

The role of open service innovation in enhancing business performance: the moderating effects of competitive intensity

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In the past, open innovation has been studied from the perspective of manufacturing businesses, while services have received much less attention, regardless of the predominant role they play in advanced economies. The present study focuses on open service innovation in tourism industry. We study the moderating effect of competition intensity on the relation between business performance and open service innovation in tourism industry. Analysing data from managers of 346 travel agencies, this study shows that open service innovation has a positive effect on business performance and this effect increases by competition intensity construct.

Keywords: Business performance, competition intensity, open service innovation, travel agencies.

SERVICES are increasingly recognized as being much more important for building competitive advantage¹. On the one hand, firms in advanced economies have been urged to move to the value chain to preserve or boost their competitiveness². On the other hand, companies are increasingly being recognized as crucially depending on service activities that create and add value. Service-related strategies enable companies to get closer to their customers, raise barriers that prevent market entry, make businesses less vulnerable to economic cycles, and promote efficiency through use of business services (i.e. product design or marketing) that act as catalysts of change³. Innovation permits travel agency managers to launch novel services that develop value, thus meeting the altering necessities of potential clients and rising their sales, income and marketplace share⁴. Iranian travel agencies preserve their competitive place by simply centring on different strategies. Though marketing studies investigate the affiliation between innovation and business performance in a variety of small, medium, and large firms⁵, there have been few studies carried out on the effect of open service innovation on performance, which found a positive relationship between them. A number of researchers have studied how innovation affects business performance^{6,7}, but none studied about how competitive

intensity and open service innovation together influence business performance. Nevertheless, present studies in the hospitality segment evaluate innovation by simply centring on its behavioural aspect, with regard to the degree of innovation implemented⁸. They thus illustrate an attitudinal aspect of innovation⁹. In this study, by measuring open service innovation besides competitive intensity, we achieve deeper insights into interactions between open service innovation and business performance of travel agencies. The aim of this study, thus, is to explore the relation between business performance indicators, competitive intensity and open service innovation in Iranian travel agencies. This study is significant for the Iranian tourism industry for a number of reasons. First, Iran has witnessed more than 30% growth in tourism¹⁰ since 2013. Second, while travel agencies are an important segment in the tourism industry, there has been little consideration given to study the role of open service innovation in enhancing business performance of travel agencies. Considering these aspects, we choose the travel agencies as an appropriate focus for the study of open service innovation, competitive intensity and business performance.

Literature review

Business performance

Current literature commonly splits business performance procedures into financial performance, which contains features for instance income, revenue and non-financial performance measures for instance customer satisfaction, loyalty and reputation¹¹. The customers ought to be

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willing to give a best price, when clients buy services that are intended to fit their special needs¹², which in turn improves the financial performance of a corporation. Furthermore, when a firm offers open innovative services that gather client needs, patrons will likely buy goods and services more often from the same corporation and thus help raise customer retention¹³. The financial performance of tourism industry such as hotels or travel agencies refers to 'objective measures' such as the market share¹⁴, while, for instance, client retention and reputation are the non-financial measures referred to as 'perceptual measures'¹⁵.

In travel agencies, open service innovation addresses broad range of causes such as ticket buying system, setting up efficient registration, or providing unforgettable experiences. Ottenbacher and Gnoth¹⁶ showed that innovative new services enhance the reputation and financial performance. Ottenbacher *et al.*¹⁷ also recognized a positive relation between reputation and innovation behaviour. Evaluating the results noted above, the present study suggests that open service innovation in travel agencies has a positive effect on their business performance in terms of customer retention, financial performance and reputation.

Open service innovation

Open service innovation is to 'employ purposive inflows and outflows of awareness to step up internal innovation and develop the markets for external use of innovation'¹⁸. Open innovation directs business growth by authorizing firms to influence more thoughts from a diversity of external resources and this is hypothesized by Huang *et al.*¹⁹. The main advantage of open innovation is that it increases the likelihood that companies will reach business growth because of incremental sales from new production technologies or products. Chesbrough²⁰ recommended a significant factor urging the acceptance of open innovation in technology in numerous industries. Moensted²¹ showed similar results in high-tech companies, where association with other firms in the expansion of new products was positively related with higher sales. Besides, open innovation is employed in a variety of different methods²². The method adopted by a company will be affected by its place in the market system; the level of advantage and the place of services on the product life cycle curve that can be reached while introducing new products or production technologies. The procedure can best be explained as accessible on a continuum ranging from a low to a high degree of 'openness'²³. Furthermore, openness seems to increase with emphasis on radical innovation²⁴. Elmquist *et al.*²⁵ showed that the major aspect affecting the implementation of open service innovation is whether a company displays an internal focus against an external one. An internally centred firm that relies on

closed innovation may miss potentially more successful opportunities²⁶. Open service innovation decreases this risk for the reason that the company has achieved both internal and external views. Open service innovation might offer access to more viewpoints. Birkinshaw *et al.*²⁷ showed that the costs of open innovation could be significant. If they focus on innovation, companies are expected to survive in an increasingly unstable world. These researchers articulated the idea that long-term growth is significantly related to a strong commitment for innovation.

Example of open service innovation by some travel agencies in Iran: Some of the Iranian service industry SMEs (small and medium sized enterprises) are opting open innovation in recent years. For example, Iran Tour Center is one of the largest, innovative and successful companies active in travel services and tour organizations in Iran. It offers many services to travel to other countries such as the US, Thailand and Germany. It has been one of the top travel agencies providing specialized services tailor-made for groups and individual travellers. It has been providing a wide range of specially designed products. Also, it is one of the fast-growing agencies in Iran. This agency, as a tour operator has a strong relationship with the Ministry of Foreign Affairs, hotels, motor coaches and all related organizations which ensure customers (travellers) will receive the highest level of attention and satisfaction during their travel. This company started open innovation by getting help from other marketing research companies to measure the customer satisfaction about services. Besides, it is connected with high-quality hotels in Iran and other countries to provide a comfortable and suitable place for customers based on their budget. In addition, it has established a good website to connect with potential customers directly at all times and analyse all suggestions made by the travellers after they have undertaken a tour organized by the agency.

Another agency which uses open innovation is Marcopolo Tourism Development Company. In 2005, Marcopolo was registered as the first wholesaler of package tours of successful and unique services. This company, utilizing a wide selling network and covering over 300 travel agencies in Iran, could introduce Marcopolo as a prestigious brand in the tourism sector and offers standard and quality services to tourists. A major innovation investment was to create an on-line system for members to identify themselves, their destination, the kind of travel they would like to do, and the dates on which they like to travel. This system made it much easier for members to connect other members and contact the agency anytime. This company publishes a quarterly magazine and provides suitable information about world tourism destinations for members and passengers. Another set of actions of this agency is to invite customers to co-create service experiences with the agency. Giving customers access to a part of the agency's services and letting them air their

views has helped build customer loyalty and satisfaction. Observing what the customers do and learn what they would like to do, can guide the agency to further improve and even reach new markets for service.

The companies require connecting in open innovation to maintain performance in an increasingly multifaceted world²⁰. Therefore, the hypotheses formulated for this study are the following:

- H1: Business performance will be higher among firms involved in open service innovation.
- H1a: Open service innovation has a positive effect on financial performance.
- H1b: Open service innovation has a positive effect on customer retention.
- H1c: Open service innovation has a positive effect on reputation.

The moderating effect of competitive intensity

Li *et al.*²⁸ found that competitive intensity shows the rank of intercompany contest in a business and this research focuses on competition in the travel industry, especially travel agencies. Auh and Menguc²⁹ showed that in an industry competitive intensity increases from resource limitations, lack of opportunities and survival of many competitors for future growth. Improved competitive intensity features superior competition amidst incumbents²⁸, competitor activities³⁰, survival of stronger competitors³¹, imitation³², promotion and price competition²⁹, added services, and advertising and offering of more products²⁸. We discuss that competitive intensity can also moderate the influence of open service innovation on the performance of a firm. First, differentiation can abate the menace involving competition⁶. Firms with high innovativeness are likely to expand solutions that undermine the actions of competitors and create differentiation benefits³³. Auh and Menguc²⁹ argued that, by continuously introducing unique services, the highly innovative companies, are able to stay one step ahead of competitive imitation. Consequently, such highly innovative companies are more accomplished at winning promotion wars. Second, from the viewpoint of information processing, firms which are highly innovative are in a better position, when they are open to new external information, because they can rapidly obtain and interpret a wide variety of competitor information and use it to expand creative responses to problems that allow them to defeat their rivals. Third, firm's requirement will enhance the likelihood of successful innovation attempts³⁴. The firms which are highly innovative are more willing to make clear their goals and resolve their internal conflicts, to innovate successfully, in order to manage with heightened competition, when facing intense external competition³⁴. In summary, highly innovative firms can convert competi-

tive threats into useful opportunities through product differentiation, creative responses to competitor actions, and a superior determination to innovate successfully, all of which may help these firms carry on better in highly competitive markets, than in minimally competitive markets. With regard to these observations, this study presents the following hypotheses (Figure 1):

- H2: Competition intensity will have a positive moderating effect on the relation between open service innovation and business performance.
- H2a: Competition intensity will have a positive moderating effect on the relation between open service innovation and financial performance.
- H2b: Competition intensity will have a positive moderating effect on the relation between open service innovation and customer performance.
- H2c: Competition intensity will have a positive moderating effect on the relation between open service innovation and reputation.

Research method

Travel agencies in Tehran, Iran are the units of analysis in the present study. Probability sampling (systematic random sampling) has been used in this study. In the tourism industry of Iran, most of the travel agencies are small or medium-sized firms. The small and medium-sized agencies could be distinct as having up to ten staff members. The present sample profile indicates that 35% of travel agencies had up to 10 staff members and 65% had less than ten staff members.

Data collection

In this study, we asked the respondents some questions about agency characteristics and competition intensity. We also asked them to rate their open service innovation activities in several areas from one (no open service

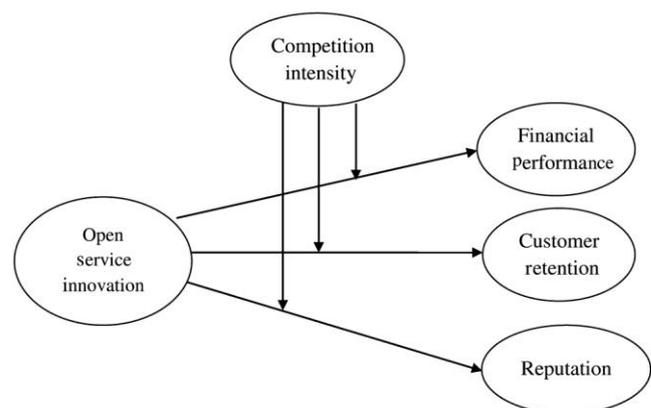


Figure 1. Research model.

innovation) to seven (new to the agency). Furthermore, the respondents explained about their financial performance, customer retention, and the agency’s reputation. The travel agencies were requested that only the owner and manager fill the questionnaire given by us. The questionnaire was in English, which was translated into Persian. Back translation was also done to check for any inconsistencies or translation errors. Of the 600 questionnaires sent out, 350 were returned so the response rate is 58.3%. More than half of the questionnaires were filled out by agency managers (60.4%), followed by agency owners (40.6%). The next section presents the assessment of the goodness of measure of these constructs in terms of their validity and reliability within the research framework. Five questions were eliminated after screening and cleaning of data for content consistency. The final sample size was 345 agencies. The sample consisted of 225 small agencies (with less than 10 staff members) and 120 medium-sized agencies (with more than 10 staff members).

Measures

In this study all items used to gather data for each construct of the research model were subjected to seven-point Likert scale taken from among valid scales in literature ([Appendix: see Supplementary information online](#)). To measure reputation (three items), financial performance (five items), and customer retention (three items), we used items from Chen *et al.*⁴. Four items were taken from Jaworski and Kohli⁵ to measure competitive intensity. Open service innovation is a firm’s orientation to using the external environment as a source of ideas for innovation, as a market for unused ideas. The open service innovation scale is made up of six items and we used the items from Sisodiya *et al.*³⁵.

Testing goodness of measures

Two criteria, reliability and validity, are used for examining the goodness of measures. The convergent and discriminant validity was used to assess the validity of questions. Table 1 shows the loading and cross loading of every indicator (e.g. the indicator FP1 has the highest value for the loading with its corresponding construct). For addressing convergent validity, we used the average variance extracted (AVE), factor loadings, and composite reliability as suggested by Hair *et al.*³⁶. The results of the measurement model are summarized in Table 2, which shows that AVE is in the range 0.543–0.700. Composite reliability values range from 0.819 to 0.876, which exceed the recommended value of 0.7 (ref. 36).

In this study to evaluate the inter-item reliability of measurement items, the Cronbach’s alpha coefficient has been used. The loadings and alpha values are summarized in Table 2, which shows that all Cronbach’s alpha values

are more than 0.6. Therefore, we can conclude that the measurements are reliable.

The results of the construct model are summarized in Table 3. The findings show that all the five constructs – open service innovation, customer retention, financial performance, reputation and competitive retention – based on statistical significance are valid. For assessing discriminant validity, the average variance shared between each construct and its measures should be greater than the variance shared between the construct and other constructs. Items should load more strongly on their own constructs. As shown in Table 4, AVE is more than the squared correlations for each construct, indicating adequate discriminant validity.

Hypothesis testing

To test the four hypotheses, we made the path analysis. Figure 2 and Table 5 present the results.

The R^2 value for financial performance was 0.239, suggesting that 23.9% of the variance in financial performance can be explained by open service innovation when competitive construct has a moderating role. The results indicate that open service innovation is positively related ($\beta = 0.472, P < 01$) to financial performance. Thus, H1a is supported. Furthermore, H1b is also supported as the R^2 value of 0.777 suggests that 77.7% of the variance in customer retention can be explained by open service innovation and there is a positive relationship ($\beta = 0.124, P < 0.01$) between open service innovation and customer retention. H1c is supported as the R^2 value of 0.505 suggests that 50.5% of the variance in reputation can be

Table 1. Cross loadings

Items	Financial performance	Open service innovation	Customer retention	Competition intensity	Reputation
FP1	0.6375	0.3639	-0.0035	0.0362	0.1564
FP2	0.8176	0.2630	-0.0148	-0.0345	0.2251
FP3	0.8143	0.2938	0.0066	-0.0824	0.0358
FP4	0.8507	0.2408	0.1057	0.0684	0.1701
OI1	0.4354	0.8267	0.4731	0.4397	0.2911
OI2	0.3735	0.8355	0.4251	0.3742	0.3067
OI3	0.2947	0.6503	0.2530	0.2241	0.1180
OI4	0.2442	0.7070	0.3114	0.3664	0.3352
OI5	0.2458	0.6755	0.3147	0.2284	0.2870
OI6	0.2321	0.6943	0.2456	0.1683	0.1072
CUR1	0.0783	0.3250	0.8511	0.4172	0.2618
CUR2	0.0267	0.4367	0.8795	0.4237	0.3715
CUR3	-0.0393	0.3979	0.7148	0.4991	0.1745
CR1	0.0458	0.2409	0.4348	0.7460	0.4134
CR2	-0.0274	0.3630	0.4610	0.8752	0.4343
CR3	-0.0393	0.3979	0.4148	0.6991	0.1745
R1	0.0809	0.2976	0.2704	0.4064	0.9231
R2	0.1455	0.3008	0.3401	0.4465	0.8888
R3	0.2083	0.2777	0.1994	0.3442	0.6774

Table 2. Results of the measurement model

Constructs	Average variance extracted	Composite reliability	R ²	Cronbach's alpha	Communality	Redundancy
Competition intensity	0.604	0.819	0.000	0.668	0.604	0.000
Customer retention	0.670	0.858	0.777	0.748	0.670	0.505
Financial performance	0.615	0.864	0.239	0.787	0.615	-0.011
Open service innovation	0.543	0.876	0.000	0.830	0.543	0.000
Reputation	0.700	0.873	0.505	0.786	0.700	0.157

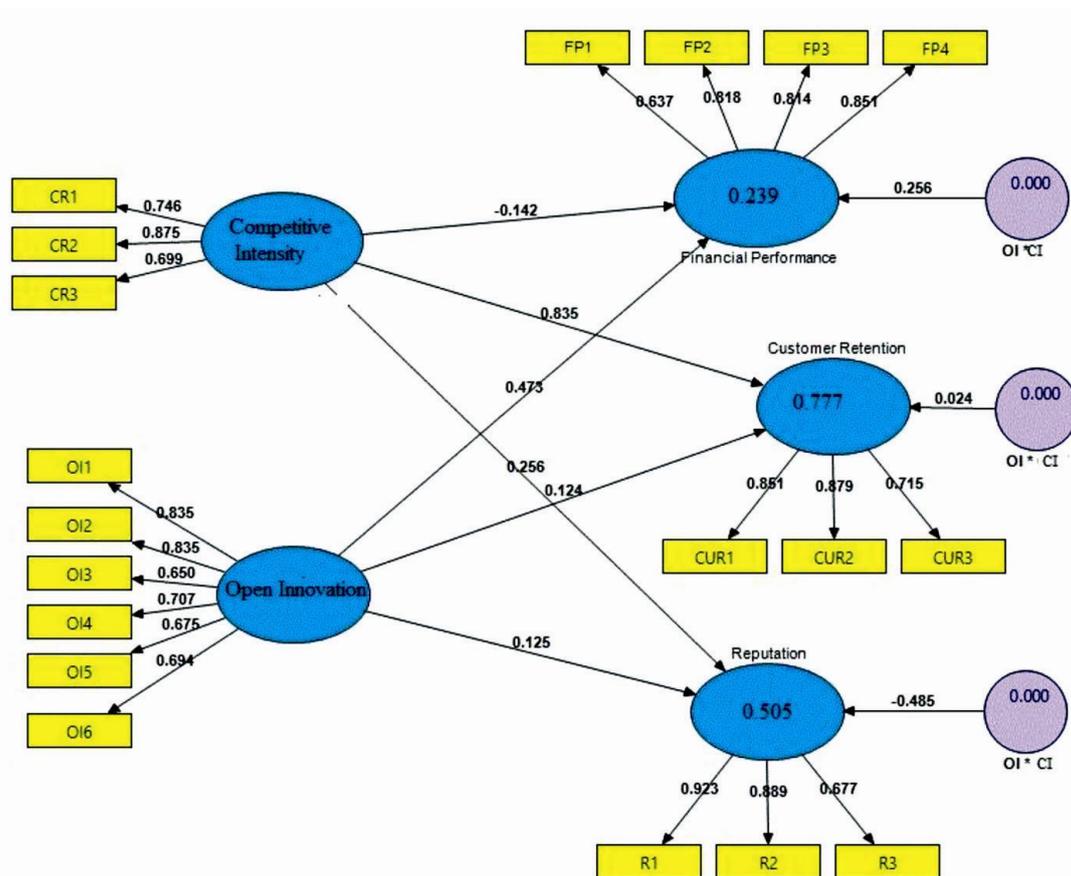


Figure 2. Final model.

explained by open service innovation and there is a positive relationship ($\beta = 0.125, P < 0.01$) between open service innovation and reputation.

To test the moderation effect, interaction between constructs (open service innovation and competition intensity) was carried out. The results indicate the effect of open service innovation on financial performance ($\beta = 0.255, t$ -statistic = 4.39, $P < 0.01$), which increases with competition intensity. The study indicates that the positive relationship between open service innovation and financial performance would be stronger when competition intensity is higher. However, it is not entirely clear how it differs. If the results get a positive coefficient, the positive coefficient of the interaction term

suggests that it becomes more positive as competition intensity increases. However, the size and precise nature of this effect is not easy to define from examination of the coefficient alone. Thus, to follow up for the significant interactions (moderating effects), an interaction plot can be drawn.

As can be seen in Figure 3, high competition intensity has a steeper gradient compared to the low competition intensity, indicating that the positive relationship is indeed stronger when competition intensity is higher. Thus, the hypothesis is supported. Furthermore, the results show that the interaction effect of open service innovation on reputation is significant ($\beta = -0.485, t$ -statistic = 9.814, $P < 0.01$).

As can be seen in Figure 4, low competition intensity has a steeper gradient compared to the high competition intensity. The relation between open service innovation and reputation will decrease when competition intensity increases.

Table 3. Results of the construct model

Construct	Items (measurement)	Standardized estimate	T statistics
Competition intensity	CR1	0.75	10.80
	CR2	0.88	51.56
	CR3	0.70	19.07
Customer retention	CUR1	0.85	48.29
	CUR2	0.88	61.20
	CUR3	0.71	21.59
Financial performance	FP1	0.64	10.65
	FP2	0.82	35.72
	FP3	0.81	25.70
	FP4	0.85	33.56
Open service innovation	OI1	0.84	46.80
	OI2	0.84	44.13
	OI3	0.65	15.87
	OI4	0.71	19.94
	OI5	0.68	21.77
	OI6	0.69	18.30
Reputation	R1	0.92	55.00
	R2	0.89	28.28
	R3	0.68	15.20

Table 4. Discriminant validity

Constructs	1	2	3	4	5
Competition intensity	0.604				
Customer retention	0.664	0.670			
Financial performance	0.000	0.001	0.615		
Open service innovation	0.182	0.225	0.143	0.543	
Reputation	0.325	0.110	0.025	0.119	0.543

Diagonals (in bold) represent the average variance extracted, while the other entries represent the squared correlations.

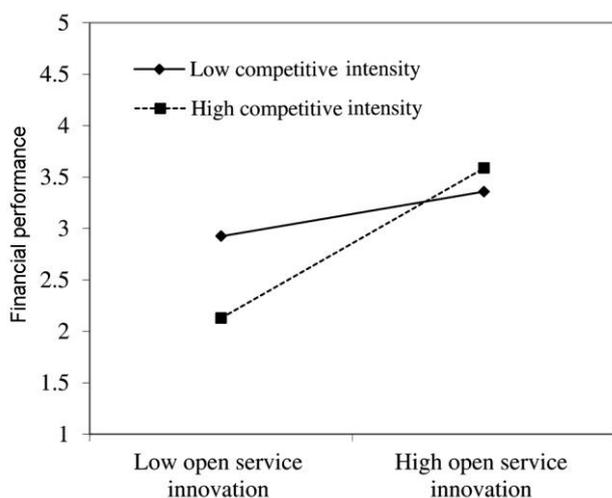


Figure 3. The interaction plot for financial performance.

However, open service innovation on the customer retention ($\beta = 0.024$, t -statistic = 0.428, $P > 0.05$) does not increase with competition intensity (Figure 5).

Discussion and managerial implications

The objective of this study was to contribute to the marketing literature by identifying moderating effect of competitive intensity on the relation between open service innovation and business performance (financial performance, customer retention and reputation) in tourism industry (travel agencies). The outcome of the analysis revealed that open service innovation has a positive effect on business performance, when competitive intensity has a moderation role. It appears that quick changes in client preferences, reinforce the necessity of open service innovation under highly competitive market conditions. Therefore, the ability of open service innovation to add

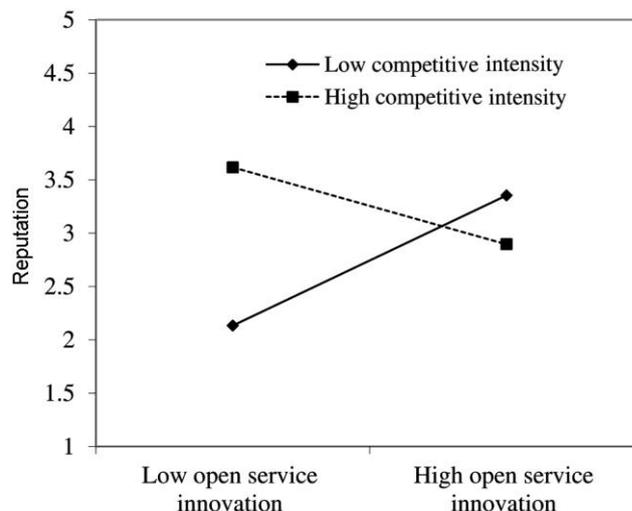


Figure 4. The interaction plot for reputation.

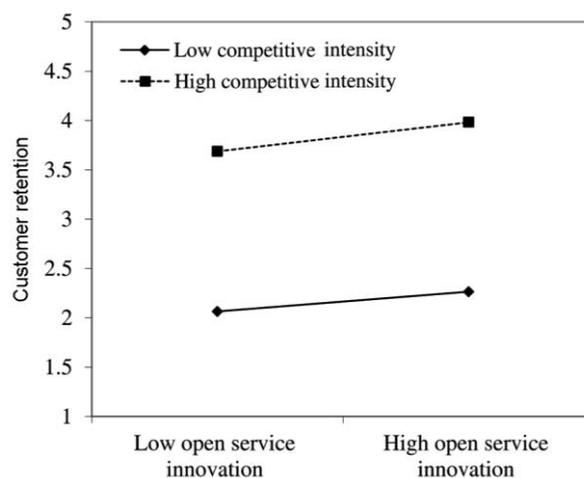


Figure 5. The interaction plot for customer retention.

Table 5. Path coefficients and hypothesis testing

Hypothesis	Relationship	Coefficient	T statistics	P-value
H1a	Open service innovation → Financial performance	0.472	10.751	0.000
H1b	Open service innovation → Customer retention	0.124	3.746	0.000
H1c	Open service innovation → Reputation	0.125	2.869	0.002
H2a	OI * CI → Financial performance	0.255	4.399	0.000
H2b	OI * CI → Customer retention	0.024	0.428	0.334
H2c	OI * CI → Reputation	-0.485	9.814	0.000

OI, Open service innovation; CI, Competition intensity.

value to firms that drive highly competitive markets depends greatly on whether the desires of customers often change. In general, it shows that competitive intensity jointly interacts with open service innovation to influence the level of business performance (financial performance, customer retention and reputation). In this study, competitive intensity includes sales promotions, price and product imitation, which enhance the significance of an open service innovation action. The findings of this study have important implications for managers. First, they suggest that open service innovation is critical for firms that look for, to enhance business performance in highly competitive markets. Managers ought to opt for a high open service innovation and culture of innovativeness that supports, rewards and encourages break-through thinking and that resists the forces that stymie innovation to guarantee that their companies prosper under such difficult market conditions³⁷. Managers ought to support staff to expand and realize creative ideas that meet the strategic goals of the companies³⁸, while exploiting opportunities in the markets. Furthermore, managers are required to stay thoroughly involved in new service development processes, create awareness, and present rewards for innovation³⁷.

Limitations and recommendations

In this study the single key informants use self-reported data and this may have limited our inferences regarding the observed relationships due to common method variance. Furthermore, this method may be exaggerated in our analysis, practically given the complex nature of the interaction effects. Since this study surveyed small and medium-sized travel agencies in Iran, the findings may be unique to Iran and cannot be generalized to large firms, non-service firms or to other countries or economies. Future studies could examine the scenario across different settings or samples. Finally, while this study focuses on the moderating effects of competition intensity on financial performance, customer retention, and reputation, future studies may test other potentially moderating effects of possibility factors that might affect the relationship between open service innovation and firm performance.

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Received 8 May 2014; revised accepted 13 May 2015
