

Factors Influencing Electronic Commerce Adoption: A Case Study of Iranian Family SMEs

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Abstract

The rate of EC adoption as a main driver of business internationalization in Iranian family SMEs in the decision time of joining the Iran's economy to the WTO is questionably low. Relatively, this research investigated on factors influencing electronic commerce (EC) adoption in Iranian family SMEs. In this way, despite of the existence of heavy-loaded literature in relation to EC adoption in LSEs and SMEs either in developed or even developing countries, there was almost no study in family SMEs' context in Iran. Moreover, the distinctiveness of family SMEs, particularly in case of developing countries, limited the generalization of the prior research findings for illustrating such dearth in such unique SMEs in Iran. Given the situation, this study was conducted by an experience research through of semi-structure (in-depth) interviews with an explanatory nature to identify the EC adoption determinants in Iranian family SMEs. To this end, the primary qualitative data, collected by the semi-structural interviews, was analyzed by 'Deductive Content Analysis'.

Keywords: Electronic Commerce (EC), EC Adoption, Iranian Family SMEs

1. Introduction

Family SMEs encompass a quiet majority of SMEs which in turn comprise dominant portion of businesses in Iran. They are divided in two main categories, based on activity; a) providing consumers' general needs, and b) supplying the intermediary goods and materials for large enterprises (UNIDO, 2003). Family SMEs in Iran, where the socio-economic structure is experiencing the main factor driving, and still far from the consideration of efficiency enhancers for grounding a future-oriented innovational approaches and sophisticated systems, play a substantial role by contributing the Iranian families to the business and social hubs. In a macroeconomic view, through deployment of -high- national savings and unemployment manpower into business they substantially help to overcome the restricted available organizational resources; thus, improve the -limited- private sector growth in Iran. However, the unknown image, marketing infirmity and correspondingly poor ICTs' usage in such Iranian SMEs hinder exploitation of the 'large-sized' and 'less-impacted' domestic market as well as preparation for globalized competition at the decision time of joining Iran's economy to 'WTO', endangering even their survival. Accordingly, they need to develop their internationalization strategy, resourcing, and business image (Jamali et al., in press) electronic commerce as a competitive driver and even integral part of a strategic plan maybe more particularly perceived as a critical investment in Iranian family SMEs. Electronic commerce by providing a side to side superior economy of scale and resource accessibility could essentially help them to overcome their existing

challenges and guarantee their long term existence. However, typical family SMEs express an idiosyncratic feature, in which the organizational needs are perceived under lens of three intertwined family, business and CEO concerns (Sharma, Chrisman and Chua, 1996). Accordingly their perception of innovation characteristics and advantages not only should fulfill their business-related needs such as changes, growth and internationalization but also, should satisfy family-related (i.e. family image) and CEO-related needs (i.e. managerial & ownership control).

As results, the ecommerce business-concerned usefulness seem to be not an adequate reasons to increase EC deployment in the Iranian family SMEs and EC adoption is still neglected in such Iranian SMEs. Correspondingly, the study of Hajkarimi and Azizi(2008) showed the average EC adoption rate in Iranian SMEs about to 7 percent which seems to be even worse in Family SMEs. This situation, at the decision time for joining Iran's economy to the WTO, motivated this study to better understanding of what are the determinant factors influencing electronic commerce adoption in Iranian family SMEs.

2. Literature Review

In the EC-related literature, there were considerable studies, either in developed or developing countries, that put prominent efforts to clarifying the EC adoption phenomenon; however, mostly in the LSEs and SMEs where may not be quite appropriate for explaining EC adoption in family SMEs. Likewise, there was almost no EC adoption study in family SMEs' context in Iran. Given this situation, in this research for underlining the EC adoption first order factors and their related aspect items in Iranian family SMEs, the related factors influencing EC adoption in SMEs and particularly family SMEs, either in developed or developing countries, were reviewed and categorized, based on the similarities. In this way, the relevant literature in SMEs and family SMEs in Iran, were specifically reviewed. Despite of the considerable EC adoption study in SME's context in Iran (i.e. Ghamatrasa, 2006; Ajdari, 2007; Hajkarimi and Azizi, 2008; Afzal, 2008; Sanayei and Rajabion, 2009; Ghorishi, 2009; Sameni and Khoshalhan, 2009; Abbasi, Sarlak, Ghorbani and Esfehiani, 2010; Hajiha, et al., 2010; Ghobakhloo, Aranda and Amando, 2011a; Ghobakhloo, Aranda and Amando, 2011b; Hajli and Bugshan, 2012), almost there was no study of EC adoption in family SMEs' context. Consequently, an experience research with an explanatory nature, conducted by the semi-structural knowledge-people (In-depth) interviews, was arranged to identify the exclusive EC adoption determinants and their related aspect items in Iranian family SMEs, through re-evaluating the concepts and their categorizations in a deductive content validity.

2.1 Study Background

In the related literature, the existing related models had some limitation points accounting for 'EC Adoption' in SME, and family SMEs in particular. The core concentration of the existed models accounting for EC adoption had focused on the 'Individual' and 'Technological' contexts. As results, to better explaining the EC adoption phenomenon in the related contexts, a considerable range of additional factors had been applied in the literature to represent the 'Organizational' and 'Environmental' aspects, proving the point that for presenting an EC adoption comprehensive framework in such businesses there is a need to embrace other relevant factors. In this respect, in order to overcome the aforementioned restrictions, Tornatzky and Klein (1982) applied the widely relevant additional factors that influence the deployment of an innovation, by indicating the ten regularly used factors in the related literature, from 75 innovation researches. Accordingly, they presented the three-context framework, called Technology-Organization-Environment (TOE), which consequently had often applied for explaining EC adoption in SMEs, and family SMEs (i.e. Wang and Ahmed, 2009) in the literature. It showed the constant relationship between TOE framework and 'Adoption behavior' (Carayannis and Turner, 2006; Jeon et al., 2006). However, since the factors related to the 'Individual' context (i.e. 'Subjective Norm'; 'Attitude'; 'Perceived Behavioral Control') were not concerned in TOE framework, it could not be as a multi-faceted framework explaining EC adoption in family SMEs, where an individual owner-manager CEO is a dominant decision maker. Considering the restriction, Thong (1999) compounded the 'Individual' context to the TOE, presenting the four major contexts; Management (Individual), Technological, Organizational, and Environmental. However, even after such modifications in the model by Thong (1999), it still overlooked the 'Industrial' context or overlapped that with 'Environmental' context (Looi, 2005). In the other hand, Molla and Licker (2005) by 'Perceived E-Readiness' model applied the two main 'Organizational' and 'Environmental' contexts accounting for EC adoption in businesses in developing countries; however, the 'Perceived E-Readiness' model in turn overlooked the 'Individual' and 'Industrial' contexts and/or respectively overlapped them with 'Organizational' and 'Environmental' contexts. Recently, Kurnia and Alzougool(2008) presented a rather completed framework

accounting for EC adoption in such businesses involving 'Organizational', 'Industrial', 'National' and 'Environmental' (readiness) contexts. In this model, the 'National' context was credited to perceived availability of agencies' supports and national structure in relation to 'EC Adoption'. The 'Organizational' context was referred to the perceptions of top managers from the resources, regulations, procedures and processes in the organization in relation to 'EC Adoption'. The 'Industrial' context indicated the perceptions of top managers from the standards and business partners' readiness in the industry in relation to the 'EC Adoption'.

And, the 'Environmental' context was referred to the conforming perceived internal and external expectation/pressures in order to 'EC Adoption'. The latter model almost covered down the limitation of previous frameworks, by considering the related factors in the missing 'Industrial' context, as meso level, between 'Organizational' (micro level) and 'National' (macro level) contexts; however, it overlooked the 'Individual' context or overlapped that with the 'Organizational' context. In the current study, the three (readiness) contexts of Kurnia and Alzougool's(2008) framework, involving 'Organizational', 'Industrial' and 'National' were realized as the constructive contexts, almost covered the tracked contextual restriction by behavior theoretical basis. In addition, the current study applied the 'Individual' context, with a wider concept of the 'Management' context (Thong, 1999), involving the individual factors which elevate his/her readiness (Intention) to obtain the given behavior. The 'Individual' (readiness) context in this research encompassed the individual factors as well as the 'Perceived Usefulness', because the electronic commerce awards are not integral to the innovation as such but are related to how are perceived by a CEO as a dominant decision maker in such businesses. It is worth to note that, 'Perceived Usefulness' was previously grouped in the 'Technological' Context (i.e. Tornatzky and Fleischer, 1990) and/or in 'Organizational' context (i.e. Gibbs and Kraemer, 2004; Kurnia and Alzougool, 2008; Nogoet al., 2011) in the literature. In the current study, based on the study of Wu and Wang (2005), the 'Environmental pressures' as the forth context of model in the study of Kurnia and Alzougool(2008), which refers to the perceived internal and external pressures (expectation) by CEO to comply the electronic commerce adoption, was represented by 'Subjective Norm' as the CEO's perception of people who are important to him/her think he/she should or should not perform the behavior and grouped under the 'Individual' (readiness) context. Moreover, the concept of environmental effects and their related factors in the literature were grouped under 'National (readiness) context in the current study. As results, in this research the related factors were categorized in the four-context EC adoption framework in family SMEs, involving 'Individual', 'Organizational', 'Industrial' and 'National' (readiness) contexts. The four main contexts undertook the related factors as results of joining the most used theoretical models in SMEs and the relevant additional factors studied in the prior SMEs and family SMEs literature and/or extracted from the exclusive family SMEs' literature based on the similarities.

2.1.1 Individual (Readiness) Context

In the current study, the 'Individual' (readiness) context was realized as equal as concept of 'Intention' (based on Ajzen, 2002b), including the integral factors related to the CEO as an individual and his/her motivations, perceptions, and expectations from the EC adoption behavior, in family SMEs. This context encompassed the following related factors from the related literature based on similarities:

Perceived Need(as a main inner motivation toward behavior which in turn undertook 'Perceived Need for Change & Technology', and 'Lack of Perceived Need' from the related literature, under its group)

Perceived Usefulness/Awards (since EC attributes and awards are not integral in technology per se, but refers to how are perceived by CEO, which in turn in a wider perspective undertook 'Relative Advantages /Benefits', 'Perceived Compatibility', 'Perceived Observability', 'Perceived Trialability', 'Image' and 'Reliability of Technology' from the related literature, under its group)

Subjective norm (asa CEO perception of person's expectation (pressure) toward a particular (EC adoption) behavior, which in turn undertook the 'Perceived Internal Pressures (Expectation)' coming from inside of organizations and 'Perceived External Pressure (Expectation)' coming from outside of organizations such as competitors, government, buyers/ consumers, institutions, suppliers, and society; Grandon and Pearson, 2004)

Anchor(as a personal evaluation(self-expectancy) of results' desirability, which in turn undertook the concepts related to the individual's experiences (supported by learning theory), self-perception evaluation of behavioral, and affective behavioral outcomes (supported by self-efficacy theory) like emotional or physiological arousal to perform the task and social inclination regarding the task, represented by the 'Perceived Behavioral Control', 'Perception of External Control', 'Attitude', 'CEO Characteristics (personality)', 'Past Use', 'Owner-manager's

(CEO) Managerial & IT Experience', 'Experiences', 'Past Behavior', 'Interests', 'Network Intention', 'Computer Playfulness', 'Complexity', 'Ease of Use', 'Self-Efficacy', 'CEO's Innovativeness/Innovation Champion', 'Awareness' and 'Managers' (CEO) Knowledge of the New Technologies and of E-Commerce' from the related literature, under its group)

Adjustment(as the individual's adjustment(performance-based)in a mental evaluation of satisfaction resulting from EC adoption behavior, which in turn undertook the 'Outcome Expectations', 'Performance Expectancy' since it implies the evaluation of accomplishment, besides 'Perceived Enjoyment', 'Objective Usability' and 'Feedback Effects of Adoption Decision' from the related literature, under its group)

Perceived Disadvantages (Risk) (as a losing side of an innovational decision extracted from 'prospect theory', which in turn undertook the 'Perceived Risk' and 'Security issues'from the related literature, under its group)

2.1.2. Organizational (Readiness) Context

While the main referred EC adoption models (TAM, TPB, SCT, DOI) and their dependent-developed models (UTAUT, TAM2, TAM3) in the related literature, have pointed some related readiness factors in an organization in relation to resources (i.e. 'Facilitating Condition': Financial /Technological; 'Organizational Slack'), contextual (i.e. Organizational Size), and structure (i.e., 'Organizational System Openness'; 'Organizational Centralization'; 'Organizational Formalization'; 'Organizational Interconnectedness'; 'Organizational Complexity'); some other studies underlined and/or extended the factors in some other relevant aspects of the concept. 'Resources' (i.e. 'Organizational Awareness', 'Human resources',Molla and Licker, 2005);'Governance' (i.e. 'Communication Channels'; Chong, 2006 and 'Having Clearly Defined Roles'; Kurnia and Alzougool, 2008); 'Supports' (i.e. 'Organizational Supports'; Sparling et al., 2007); and 'Orientation' (i.e. 'Organization Strategic Orientation'; Kaynak et al., 2005). Relatively, in the current study, the 'Organizational' (readiness) concept and with wider perspective encompassed the following related factors from the related literature based on similarities:

Intergenerational Successions (as a changing the family in charge over generation, extracted from the exclusive family SMEs' literature(as a family SMEs'heterogeneity factor; Molly 2009)to be purposely observed in relation to the EC adoption (as innovational behavior) in Iranian family SMEs, which in turn undertook the 'Managerial Successions' from the related literature, under its group)

Perceived Organizational Resources(as perceived availability of technological, human, financial and informational resources in an organization (Tan, Tyler and Manica, 2007), which in turn undertook the 'Facilitating Conditions'; Organizational Sources', 'Information Sources', '(Organizational) Awareness', 'Managerial Time', 'Lack of Managerial Time', 'SME's Prior Experience', 'EC Barriers (Limitations)', 'Lack of Skills and Training', Human Resources', 'Organizational IT Competence', 'Adoption Cost/Financial Commitment/Financial Resources/Implementation Cost', 'Business Resources', 'Technology Resources', 'Technological Readiness/ E-Business Technology', 'Employees' Knowledge of IS/IT E-Commerce/Technical Competence', and 'Financial/Technical/Technological Resources (Cost)' from the related literature, under its group)

Perceived Organizational Governance (as an organized system by which a business is directed and controlled (Cadbury Committee, 1992), including the regulatory, roles and mechanisms for setting relationships between a company's CEO, board of directors, shareholders, and stakeholders for achieving to the organization's goals (OECD, 2004), which in turn undertook the 'Governance', 'Having Clearly Defined Roles', 'Task Variety', 'Communication Channels', 'Communication Amount', 'lack of Policy and Institutional Framework', 'Having Systematic Process for Managing Change Issues', 'Organizational Complexity', 'Organizational Centralization', 'Organizational Formalization', 'Organizational Interconnectedness', and 'Organizational System Openness (Knowledge sharing)' fromthe related literature, under its group)

Perceived Organizational Support(as a CEO perception of the availability of support within the organization which in turn undertook the 'Organizational Support (Support within the Organization)', 'Commitment', 'Top Management (CEO) Support', 'Staff Resistance', 'CEO's Involvement' and 'Employees Involvement'from the related literature, under its group)

Family (Strategic) Orientation (as the main orientation, mission and strategic approach in establishing the objectives, allocating the resources and making decisions,extracted from the exclusive family SMEs' literature (as a family SMEs'heterogeneity factor; Molly 2009) to be purposely observed in relation to the EC adoption (as

innovational behavior) in Iranian family SMEs, which in turn undertook the ‘Organization Strategic (Globalization/ International) Orientation’, ‘Organizational Culture’, ‘Technological Opportunism’, ‘Managerial Style’, ‘Family Business Strategic Orientation’, ‘Type of SME’s Ownership’, ‘Entrepreneurial Orientation’, ‘Innovative Character of Enterprise’, ‘Integration with Marketing/Business Strategy’, ‘Priority (of IT Project)’, ‘IS/IT Investment Evaluation’, ‘Export Volumes’, and ‘Firm Scope’ from the related literature, under its group)

2.1.3. Industrial (Readiness) Context

Even though, there was almost no related factor representing the ‘Industrial’ (Readiness) role in the four most used EC adoption models in SMEs and family SMEs(TAM, TPB, SCT, DOI); but such EC adoption studies in the SMEs’ domain had addressed the related reliable factors(as the additional factors) in this context (i.e. Zhu, Kraemer and Xu, 2003; Kaynak et al., 2005; Wymer and Regan, 2005; Kurnia and Alzougool, 2008). Relatively, for having a wider range of the related factor in this context, factors studied in the prior studies based on their similarities, were grouped under category of its major first order factor in the literature (Kurnia, Alzougool, Ali and Alhashmi, 2009),as follow:

Perceived Industry Structure(as the availability of industry structure (Kurnia and Alzougool, 2008), which in turn undertook the ‘Information Intensity and Product Characteristics’, ‘Models of Successful Use’, ‘Technology Intensiveness of the Industry’, ‘Availability of Standards’, ‘Availability of Databases and Portals’, ‘Availability of Online Resources’, ‘Industry IT Maturity’, Perceived Industry player readiness’, ‘Industry Competitive Environment’, ‘Competition’, ‘Market Forces E-Readiness’, ‘Competition Amongst’, ‘Relative SMEs’ Strength in the Industry’, ‘Availability of Coordinating Bodies’, ‘Availability of Trading Partners’, ‘Strong and Trustful Relationship with Trading Partners’, ‘Perceived Level of Trust among Industry’, ‘Availability of Communicative Relationships’, ‘Collaboration between Trading Partners within the Industry’, ‘Lack of Trading Partner Readiness’, and ‘Trading Partners’ Collaboration’from the related literature, under its group)

2.1.4. National (Readiness) Context

Literally, there was almost no related factor for particularly representing the ‘National’ (Readiness) role in the four most used EC adoption models in SMEs and family SMEs(TAM, TPB, SCT, DOI); thus, according to their potential roles on EC adoption in SMEs’ context, some EC-related studies in the SMEs’ domain had addressed some relevant factors in this context (i.e. Zhu et al., 2003; Doolin, McLeod, McQueen and Watton, 2003; Jeon et al., 2006; Huy and Filiatrault, 2006). Relatively, for having a wider range of the related factor in this context, factors studied in the prior studies based on their similarities, were grouped under category of its major first order factor in the literature (Huy and Filiatrault, 2006; Kurnia and Alzougool, 2008), as follow:

Perceived National (EC) Structure(as CEO’s perception of national EC structure for using EC technologies, which in turn undertook ‘Government Support and Commitment’, ‘Availability of Regulatory and Legal Environment and Support’, ‘Government E-Readiness’, ‘Availability of ICT Policy and Action Plan’, ‘Support for the Importance of Technology Readiness’ and ‘Public Administration’, ‘Perceived (National) Supporting Services’, ‘Availability of Support from Technology Vendors’, ‘Availability of EC-Related Technologies’, ‘Technology Providers’, ‘Availability and Support of Skilled Labor’, ‘Availability of Financial Support’, ‘Availability of Affordable Consultancy Supports (Informational Institutions)’, ‘External Assistance’, ‘Technology Consultants’, Perceived National (IT) Structure’, ‘Availability of National Infrastructure’, ‘Environment’, ‘Availability of Logistics and Transport Infrastructure’, ‘Availability of Telecommunication Infrastructure’, ‘Availability of Capable Technology &Telecommunication Infrastructure’, ‘ICT Infrastructure Culture, Religion (Public/Customer)’, ‘Consumer Readiness’, ‘People Resistance & Culture’, ‘Ease of Use for Customer’, ‘Usefulness for Customers’, ‘Public awareness’, ‘Public Shopping’, ‘Trend of Public Purchasing Behavior’, ‘Perceived Availability of Electronic Banking System (EC-Adopted Banking System)’ and ‘Reliable Banking System’from the related literature, under its group)

3. Research Methodology

After a literature research for underliningthe related factors influencing electronic commerce in SMEs and particularly family SMEs and categorizing them based on the similarities, an experience research with an explanatory nature was conducted by the semi-structural knowledge-people (In-depth) interviews to collect valuable data for re-evaluating the structure of such categorizations and underlining the most related factors and their aspect items accounting EC adoption in Iranian family SMEs. This research was benefited from a qualitative method to identify the first EC adoption factors and their aspect items in the Iranian Family SMEs.

The qualitative strategy helped the research to focus on personal histories, perspectives, and experts' experiences (Bryman and Bell, 2003) of Iranian family SMEs, through which the content structure of the participated factors and their categorizations in the related literature were re-evaluated in such distinct SMEs in Iran.

The content of knowledge people semi-structural interviews with an explanatory nature was deductively analyzed, shedding light on the little-known understanding of EC adoption phenomenon in such idiosyncratic SMEs in Iran. It described the reasons of the current situation in relation to EC adoption in such distinct SMEs in Iran, providing the coherent information for more efficiently allocating the resources in order to developing their EC deployment.

3.1. Sample and Data

The semi-structured interviews method was conducted in the current study to follow up the outlined factors in the literature research. This is for discharging, approving, and even proposing the new factors through expanding the responds, with no change in the structure for further analysis (Creswell, 2003). Relatively, a selected purposive sampling was realized as the most appropriate sampling method for such qualitative interviewing. Therefore, owing to qualitative nature of the study, a small, but focused and carefully selected sample was chosen to be interviewed. To achieve the reliable data, interviewees who have following specifications were carefully chosen:

- a) Holding at least a Master level of education in the related field
- b) Having minimum two year work experience as CEO in an EC-adopted family SME
- c) Having minimum one ICT implementation project

Relatively, there were limited eligible elements, regarding to the typical low level of education in CEOs in such SMEs and moreover, lack of accessibility to such SMEs' information in Iran. Accordingly, in this study, the samples were selected from the list of clients in Tadvin Co., as one of the most reliable, and accessible management consultancy in Iran. Relatively, Tadvin company's database (no public-access; categorized by size, activities, ownership and services) at the point of sampling involved 27 elements with seven EC-adopted Iranian family SMEs, from which the six elements who have the eligible CEOs as knowledge-people was selected as the samples in the current study. All six selected owner-managers accepted to participate in this research, encouraged by Tadvin Co. Accordingly, six interviews with the highly-experienced practitioners with above-mentioned characteristics were conducted by phone. A notification email sent to the participants, before the interviews, including some contextual information about subject and research purpose. The interviews were carefully arranged, avoiding from leading the interviewees or imposing meanings, in a relaxed and comfortable conversations. The topic and relevant questions were written down and arranged in various ways to ask conceivably. Then an overview of purpose, EC adoption and its outlined first order factors, and their clear-cut definitions were provided for collecting the valuable data (Table 1). It should be noted that, for conceptualizing the model of factors influencing EC adoption in Iranian family SMEs, the electronic commerce was narrowed over Internet/Website, as the most fitted EC technology structure in such distinct SMEs in Iran (Jamali et al., 2014).

Table1. Definitions of EC Adoption First Order factors

First order factors	Definition
EC Adoption	Degree to which the communication, interaction and transaction functions are electronically conveyed over Internet/Website technological structure, in a wider and more diversified range of external 'business-linked' and/or 'customer-linked' business relationships (extracted from Chong, 2006)
Perceived Need	CEO's perception of inner motives direct to balancing inner actual states and desired states (extracted from Hersey and Blanchard, 1993; Boone and Kurtz, 2011)
Perceived Usefulness (Awards)	The extent to which a CEO believes that the application of a special system make her/him able to do the task better (Davis, 1989)
Perceived (EC) Disadvantages	CEO's perception of to what extent they have incurred a loss by using any on-line service (extracted from Lim, 2003)
Subjective Norm	CEO's perception that most people who are important to him/her think he/she should or should not perform the behavior in question (adapted from Fishbein and Ajzen, 1975)
Anchor	CEO's first personal estimation of results' desirability (extracted from Tversky and Kahneman, 1974; Hersey and Blanchard, 1993; Venkatesh and Bala, 2008)
Adjustment	Performance-based CEO's adjustment in mental evaluation of satisfaction (extracted from Tversky and Kahneman, 1974; Hersey and Blanchard, 1993; Venkatesh and Bala, 2008)
Intergenerational Successions	Changing the family in charge over generation (extracted from Molly, 2009)
Perceived Organizational Resources	CEO's perception of availability of human, financial, and technological resources of a firm (adapted from Tan et al., 2007)
Perceived Organizational Governance	CEO's perception of the strategic, tactical, and operational models designing the organization's structure to establish objectives, allocate resources, and make decisions (adopted from Tan et al., 2007)
Perceived Organizational Support	CEO's perception of availability of support within the organization (extracted from Grandon and Pearson, 2004)
Family (Strategic) Orientation	The extent to which the organizational mission is subjected to family oriented goals (extracted from; Uhlaner et al., 2007; Wang and Ahmed, 2009; Molly, 2009)
Perceived Industry Structure	CEO's perception of nature and structure of an industry (adapted from Kurnia and Johnston, 2003; Kurnia and Alzougool, 2008; Kurnia et al., 2009)
Perceived National (EC) Structure	CEO's perception of availability of conducive infrastructural, institutional and cultural structure in the country (extracted from Kurnia and Alzougool, 2008; Kurnia et al., 2009)

Before any action, permission for a note-taking was taken. Then some background questions, such as the interviewees' job title, responsibilities, and etc. was asked to warm up. During the interviews, the topic and its related questions were carefully sat for eliciting the interviewee's ideas and opinions about. The respondents were also asked to clarify about EC usage in their companies and their ideas for the future plan. They relatively stated the values that EC carried for their businesses and said some examples of EC applications used in their companies. Besides, they were asked about the barriers of EC adoption in their company. In the meantime, regarding to the nature of semi-structured interviews, some questions were incidentally brought up. However, the questions were mainly posited to recognize the factors that potentially involved in the B2B/B2C Internet/Web-based EC adoption in Iranian family SMEs and re-evaluation of their categorizations' structure.

Accordingly, the existed structure of the outlined first and second order factors in the proposed family SMEs' EC adoption framework were used as a main guide to develop the questions, as follow.

1. How do you appraise status of EC in your company?
2. What are barriers and problems of using EC in your company?
3. What are advantages and disadvantages of using EC in your Company?
4. In relation to EC adoption, what distinguished distinctiveness may differentiate your business from a non-family SME?

5. Can you describe an example of EC application in your company? What benefits and values has it brought for your company?
6. Do you prefer to store the information electronically or by paper in your company?
7. Do you educate your staff in EC field?
8. Do you have ICT department? What are its duties?
9. What are barriers and problems of using EC in family SMEs, particularly in Iran?
10. What are risks of using EC in your Company?
11. How do you familiarize your staff with electronic commerce?
12. Does the outlined first order factors have any influential effects on EC adoption (over internet/website) in Iranian family SMES? If yes, how they exert their influences on?
13. What is your future ideal for your company in relation to electronic commerce?

The questions that focus on the topic(s) of interest was designed broad and open-ended which allowed the interviewees to latitude their answers. Whenever the interviewee was following up an observation, to get more in-depth answers and points of interest, such questions like ‘What did you mean when you said...?’ were obtained. Many interviewees talked in general, so the probes such as ‘Can you give me an example of that?’ or ‘What did you say?’ frequently were used; however, sometimes silence was the best probe. During the interviews good stories were always welcome and instead of interrupting to ask particular question, a note of proper probes for particular points were made to ask at the end the story. Interviewing was sustained to the point that looked-for data fullness was attained. Relatively, when the prior interviewers’ responses were repeated by new interviewee the further relative key information was not expected anymore.

3.2. Data Analysis

After achieving to the valuable data, a deductive content analysis in the three following steps; preparation, organizing, and reporting was approached. The analysis was ended with an inclusive interpretation, disclosing the hidden influencing factors of EC deployment in Iranian family SMEs, for which the repetitions of the key points evaluated the structure of the categorizations. To this end, the unit of analysis in this section was clearly outlined and a sense of data to learn ‘what is going on’ by frequently read and reread the initial interviews’ texts was received. Then, the first order factors were determined as the structure of the analysis. Consequently, the data was coded by their second order factors. Finally, through of the correspondence comparisons the content validity was deductively evaluated, clarifying the potential B2B/B2C Internet/Web-based EC adoption factors and their related aspect items in Iranian family SMEs. The direct quotes of participants were also cited to make more meaningful clarification of the concepts. It is worth to note that, the results of this research are restricted to the opinions and experiences of the participants; thus, may not be quite appropriately generalizable for a wider domain.

4. Results and Discussion

Based on result of the deductive content analysis, re-evaluating the relevancy/divergence and categorizations’ structure of factors outlined in the literature and/or suggested by current study, thirteen first order factors in the four main contexts were identified as influencing EC adoption factors in Iranian family SMEs. The identified EC adoption first order factors and their relevant aspect items were detailed as follow (See Table2).

Table2. EC Adoption Determinant and their Aspect items in Iranian Family SMEs

Determinant	Items
Perceived(EC)Need	Perceived Need for Being on the Field, Perceived Need for Business Image, Perceived Need for Family Image, Perceived Need for Growth and Internationalization, Perceived Need for Managerial Control
Perceived(EC)Usefulness (Awards)	Perceived Business Advantages, Perceived Family Advantages, Perceived CEO's Advantages, Perceived Observability, Perceived Compatibility, Perceived Trialability, Perceived Reliability
Perceived disadvantages (Risk)	Perceived Security Issues, Perceived External Business Risks, Perceived Dissipating Company-Specific Knowledge, Perceived Organizational Dependency
Subjective Norm	Perceived Government Pressure , Perceived Passion for Business Excellence, Perceived Customers/Buyers Pressure, Perceived Family's Social Network Interest, Perceived Pressure for Cherish Family Wealth, Perceived Suppliers Pressure
Anchor	CEO's Attitude (toward EC), Perceived Behavioral Control , CEO Interests , CEO's Innovativeness, CEO's Risk Taking , CEO's EC Related Knowledge and Experience
Adjustment	Perceived (EC) Business Performance Satisfaction, Perceived (EC) Family Performance Satisfaction, Feedback Effects of Adoption Decision
Intergenerational Successions	Managerial Successions, Ownership Successions, Generational Non-Involvement
Perceived Organizational Resources	Perceived Financial Resources, Perceived Skilled Human Resources, Perceived Informational Resources, Organizational Awareness, Managerial Time
Perceived Organizational Governance	Organizational Policy and Institutional Framework, Communication Channels, Communication Amount, Having Systematic Process for Managing Change Issues, Having Clearly Defined Roles
Perceived Organizational Support	Perceived Family Support, CEO Practical (Involvement) Support , Perceived Active (Supportive) Directors' Board, Perceived Employees (Involvement) Support
Perceived Industry Structure	Perceived Availability of Standards, Information Intensity and Product Characteristics, Perceived Availability of Online Resources, Portal and Databases, Models of Successful Use, Perceived Availability of Communicative and Trusted Trading Partners, Perceived Availability of Coordinating Bodies, Perceived Competition Amongst (Tee et al., 2014).
Perceived National Structure	Perceived Availability of Telecommunication Infrastructure, Perceived Availability of Logistics and Transport Infrastructure, Perceived Availability of EC Adopted Banking System , Perceived Public Awareness, Perceived Public Purchasing Behavior (Culture), External Expertise and Services Availability and Support, Perceived Availability of EC-Related Technology Vendors, Perceived Availability of Regulatory and Legal Environment and Support, Perceived Government Support and Commitment (Zahir et al., 2015)
Family (Strategic) Orientation	Family Ownership, Family (SMEs') Culture, Family Future, Family Management

Note: Factors in boldface have not been investigated before in the related SMEs' & family SMEs' context

4.1 Perceived (EC) Need

Family SMEs, besides usual business needs have such unique non-commercial needs. In relation to innovation adoption some of related needs were outlined in the literature, such as 'Need for Family Image' (i.e. Molly, 2009) and 'Need for (Managerial) control' (i.e. Welsh and Zellweger, 2010). Relatively, EC adoption may make them more visible to the external environment though of mirroring their corporate social responsibility (CSR) to the socio-economic environment more clearly, thus providing a good image not only for the business but also for family in local communities.

Electronic commerce may also be perceived as a monitoring system for CEOs in such SMEs. Accordingly, Iranian family SMEs may feel the rigorous relevant needs in relation to EC adoption, affecting their investment decision. As one of the interviewees mentioned; *'We have a vital need to exploit virtual market'*. According to the interviewees, this factor and its outlined aspect items (See Table 2) may influence EC adoption in Iranian family SMEs.

4.2. Perceived Usefulness (Awards)

In family SMEs, EC usefulness is perceived based on three intertwined family, CEO and business concerns. Accordingly, the electronic commerce may be seen under view of business-concerned benefits as well as family-concerned benefits in such dentist SMEs. As one of the interviewees mentioned; *'When you put your business in the internet, customer is just behind your screen'*. According to the interviewees, this factor and its outlined aspect items (See Table 2) may influence EC adoption in Iranian family SMEs.

4.3. Perceived (EC) Disadvantages

Regarding to the prospect theory, in a decision making the losses may be even more considered than corresponding gains, to the reference points (Tversky and Kahneman, 1991). Taking the argument to the consideration, risky innovation such as EC adoption may be more sensitively perceived by its disadvantages to the reference state. This should be more significant in case of family SMEs, where there is a large undiversified asset linked to the ownership, endowment attachment, and ineffective separation between business and personal asset (Welsh and Zellweger, 2010). As one of the interviewees mentioned; *'Doing business online is too risky for us'*. According to the interviewees, this factor and its outlined aspect items (See Table 2) may influence EC adoption in Iranian family SMEs.

4.4. Subjective Norm

Subjective norm is defined as a person's perception of her/his important people's view point about performing the particular behavior (Fishbein and Ajzen, 1975). It explains that the behavior may be influenced by other people. In family SMEs, regarding to the fact that decision making is dominantly under CEO control in such SMEs, EC adoption may be affected by his/her perception of internal and/or external organizational expectation (pressure). As one of the interviewees mentioned; *'We are under lots of pressures and expectations in our investment decisions'*. According to the interviewees, this factor and its outlined aspect items (See Table 2) may influence EC adoption in Iranian family SMEs.

4.5. Anchor

Based on the Anchoring-and-Adjustment theory and exclusive literature in family SME' context, for representing a broader concept of (initial) self-evaluation of result desirability in a decision making based on the life-run-time experience, theme of 'Anchor' was applied in this research. It refers to the individual initial (Self-Expectancy) evaluation of results' desirability from a decision. The long-run experiences as a base of evaluation is supported by decision theory, where the 'expected results' is intuitively perceived by the law of large numbers of experiences, implying the long-life-run results of individual's experiences. However, this perception moreover stems from the subjective view of individuals, and may not be only based on real-life experiences. Accordingly, such factors like self-perception of behavioral (Attitude) and control beliefs (Perceive behavioral control) toward the given behavior, influencing the estimation of whether a certain effort is led to the desired results, should be also considered as its other aspects. Such categorization is conceptually corresponded with innovation adoption literature where the 'Expected Value' (Attitude) and 'Self-Efficacy' (Perceive Behavioral Control), respectively were represented by 'Perceived Desirability' of results, and 'Perceived Feasibility' of attainment innovation behavior. Additionally, based on the self-efficacy theory (Bandura, 1986) explaining how the state of cognitive in individuals have an affective behavioral outcomes, 'Interest' and 'Social networking' factors; respectively representing of the emotional or physiological arousal to perform the task, and social inclination regarding the task were considered as the other aspects of 'Anchor' in this research. This is also correspondingly supported by 'Innovation Adoption' literature in which such concepts was represented by 'Perceived propensity' (i.e. Krueger, 1993). In Iran, CEOs of family SMEs typically have a low-level of related knowledge and shallow anchor toward EC. As one of the interviewees mentioned; *'Typical CEOs of family SMEs in Iran do not believe in electronic commerce'*. According to the interviewees, this factor and its outlined aspect items (See Table 2) may influence EC adoption in Iranian family SMEs.

4.6. Adjustment

A behavior of a CEO in an organization is not by chance. A behavior is an action, aimed to achieve satisfaction. In the current study, to represent the concept of process-run-time (adjusted) evaluation of satisfaction, the theme of 'Adjustment', defined as the 'Performance-based individual's adjustment in mental evaluation of satisfaction' was applied. As one of the interviewees said; *'We have distinct expectations from our investments which should be practically satisfied'*. According to the interviewees, this factor and its outlined aspect items (See Table 2) may influence EC adoption in Iranian family SMEs.

4.7. Intergenerational Successions

Refer to the literature; there is a little-known on the implications of succession on the family SMEs' behaviors (Molly, 2009). However, there is a range of controversy research findings in terms of generational effects on family firms, in which the impacts of succession on the family firm's governance, through comparing second and later generation with founders have been most referred. In the other word, the continual effects of intergenerational successions as continuous variable has been less approached. In the current study, regarding to the organizational learning which may be acquired during succession experiments (Molly 2009), we assumed that such family SMEs with more intergenerational successions, more likely have a practice-learned business routine and innovational behavior. This is supported by Diwisch, Voithofer and Weiss, (2007); addressing a significant positive effects of past successions on family SMEs' growth. Relatively, the next generation family firms have a more survival chance by handing over to the later generations (Bjuggren and Sund, 2001). It seems in the succession-elaborated family firms, the multigenerational synergies (i.e. Zahra, 2005) overcome the risk of managerial opportunism regarding to the generational heterogeneity (i.e. Schulze et al., 2003b; Blanco-Mazagatos et al., 2007), over generations. The idea is moreover supported by study of Zahra (2005), which showed the existence of actively-involved multiple generations in family SMEs will result in higher innovational organizational behaviors. Likewise, Molly (2009) claimed that by each succession in family enterprises, the new generation conveys 'fresh insights', converting the incentive to innovate behavior. This is moreover aligned with study of Fernandez and Nieto (2005) in which decision for internationalization was significantly predicted by 'intergenerational evolutions'. As one of interviewees said; *'New generation have a brighter innovational view, which may lead to usage of electronic commerce more extensively in organizational practices'*. According to the interviewees, this factor and its outlined aspect items (See Table 2) may influence EC adoption in Iranian family SMEs.

4.8. Perceived Organizational Resource

Perceived organization resources is the CEO's perception of human, financial, and technological (informational) resources' availability in the organization (Tan et al., 2007), which is a basic preparation for stepping up toward EC adoption. Relatively, there is such organizational distinctiveness in family SMEs that may aggregates the resource poverty in such SMEs in Iran, highlighting the role of perceived organizational resource in respect to EC adoption. In case, sense of 'altruism' and 'family orientation' in such SMEs may cause respectively; the negative nepotistic perception for career progress of skilled workers and dependency of high fracture capital to the family asset, which in turn limit their human and financial resources. As one of the interviewees commented; *'The question is; whether our resources meet the (EC adoption) requirements'*. According to the interviewees, this factor and its outlined aspect items (See Table 2) may influence EC adoption in Iranian family SMEs.

4.9. Perceived Organizational Governance

Perceived organizational governance refers to the CEO's perception of organizational structure; concerning the way of gathering information and communications, decision making, resource allocating, and decision implementation process (Seyal, Awais, Shamail and Abbas, 2004). Iranian family SMEs, like a typical family SMEs, are dominantly administrated by one owner-manager (Gersick et al., 1997) who prefers to keep the business small and have a long term control over firm. They normally fall into the day to day programing (Ward, 1987) and are not eager to have a strategic plan (Ward, 1997a). In the other hand, they normally use multi-tasked workers who are not clearly placed to the specific roles. The off-the-cuff organizational governance with a face-to-faceted interpersonal internal and external communication channel may stall innovational adoption behavior, in such Iranian SMEs (Zohoori et al., 2013). As one of the interviewees commented; *'I think, we should have a systematic approach in governing our organization for having a successful EC adoption'*.

According to the interviewees, this factor and its outlined aspect items (See Table 2) may influence EC adoption in Iranian family SMEs.

4.10. Perceived Organizational Supports

Perceived organizational support in family SMEs refers to extent to which CEOs in such SMEs find themselves in a go-ahead relationship with members. The higher organizational supports, facilitating the adoption process, may increase EC deployment in family SMEs. As one of the CEOs said; *'It is an organizational change, an organizational acceptance, which indeed requests organizational supports'*. According to the interviewees, this factor and its outlined aspect items (See Table 2) may influence EC adoption in Iranian family SMEs.

4.11. Perceived Industry Structure

Perceived industry structure in relation to EC adoption concerns the perception of CEOs of standards, databases, and its players' relationship and/or competitions for facilitating EC deployment in business (Khoje et al., 2013). In fact, in an industrial scale, if family SMEs find themselves as completing a part of e-commerce value chain, may more extendedly deploy electronic commerce (i.e. online multiple sale collaboration links by merging related activities in a front-end customer-facing B2B). As one of the CEOs commented; *'Electronic commerce is an extra-business exploitation in nature, so there should be an environmental readiness for, particularly in the industry and country where we are engaged with'*. According to the interviewees, this factor and its outlined aspect items (See Table 2) may influence EC adoption in Iranian family SMEs.

4.12. Perceived National Structure

The 'Perceived National Structure' in respect with EC adoption concerns whether the national structure and their players' interplaying (Governmental & Non-Governmental) is perceived as an operational EC conveyance environment (Meftah et al., 2015). This factor could be particularly factual for EC adoption by businesses in such countries like Iran, where there is a developing national structure. As one of the interviewees said; *'Electronic commerce is an extra-business exploitation of nature, so there should be an environmental readiness for, particularly in the industry and country where we are engaged with'*. According to the interviewees, this factor and its outlined aspect items (See Table 2) may influence EC adoption in Iranian family SMEs.

4.13. Family (Strategic) Orientation

Family SMEs track the amalgam and manifold non-commercial objectives (such as having an excellent family communication) as well as business objectives, adjusting their organizational orientation. In this respect, family (strategic) orientation defined as extent to which the organizational mission is subjected to family oriented goals (extracted from; Uhlaner et al., 2007; Wang and Ahmed, 2009; Molly, 2009) categorizes them into family-oriented, with a radical high family-oriented overriding their business values; and value-oriented, with balanced family and business values (Vilaseca, 2002). Even though the 'strategic orientation' has been addressed in the related study of SMEs' context (i.e. Kaynak, Tatoglu and Kula, 2005; Chong, 2006; Huy and Filiatrault, 2006; Jeon et al., 2006), and even family SMEs' context (i.e. Uhlaner et al., 2007) in the literature, but an exclusive family orientation represented by 'family (strategic) orientation' and its particular moderation for explaining EC adoption in such distinct SMEs have been almost neglected (Wang and Ahmed, 2009). Accordingly, the moderation effect of family (strategic) orientation on EC adoption in family SMEs was underlined in the current research. As one of the interviewees mentioned; *'Family priorities in our businesses may potentially interfere the way that our perceptions of electronic commerce reach to an actual adoption'*. According to the interviewees, this factor and its outlined second orders (See Table 2) may potentially moderate EC adoption in Iranian family SMEs.

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