Evaluación de la calidad sobre la aplicación móvil fiscal para cálculo de la PTU en empresas Mexicanas

Quality assessment on fiscal mobile application for calculating the OCT in Mexican companies

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Resumen

Uno de los tantos problemas que afectan a las empresas mexicanas que contratan personal subordinado (trabajadores) para realizar funciones específicas, es la distribución y retención del impuesto sobre las utilidades generadas en la organización; derivado de este fenómeno, la legalidad fiscal mexicana establece la obligación a los patrones a retener el Impuesto Sobre la Renta del ingreso obtenido por el trabajador sobre utilidades recibidas; a partir de esta situación, la presente investigación tiene como propósito evaluar la calidad de la aplicación móvil fiscal para eficientar la retención o subsidio al empleo otorgado aquellos trabajadores que prestan un servicio personal subordinado por los ingresos obtenidos de la utilidades generadas en un ejercicio fiscal, con la finalidad de eficientar el cumplimiento de las obligaciones contenidas en las leyes fiscales en el territorio mexicano. La investigación fue descriptiva, correlacional, no experimental, no probabilística, conformada por 120 sujetos. Se creó un instrumento conformado por 20 ítems con base en la Norma ISO 9126, estructurado con escala tipo Lickert, con un alfa de Cronbach 0.90. En términos de calidad, el análisis estadístico muestra las variables
con mayor valor predictivo en la calidad; los resultados predicen excelentes niveles de calidad, lo lleva a inferir que las aplicaciones tecnológicas móviles pueden incorporarse en

hacer más eficientes las gestiones empresariales y su relación con las autoridades fiscales en México.

Palabras clave: Calidad, ISO 9126, PTU, evaluación, aplicación.

Abstract

One of the many problems affecting Mexican companies that hire subordinate staff (employees) to perform specific functions, is the distribution and withholding tax on profits generated in the organization, resulting from this phenomenon, the Mexican tax law establishes the obligation employers to withhold income tax from the income earned by the worker on profits received, from this situation, the present investigation is to evaluate the quality of the mobile application for efficient tax withholding or employment subsidy granted those workers providing subordinated personal service income earned from the profits generated in a tax year, in order to streamline the fulfillment of the obligations contained in the tax laws in Mexico. The research was descriptive, correlational, not experimental, non-probabilistic, comprising 120 subjects. This instrument was composed of 20 items based on ISO 9126, structured Likert scale, with a Cronbach alpha of 0.90. In terms of quality, statistical analysis shows the most predictive variable in quality, the results predict excellent levels of quality, it can be inferred that applications can be incorporated into mobile technology to streamline business management and its relationship with the tax authorities in Mexico.

Key words: Quality, ISO 9126, PTU, evaluation, implementation.

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Introduction

The business management activities are vital in any organization, linked to the operational efficiency of each of the elements of the staff, contribute to increased results reflected in the profits of the organization, it is vital for a company to demonstrate the profits earned personnel. Mexican law requires employers or business owners to deliver and retain the tax

rate that results from that income, so the tax administration should be as flexible as possible and meet the expectations of workers and the tax authorities. Therefore, the development of this proposal is to design interactive application for tax management, through the use of mobile devices. This new mobile tax application to generate information on what to distribute to workers, as well as almost instant tax withheld with debtors to disclose in advance the status of their tax obligations, to be aware of the tax withheld by pattern and especially the compensation you will receive for the performance of their annual labor.

The overall objective of the research is focused on evaluating the quality of the mobile application prosecutor to streamline the tax process in the retention or employment subsidy granted workers who provide a personal service subordinate to the proceeds of the profits generated in fiscal year based on Mexican law, the employers.

Based on Article 123, paragraph A, section IX, of the Constitution of the United Mexican States, workers have the right to participate in the profits generated in the organization, also, one of the obligations to the tax authorities, employers have the obligation to calculate the profit generated (art. 10, 16 LISR, 2012), and establish the division according to the days worked and wages earned during the year, withhold the tax revenues generated by the workers (art. 113 Income Tax Law, 2012).

The results show that the use of mobile telephony in the tax practices maintained a level of excellence in tax management, perception of participants meets statutory requirements and provides the information needed to apply the tax provisions in the Mexican tax law; is a tool that can be assistant in the labor, academic and government field.

The importance of incorporating mobile applications with quality tax in tax management and also contribute to the goal of the Economic Development Plan Mexico is transcendental; as well as, have evidence to show compliance with the criteria and guidelines established by international quality standards. Currently in the information society and knowledge, software applications are a success factor by which companies use more efficient tools or streamline their efforts in a practical way, however, the quality turns out to be an important factor in applications because one of its aims is to improve and facilitate internal operations minimizing costs and time (Omana and Cardenas, 2010). Pressman (2002) mentioned that the process of information provides major areas of application of technology programs, the constant transformation is towards a renewal of

information systems (MIS), these applications provide representative data to facilitate business operations or management decisions; required in addition to data processing activities, mobile applications also promote the implementation of interactive computing. Also, due to widespread use and confidence of the people in the applications, it is important to emphasize in the performance guarantee of quality and reliability.

Moreno (2008) developed a model for assessing the quality in use of Web sites, based on the ISO / IEC 9126 4 called SW-AQUA standard measures four aspects: effectiveness, productivity, safety and satisfaction in the area of school control Motul Institute of Technology with a sample of 8 participants, the study demonstrated the level of quality in use, excellent standards in determining their effectiveness, productive, safe and meets the needs of users in standard quality levels.

Also, Solarte (2009) designed a quality model for software processes, which performed a meta analysis of the quality models: ISO / IEC, integration maturity model CMMI capacity and model quality MARK iT for SMEs, to determine the benefits and disadvantages of the development of quality software; determining that the CMMI model helps to improve work processes and model for certification.

In a study by Chaustre, Bolaños & Navia (2010) in Colombia, an approach to quality practices in mobile applications MSMEs, you can appreciate the level of quality from software quality metrics is scarce or no, because it is important for companies to comply with the requirements set by the client and without considering the certification and quality assessment, the only way they know if your product is suitable and accepted by your client, since much from developers, deals only with creating software without using any model or standard for measuring the quality of their projects, nor on the quality characteristics of the product, because developmental processes are based on a complete specification of requirements construction and testing; mismatches present rapid application development, implying that sometimes have to sacrifice the quality of the software product to facilitate deliveries user, speed and low cost.

Omana and Cardenas (2010), a contribution to the development of quality software, conducted a non-experimental, descriptive and documentary study transeccional Universidad Simon Bolivar, Venezuela; called Lean, with a view to universities offering carreas in the area of computer systems or computer science, to train professionals to meet

the needs of the environment, starting from the premise that software developments made to date are not satisfied expectations of development time, reliability, maintainability, portability and quality. SQLfi version 4 was evaluated under a systemic quality model software (FLY) applied to a population of 26 subjects with a purposive sample of 11, obtaining a zero systemic quality, which concluded in the proposal adoption of a development model for building software quality based on established standards of lean manufacturing (Lean manufacturing). The contribution corresponds to an improvement of systemic quality software development that allows for products in a quick, reasonably priced and budgeted resources. The prototype model allows to identify the strengths and weaknesses of software products studied. When evaluating software products with the prototype, verified compliance thereof with respect to critical quality requirements established by the applicant in assessing and simultaneously used the results to improve. Since the evaluation is systemic, identify the processes that influence specific product features.

Furthermore, Santoveña (2010) designed an instrument of the quality of online courses at UNED in Spain, the instrument consists of 36 items organized into three dimensions: General quality of the environment and methodology, technical quality (navigation and design) and quality media assets; to submit a proposal for improvement.

Another model is proposed by Bertoa and Villecillo (2010) for software components in which authors adapt the ISO / IEC 9126 standard for COTS components (Commercial off-the-shelf). Rodríguez (2010) presents a methodology for evaluating the quality of UML models, consisting of a service-oriented quality assessment structured set of processes, where from a review of standards, norms and methodologies related to the evaluation of software quality, EVVE developed the methodology, the following principles: consists of a structured set of processes aimed at the relationship with the client and the outsourcing of quality assessment, easily adaptable; however identifies the what, when, and who, in each of the phases and activities of the processes and the sequence of steps to be followed when carrying out the assessment; so we can observe that there exists today a tool to assess the quality of a specific mobile application prosecutor.

Quality is an efficiency factor in software engineering, among its purposes is to optimize the technology resources in its development, this means an increase in organizational

productivity and competitiveness; in these times organizations around the world recognize that the quality of the product can result in saving expenses. The software development companies are no exception, which is why in modern times the growth in technological applications have conducted intensive work to implement the concept of quality in this area (Aboud, 2010).

Employers and workers need to simplify digital mobile applications, in order to meet obligations to government agencies; broader technology user's smartphone, which allows different actions to cover their immediate needs, in the business context, could be a tool for purposes of process improvement of tax administration as well as calculating the profits that are distributed internally in organizations; practical, simple, reliable and above all timely; in order to comply with the contributions, an application to run on smartphone with provisions of the law of income tax is designed.

Creating mobile applications require constant connection with quality models that allow demonstrate the levels of excellence of the products and measuring instruments including variables, indicators and factors qualify each of the attributes that shape it. This research instrument based on ISO 9126 (ISO 9126, 2011), the rule in paragraph 5 14958 (ISO 14958, 2010) provides internal and external criteria for evaluating the quality of flexible technologies, was created in this sense, the instrument for measuring quality is made up of 20 items recital 6 variables (functionality, reliability, portability, efficiency, maintainability, usability), structured Likert scale, recital 1 excellent; 2 good; Regular 3; 4 deficient; 5 bad, the instrument 120 active certified public accountants, currently providing advisory services, business consulting dedicated to doing business, in addition to meeting the criteria for its use and application in the tax practice was applied.

When you start the evaluation to the objective of the study participants reported, assess the tax mobile application, they indicated that the developed mobile technology model was designed based on the Mexican tax law; the installation of the application on your smartphone, how to use it and run it, to obtain the results required by the employer, worker and professionals on withholding taxes on profits earned by the subordinate services provider, currently applicable to 2012, whose liability to the tax Administration Service (SAT) is surrendered and paid taxes, the contribution must be determined, calculated and withheld by the employer to be paid within the period specified in law itself; addition, the

type of technology which can be used are specified. Also, the executable file is provided through bluetooth to your smartphone, for use during practice and start the evaluation process.

In the second phase the concepts that make up the tax application is described, amounts you must enter the required results for the interested user and corresponding authority were explained, all participants are associated with the concepts used to calculate the ISR.

In the third phase took place a session lasting 50 minutes where he presented the mobile application, its operation is explained, real case studies were conducted, data provided workers to use tax application and thus were trained subjects to use the mobile app, then the instrument was provided to start your evaluation.

The statistical package Statical Package for you Social Sciences (SPSS, version 19.0) was used, using the program descriptive analysis, in order to have an overview of the results was performed in the data processing carried out a analysis through the application of measures of central tendency in the variables and finally each of the predictors of quality; an inferential analysis in order to argue the Pearson correlation in order to find the degree of relationship between the variables of quality; addition, the linear regression to predict the variables that most strongly influence the quality.

The sample was chosen from a population of 120 subjects, where 100% (n = 120) volunteered to participate in the study. 60% (n = 72) were male and 40% (n = 48) women who used the tax application on your phone as a tool for the calculation of retention or subsidy granted to workers (Table 1).

Gender	Frequency	Average
Female	48	40
Male	72	60
Total	120	100.0

Table 1: Table of distribution of the sample by gender.

With respect to the age of the participants, 31.7% (n = 38) were 36, 24.2% (n = 29) 37, 15.8% (n = 19) 38, 15.8% (n = 19) were 39, and 121.7% (n = 5) were 35. (Table 2).

Age	Frequency	Average
35 años	15	12.5 %
36 años	38	31.7 %
37 años	29	24.2 %
38 años	19	15.8 %
39 años	19	15.8 %
Total	120	100.0 %

Table 2: Table of distribution of the sample by age.

Of the total sample, participants used different cell: where predominance 35% (n = 42) who used Nokia, 25% (n = 30) LG, 25% (n = 30) Motorola, and only 15% (n = 18) with Sony Ericsson (Table 3).

Brand Cell	Frequency	Average
Nokia	42	35 %
LG	30	25 %
Motorola	30	25 %
Sony Ericsson	18	15 %
Total	120	100 %

Table 3: Table of racial brand of cell.

Regarding the type of activity that participants provide services, 60% (n = 72) were intended for trade, 15% (n = 18) were allocated to services and 25% (n = 30) for processing and industry (Table 4).

Activity	Frequency	Average
Comercio	72	60 %
Servicios	18	15 %
Transformación	30	25 %
Total	120	100.0 %

Table 4 Table of racial activity.

Descriptive evaluation criteria: Average (X) and Standard Deviation (SD) quality indicators, we find that the overall quality level (1.085), in each of its subscales: efficiency, portability, functionality, usability, reliability and maintainability tend to be excellent (Table 5).

	Factores						
	Funcionalidad	Fiabilidad	Usabilidad	Eficiencia	Mantenibilidad	Portabilidad	Total Calidad
$\bar{X}$	1.075	1.025	1.035	1.025	1.025	1.035	1.085
DE	.101	.095	.095	. 085	.085	.085	.075

Table 5 Table of predictors of quality factors.

Regarding the correlation between subscales and quality, we note that the functionality of very strong correlates positively with portability and efficiency; reliability as to the efficiency, maintainability usability; efficiency and maintainability, maintainability and portability; other variables are significantly positively related; we can see that all the variables there is a strong positive correlation with the quality (Table 6).

	Variables de calidad						
	Funcionalidad	Fiabilidad	Usabilidad	Eficiencia	Mantenibilidad	Portabilidad	Calidad
Funcionalidad	1.0						
Fiabilidad	.715**	1.0					
Usabilidad	.813**	.886**	1.0				
Eficiencia	.914**	.965**	.865**	1.0			
Mantenibili	.875**	.820**	.966**	.918**	1.0		

dad							
Portabilidad	.928**	.806**	.855**	.869 **	. 955**	1.0	
Calidad	.900**	.965**	.964**	.953**	. 955**	.929**	1.0

Table 6 Pearson Correlation Table. * p <0.05; ** p <0.01

Discussion

The sample consisted of 40% women and 60% men, so in this research sets actively participates in professional activities by men. Ages ranged from 35 to 39, highlighting the most representative data belongs to 37 years old, representing 24.2% of the sample, which indicates that this kind of mobile devices are used by young adults dedicated so constant business management.

The study predominantly used a Nokia brand cell with 35% with a frequency of 42 subjects, with the remaining 25% for brands: LG, Motorola, with a frequency of 30 subjects, respectively; 15% with a frequency of 18 subjects, respectively, highlighting the dominant brand in use among participants is Nokia.

Also, 100% of participants know the determination and calculation of income taxes on employee participation in profits, 60% of participants providing services in business, 15% to services and activities 25% to the industrial sector, stressing that exists in the area of the participants a predominance of commercial activity, ie the purchase and sales of products.

Knowing the determination and calculation of the tax, the mobile application has greater acceptance by participants, and the items included are based on the provisions applicable to 2012, as well as the general minimum wage and tables issued by the authority for calculation.

The measuring instrument obtained a Cronbach's alpha coefficient = 0.918 □, indicating a very good level of reliability. The perception of the subjects in generally shows a high level of excellence and compliance with respect to efficiency (X = 1.025 with a standard deviation of .085), portability (X = 1.035 with a standard deviation of .085), functionality (X = 1.075 and a standard deviation. 095), usability (X = 1.035 with a standard deviation of 095), reliability (X = 1.025 with a standard deviation of 0.095) and the maintainability of the tool (X = 1.025 with a standard deviation of 095); overall quality, an average of 1.085

was obtained with a standard deviation of .075, which means that the mobile application provides an excellent level of quality to be adopted in the tax practice.

The Pearson correlation blackjack significant correlations of a possible total of twenty were found. The highest correlations occurred between maintainability and usability (r = .966), quality shows significant positive correlations with usability (r = .964), portability (r = .929), efficiency (r = .953), maintainability (r = .955) and reliability (r = .965), function (r = .900); this represents the structure, performances and functions contained in the mobile application tax reduce response time and become more efficient and effective use of the smartphone in tax management processes.

The coefficients of determination (r^2) allowed to determine the degree to which each independent variable predicts the behavior of the subsidiary. All variables showed high level in predicting the behavior of the variable quality is reliability (r^2 = .965), portability (r^2 = .929), efficiency (r^2 = 953) and function (r^2 = .900); maintainability (r^2 = .955) and usability (r^2 = .964), recognition of the quality of the application allows to consider that may be used by the professional or entrepreneur in the fulfillment of tax obligations.

Conclusion

The mobile application prosecutor presents significant quality results for professional, business or governmental activities in the tax practice, the practitioner currently seeking immediate technologies to provide more efficient and effective service responses; Likewise, employers are seeking technologies that streamline the administrative, financial and governmental processes; and the tax authorities seek to incorporate technologies available to entrepreneurs and professionals aimed at implementing simple, practical and reliable payment of contributions.

The mobile application to be considered tax with an excellent level of quality user meets the criteria required by the ISO 9126 standard in order to improve administrative procedures and methods aimed at complying with tax systems that is subject to the employer or taxpayer from period to period, introducing levels of excellence in their specific functions not required to invest great effort since its design guides the user in inserting data easily, attributes allow the application to increase the use of the devices portable easy to implement, providing immediate solution to the tax practices, high levels

of efficiency based on the immediate response time and utilization of the resource type allows for immediate, real and true results, the optimal levels of maintainability make the tool remaining in the running at the time of being requested and executed with satisfactory results; its portability allows it to be transferred from one place to another; the excellent level of reliability provides sufficient to be considered a fiscal tool including fiscal policy and ease the efforts of the country elements.

By developing technologies that justify the quality processes in case specific tax determination and calculation of the participation of workers in the profits of this research theme and incorporate mobile technology to government, business and professional area, offers significant social, economic factors influencing in the administration as the availability and retrieval of information in seconds from anywhere, anytime, giving efficient data capture and easy specifically, providing mobility functions and hierarchy in social organizations, with the mission of facilitating the decision making; solutions that seamlessly integrate with the demands of a globalized technological world with simple applications to perform an efficient and compatible with fiscal management information system with the company that has the benefit of the subjects of the tax relationship improving governmental processes .

The findings of this study reveal that mobile applications will revolutionize the processes organizations and increase the competitiveness and productivity; as a result of the implementation of mobile applications foster both internally and externally with timely efficiency in the payments attached to contributions to internal executive regulations of the country. By providing mobile applications to integrate the local tax system (federal tax calculation) in any fiscal regime they face during the fiscal year, better opportunities will be provided in the acceptance of public expenditures, future work on this line of research aim to incorporate this type of flexible tech electronic transfer of data through the smart phone or smartphone allowing to obtain sufficient information to verify and check the way of determination, calculation and payment of tax for this electronic means, as occupied by users Mexico to avoid displacement, loss of time and unlimited land use.

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