&C INDUSTRY ORGANIZATIONS

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LISTA ACRONIMELOR

AFB – Hill Air Force Base

AG – Algoritm genetic

AGA – Adunarea Generală a Acționarilor

Agile – Familie de metodologii de proiect management în ingineria software

AI – Auto – Învățare

AIS – Advanced Information Services

API – Application Programming Interface

APM – Association for Project Management

ARIS – Architecture of Integrated Information Systems

ASP – Application Service Providers

B2B – Business – to – Business

B2C – Business – to – Consumer

BIS – Business Intelligence Systems (*Sistem de inteligență în afaceri*)

BPMN – Business Process Model and Notation

CA – Consiliul de Administrație

CE – Community Edition

CEO – Chief Executive Officer

Cognitive computing – Platformă tehnologică bazată pe disciplinele științifice ale inteligenței artificiale și procesării semnalelor

CoPs – Communities of Practices (*Comunități de bune practici*)

CRMS – Customer Relationship Management Systems (*Sistem de management al relației cu clienții*)

DSS – Decision Support Systems (*Sistem de asistare a deciziilor*)

EKM – Electronic Knowledge Management (*Platformă electronică de management al cunoștințelor*)

ERP – Enterprise Resource Planning

ES – Expert Systems (Sistem expert)

Framework – Structură conceptuală / arhitectură software care modelează relațiile generale dintre entități

GIS – Geographic Information Systems (*Sistem informatic geografic*)

GSD – Global Software Development

HR – Human Resources (*Resurse umane*)

iCALMS – integrated Competency And Learning Management Systems (*Sistemele de competențe integrate și managementul învățării*)

ICP – Indicator Cheie de Performanță

IDE – Integrated Development Environment

IEEE – Institute of Electrical and Electronics Engineers

IMM – Întreprinderi Mici și Mijlocii

IoT – Internet – of – Things (*Concept ce presupune folosirea Internetului pentru a interconecta diferite dispozitive, servicii și sisteme automate*)

IT&C – Information and Communications Technology

ITL – Issue Tracking Log

IU – Implicarea Utilizatorilor

JAR – Java Archive

JDK – Java Development Kit

KPA – Key Process Areas

LOC – Lines Of Code

MFUS – Multiple Factor User Satisfaction

MPE – Management prin excepții

NN – Neural Networks (*Rețelele neuronale artificiale*)

PALs – Process Asset Libraries (*Biblioteci de procesare a activelor*)

PIB – Produs Intern Brut

PMBOK – Project Management Body of Knowledge

PMI – Project Management Institute

PMP – Project Management Professional

POJO – Plain Old Java Object

POM – Project Object Model

PSP – Personal Software Process

PU – Participarea Utilizatorilor

PwC – PricewaterhouseCoopers LLC

RAD – Rapid Application Development

REST – Representational State Transfer

ROF – Regulament de Organizare și Funcționare

SCMS – Supply Chain Management Systems (*Sistem de management al lanțului de distribuție*)

Scrum – Metodă de gestionare a proiectelor caracteristică programării agile

SDLC – System Development Life Cycle

SGBD – Sisteme de Gestiune a Bazelor de Date

SI – Sistem Informatic

SLA – Service Level Agreement

SW – CMM – Capability Maturity Model for Software

TCS – Tata Consultancy Services

TSP – Team Software Process

UAT – User Acceptance Testing (*Testare de acceptanță*)

UE – Uniunea Europeană

URL – Uniform Resource Locator

VAB – Valoare Adăugată Brută

ABSTRACT

Această lucrare își propune dezvoltarea modelului unui proces de afaceri și implementarea acestuia printr-un sistem informatic, pe baza căruia se poate stabili dacă un proiect IT&C are șanse de reușită. Importanța aplicării acestui model o reprezintă asistarea deciziei privind începerea sau renunțarea la proiect, ca metodă avansată de management în organizațiile din industria IT&C. Prin intermediul acestui model conceptual s-a identificat și validat o structură a metodelor avansate de management în organizațiile din industria IT&C care să reflecte cât mai bine datele observate empiric.

Prin implementarea modelului software propus în această teză, diferențele de opinie dintre părți se diminuează considerabil, prin simplul fapt că acest model aduce un calcul strict obiectiv și matematic, în urma criteriilor pe care proiectul dorit ar trebui să le îndeplinească. Prin urmare, deciziile luate sunt mai precise și mai puțin costisitoare.

Este abordată familiarizarea cititorului cu următoarele tehnologii moderne precum: big data, cognitive computing, Internet – of – Things sau rețelele neuronale artificiale, precum și cu diferitele metode prin care aceste noi tehnologii sunt folosite pentru îmbunătățirea proceselor, creșterea eficienței și obținerea de noi perspective asupra viitorului. Sunt evidențiate, astfel, metode de îmbunătățire a procesului de recrutare prin introducerea cognitive computing în componența acestui proces; metode de îmbunătățire a politicii de lucru, prin introducerea unui program flexibil; metode de creștere a eficienței angajaților prin planificarea și susținerea instruirii acestora; și metode de mulțumire și motivare a angajaților prin planificarea unor pachete de beneficii și bonusuri în concordanță cu nevoile acestora.

Se stabilește și un set de factori de succes în implementarea sistemelor informatice precum: abilitățile tehnice, implicarea utilizatorilor, comunicarea, sprijinul din partea managementului, caracteristicile echipei de proiect, diferența dintre tehnologia furnizorului și cea a clientului, stimulentele pentru angajați, infrastructura și provocările apărute în timpul implementării. Alte bune practici detectate pentru organizațiile din industria IT&C sunt: politica internă a companiei să încurajeze întâlniri și dialoguri, inclusiv cu firme externe, având ca scop schimbul de experiență și învățarea; încurajarea opiniilor, ideilor și discuțiilor informale înainte de deciziile specifice care sunt luate; gruparea și sistematizarea documentelor și a rezultatelor obținute prin învățare, respectiv conectarea la alte documente din domenii conexe. Sunt scoase în evidență și bune practici de comunicare atât în interiorul organizației IT&C, cât și cu organizațiile partenere răspândite la nivel global, pe diferite fusuri orare, dar și cu utilizatorii.

Deși se cunosc multe metode generale de management, dintre acestea au fost aprofundate doar acelea care se aplică pe o scară largă și care au oferit cele mai bune rezultate în desfășurarea activității manageriale din industria IT&C. De departe, însă, cel mai folosit și inovator sistem de management în această industrie este managementul prin proiecte. Au fost prezentate atât managementul decizional, cât și cele mai eficiente metode de luare a deciziilor când vine vorba de implementarea, continuarea sau renunțarea la un proiect IT&C.

Sunt prezentate, de asemenea, tenduri în managementul cunoștințelor, avantajele îmbunătățirii modului de utilizare a conceptului de management al cunoștințelor, prin prezentarea influenței inovării și învățării acestuia la nivelul întregii organizații IT&C și metode de gestionare mai bună a relației cu clienții, de stabilire și menținere a relațiilor dintre furnizorul de servicii IT&C și clienții acestuia. Prin managementul de portofoliu, organizația poate alinia portofoliul la obiectivele strategice, poate aproba numai componentele care susțin direct realizarea obiectivelor și poate vedea riscul portofoliului ca un rezultat al grupului de componente al portofoliului. Noi componente pot fi respinse de organizație atunci când riscul adăugării lor distruge echilibrul portofoliului și duce la depășirea toleranței la risc a organizației.

This paper aims at developing the model of a business process and its implementation through a computer system, on the basis of which it can be determined whether an IT&C project has enough chances of success. The importance of applying this model is to assist, as an advanced management method in organizations in the IT&C industry, the decision to start or abandon a project. Through this conceptual model, a structure of advanced management methods in IT&C industry organizations has been identified and validated to best reflect the empirically observed data.

By implementing the software model proposed in this thesis, the differences of opinion among the parties diminish considerably, simply by the fact that this model brings a strictly objective and mathematical calculation, according to the criteria that the desired project should meet. Therefore, the decisions taken are more precise and less expensive.

The approach is meant to acquaint the reader with the following modern technologies: big data, cognitive computing, Internet – of – Things or artificial neural networks as well as the different methods by which these new technologies are used to improve processes, increase efficiency and gain new insights for the future. Thus, methods of improving the recruitment process are highlighted by the introduction of cognitive computing in this process; methods of improving work policy by introducing a flexible program; methods to increase employee efficiency by planning and supporting training; and ways of rewarding and motivating employees by planning packages of benefits and bonuses in line with their needs.

There is also a set of success factors in the implementation of informatic systems such as: technical skills, user involvement, communication, management support, project team characteristics, the difference between supplier and customer technology, incentives for employees, infrastructure and emerging challenges during implementation. Other good practices detected for organizations in the IT&C industry are: the company's internal policy to encourage meetings and dialogues, including with external firms, with the purpose to share experiences and learn; encouraging opinions, ideas and informal discussions before specific decisions are taken; grouping and systematizing documents and outcomes obtained by learning, respectively connecting to other documents in related fields. Good communication practices both inside the IT&C organization and with partner organizations spread globally, on different time zones and with users, are also highlighted.

Although many general management methods are known, only those that are widely applied and which have provided the best results in the IT&C management activity have been deepened. By far, however, the most used and innovative management system in this industry is project management. Both decision – making and the most effective decision – making methods have been presented when it comes to implementing, continuing or abandoning an IT&C project.

Trends in knowledge management, the benefits of improving the use of the knowledge management concept by presenting the influence of innovation and its learning across the whole IT&C organization, and better customer relationship management, establishment and maintenance of the relationship between the IT&C service provider and its customers are also detailed. Through portfolio management, the organization can align the portfolio to strategic objectives, approve only the components that directly support the achievement of goals, and see portfolio's risk as a result of the portfolio's components group. New components can be rejected by the organization when the risk of adding them destroys the balance of the portfolio and leads to overcoming the organization's risk tolerance.

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