# Enhancing Hospitality Business Performance: The Role of Entrepreneurial Orientation and Networking Ties in a Dynamic Environment

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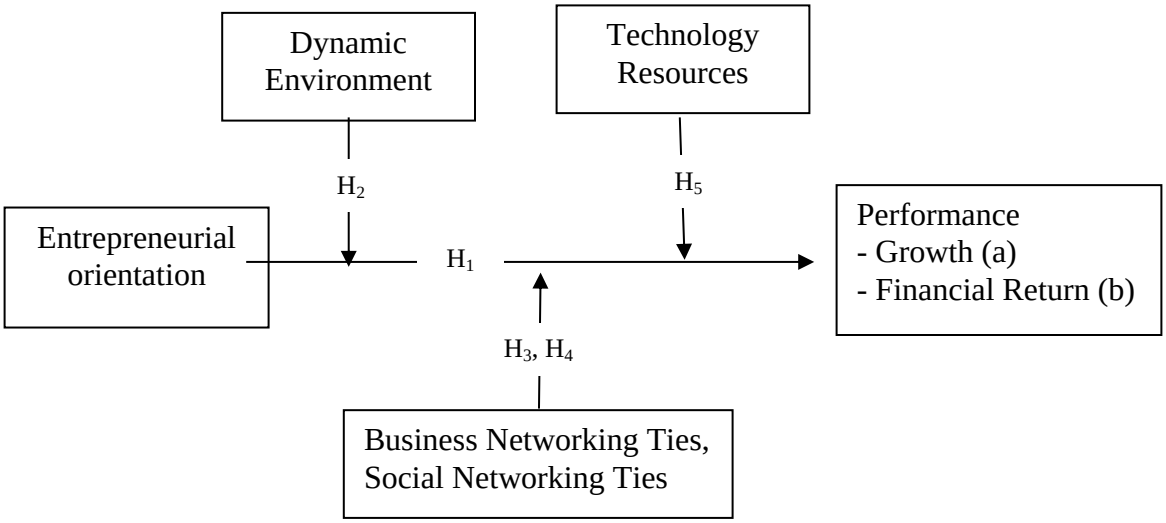
Figure A: Hypothesized model



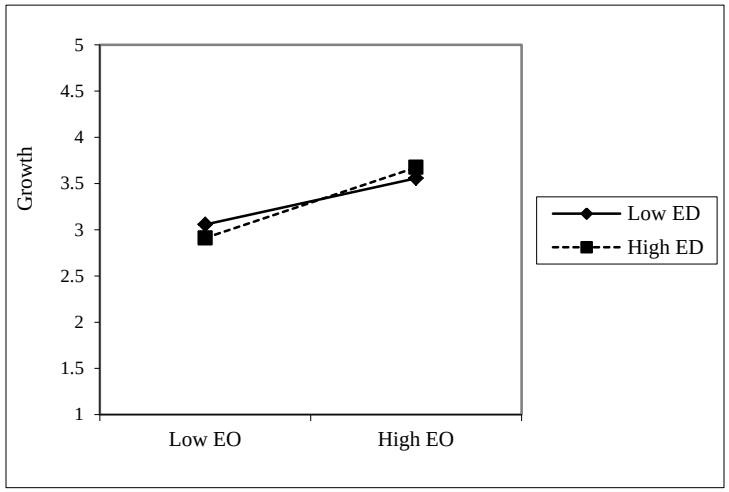



Figure 1, Panel A. The moderating role of dynamic environment (ED) on the EO–growth performance relationship

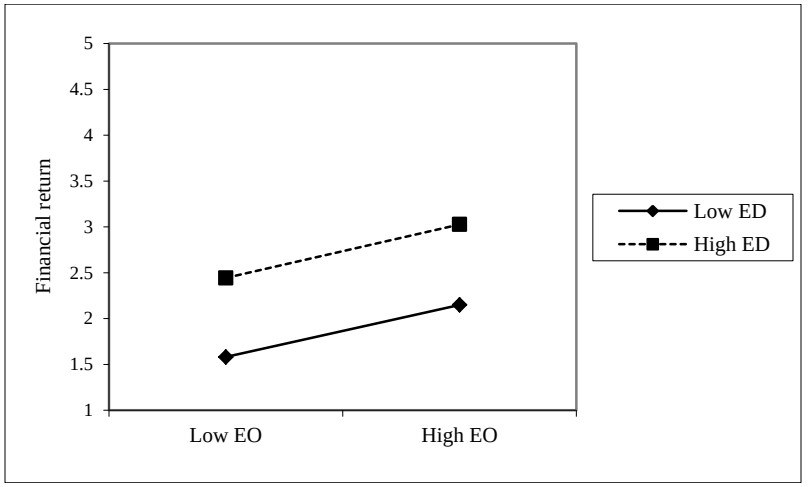



Figure 1, Panel B. The moderating role of dynamic environment (ED) on the EO–financial returns performance relationship

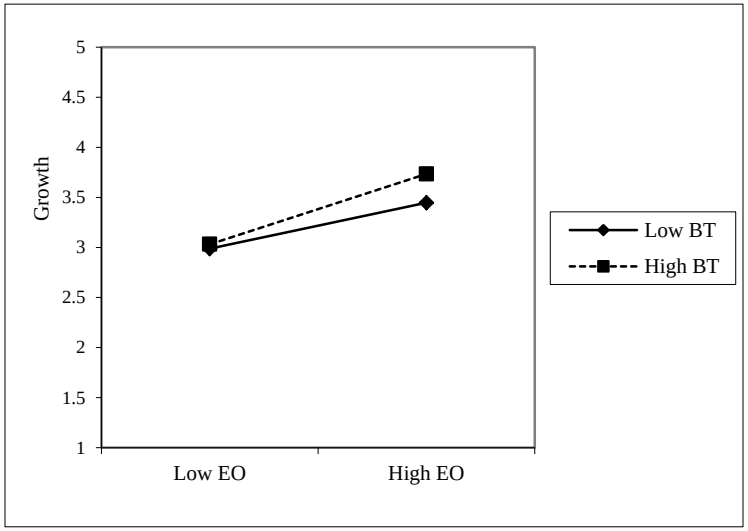



Figure 2, Panel A. The moderating role of business network ties (BT) on the EO–financial returns performance relationship

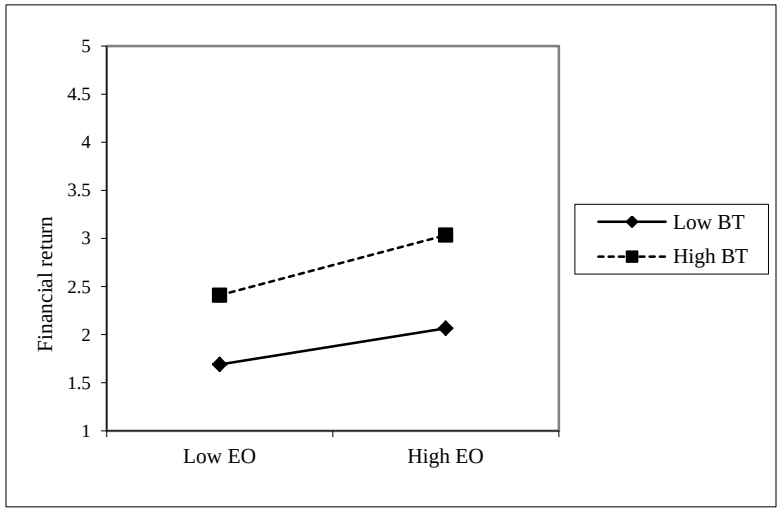



Figure 2, Panel B. The moderating role of business network ties (BT) on the EO–financial returns performance relationship

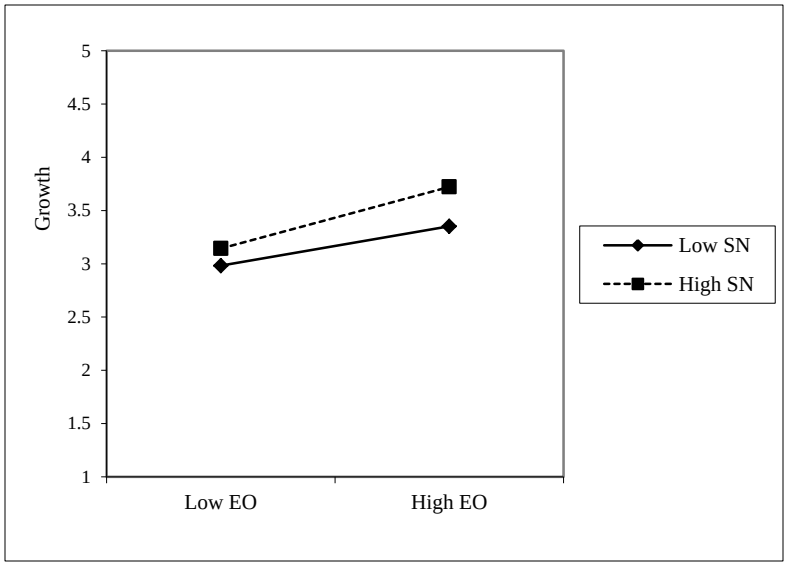



Figure 3, Panel A. The moderating role of social network ties (SN) on the EO–growth performance relationship

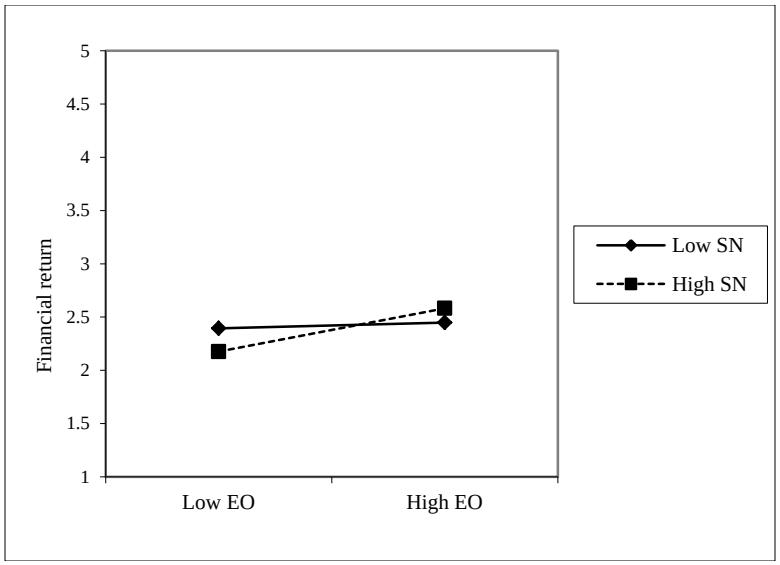



Figure 3, Panel B. The moderating role of social network ties (SN) on the EO–financial return performance relationship

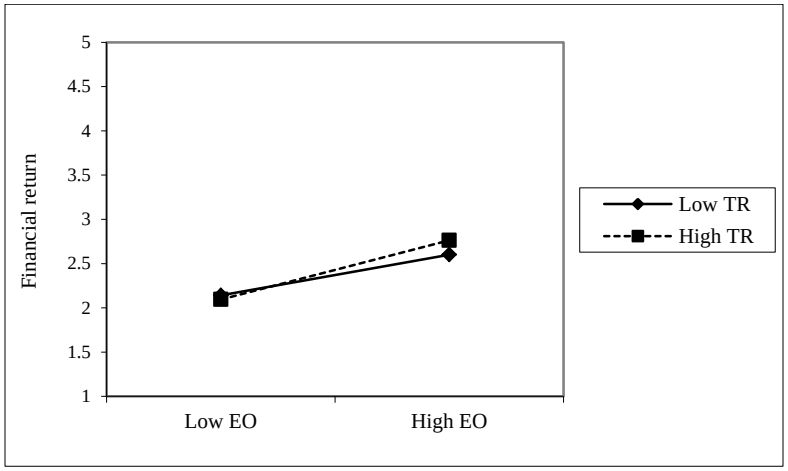



Figure 4, Panel B. The moderating role of TR on the EO–financial return performance relationship

**Table 1a**: Unidimensionality and convergent validity tests

| *Constructs* | *Indicator (parameter)* | | *Factor loadings* |
|---|---|---|---|
| *Entrepreneurial Orientation* [(1)] | ***Proactiveness*** | α=0.86, CR= 0.87, AVE=63% | |
| | PRO1: R&D, technological, leadership, and innovations | | .73 |
| | PRO2: New lines of products or services | | .71 |
| | PRO3: Changes in product or service | | .74[a] |
| | ***Innovativeness*** | α=0.87, CR= 0.88, AVE=69% | |
| | INN1: Initiates actions | | .77 |
| | INN2: First to introduce new products/services, | | .72 |
| | INN3: Adopt a very competitive, 'undo the-competitors' posture | | .78[a] |
| | ***Risk-taking*** | α=0.86, CR= 0.87, AVE=68% | |
| | RT1: Proclivity for high-risk projects | | .75 |
| | RT2: Bold, wide-ranging | | .77 |
| | RT3: Aggressive posture | | .76[a] |
| [(1)] Model summary statistics: $\chi^2_{(71)}$ = 117.271, $\chi^2$/df=1.652, p-value=0.17, robust CFI = 0.977, RMSEA =0.048, Delta2=0.977, RMR=0.020 ; [a]Loading fixed to 1 for identification purposes. *Scale: 1 = not at all; and 7 = to an extreme extent.* | | | |
| *Constructs* | *Indicator (parameter)* | | *Factor loadings* |
| *Performance Growth* [(2)] | ***Performance Growth*** | α=0.87 CR=0.88 AVE=75% | |
| | GR1: Profit growth goal achievement | | .73 |
| | GR2: Sales growth goal achievement | | .83 |
| | GR3: Market share growth goal achievement | | .75[a] |
| *Performance Financial return*[(2)] | ***Performance Financial return*** | α=0.87, CR=0.88 AVE=69% | |
| | FR1: Profitability goal achievement | | .96 |
| | FR2: Return-on-investment goal achievement | | .88 |
| | FR3: Return-on-sales goal achievement | | .86 |
| | FR4: Return-on-assets | | .87[a] |
| [(2)] Model summary statistics: $\chi^2_{(13)}$ = 48.78, $\chi^2$/df=3.09, p-value=0.00, robust CFI = 0.98, GFI= 0.95, RMSEA = 0.08, Delta2=0.98, RMR=0.02; [a]Loading fixed to 1 for identification purposes. *Scale: 1= much worse than my competitors; 7= much better than my competitors* | | | |

**Table 1b**: Unidimensionality and convergent validity tests (Cont'd)

| *Constructs* | *Indicator (parameter)* | | *Factor loadings* |
|---|---|---|---|
| *Environmental dynamism*[(1)] | ***Environmental dynamism*** | α=0.87, CR=0.89 AVE=73% | |
| | ED1: Our firm must rarely change its marketing practices to keep up with the market and competitors (vs. Our firm must change its marketing practices extremely frequently). | | .76 |
| | ED2: The rate at which products/services are becoming obsolete in the industry is very slow (vs. The rate of obsolescence is very high). | | .75 |
| | ED3: Actions of competitors are quite easy to predict (vs. Actions of competitors are unpredictable). | | .81 |
| | ED4: Demand and consumer tastes are fairly easy to forecast (vs. Demand and tastes are almost unpredictable). | | .85 |
| | ED5: The production/service technology is not subject to very much change and is well-established (vs. The modes of production/service change often and in major ways). | | .79[a] |

[(1)]Model summary statistics: $\chi^2_{(13)}$ = 28.321, $\chi^2$/df=2.179, p- value=0.008, robust CFI = 0.976, GFI= 0.963, RMSEA = 0.079, Delta2=0.976, RMR=0.040, [a]Loading fixed to 1 for identification purposes.
*Scale: 1=strongly disagree; 7=strongly agree*

| *Constructs* | *Indicator (parameter)* | | *Factor loadings* |
|---|---|---|---|
| *Network ties*[(2)] | ***Business network ties*** | α=0.84, CR=0.86 AVE=76% | |
| | BT1: Customers | | .75 |
| | BT2: Suppliers | | .72 |
| | BT3: Competitors | | .80 |
| | BT4: Distributors | | .75[a] |
| | ***Social network ties*** | α=0.77, CR=0.79 AVE=63% | |
| | SN1: I can obtain information about my industry from my network of contacts faster than competitors can obtain the same information. | | .75 |
| | SN2: I have a professional relationship with someone influential in my industry. | | .73 |
| | SN3: I have engaged with someone influential in my industry in informal social activity (e.g., playing tennis). | | .71[a] |

[(2)]Model summary statistics: $\chi^2_{(13)}$ = 19.982, $\chi^2$/df=1.537, p- value=0.096, robust CFI = 0.986, RMSEA = 0.053, Delta2=0.987, [a]Loading fixed to 1 for identification purposes.
*CR=Composite reliabilities, AVE= average variance extracted*
*Scale: 1 = not at all to 7 = to a large extent.*

| *Constructs* | *Indicator (parameter)* | | *Factor loadings* |
|---|---|---|---|
| *Technology resources in customer service* [(3)] | ***Technology resources in customer service*** | α=0.84, CR=0.89 AVE=74% | |
| | TR1: Scanning/imaging technology | | .85 |
| | TR2: Network with agents/brokers | | .84 |
| | TR3: Web-enabled customer interaction | | .79 |
| | TR4: Call tracking/customer relationship management system | | .74 |
| | TR5: Computer telephony integration (CTI) | | .81 |
| | TR6: Customer service expert/knowledge-based system | | .84[a] |

[(3)]Model summary statistics: $\chi^2_{(9)}$ = 28.499, $\chi^2$/df=3.167, p- value=0.001, robust CFI = 0.976, RMSEA = 0.097, Delta2=0.976, [a]Loading fixed to 1 for identification purposes.
*CR=Composite reliabilities, AVE= average variance extracted*
*Scale: 0 = Don't intend to implement; 1 = Not yet begun; 3 = Standard/common implementation; 5 = Highly advanced implementation*

**Table 2:** Hierarchical Moderated Regression Analysis (Growth and Financial return as the criterion variable) (n=192)

| Predictor (Independent) variables | Criterion (Dependent) variables | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Growth (GR) | | | | | | | Financial Return (FR) | | | | | | |
| Step1: Control variables | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 | Model 8 | Model 9 | Model 10 | Model 11 | Model 12 | Model 13 | Model 14 |
| Firm age (log) | -.378 | -.086 | -.122 | -.096 | -.038 | -.078 | -.071 | -.564 | -.247 | -.233 | -.246 | -.074 | -.282 | -.087 |
| Firm Industry | -.100 | -.025 | .023 | -.007 | -.029 | -.015 | -.022 | -.069 | .016 | -.002 | .014 | -.007 | -.025 | -.039 |
| Firm ownership | .022 | -.152 | -.114 | -.104 | -.162 | -.157 | -.097 | .206 | .036 | .022 | .032 | -.001 | .060 | .012 |
| Firm size (log) | .134 | -.052 | -.020 | .049 | -.099 | -.042 | -.011 | .247 | .069 | .057 | .059 | -.101 | .028 | -.099 |
| Year Experience (log) | .029 | .035 | .059 | .092 | .031 | .036 | .088 | .094 | .089 | .079 | .083 | .077 | .084 | .081 |
| Background | .043 | .075 | .112 | .123 | .064 | .078 | .116 | -.020 | .019 | .005 | .014 | -.021 | .005 | -.028 |
| Firm type | -.269 | -.110 | -.149 | -.188* | -.084 | -.122 | -.144 | -.329* | -.118 | -.103 | -.111 | -.023 | -.068 | -.005 |
| Step 2: Main effects | | | | | | | | | | | | | | |
| Entrepreneurial orientation (EO) ($H_1$) | | .288*** | .317*** | .326*** | .241*** | .286*** | .287*** | | .212** | .201 | .208** | .043 | .223 | .054 |
| Environmental dynamism (ED) | | .271*** | -.014 | -.160 | -.010 | .190 | -.352* | | .332*** | .440*** | .373*** | .679*** | .685*** | -.452*** |
| Business network ties (BT) | | .280** | .091 | -.004 | .194* | .249* | -.054 | | .418*** | .490*** | .445*** | .110 | .554*** | .195** |
| Social network ties (SN) | | .085 | -.054 | -.104 | .095 | .063 | -.088 | | -.025 | .028 | -.007 | .014 | .066 | .066 |
| Technology resources (TR) | | .027 | .025 | .029 | .020 | .026 | .019 | | .029 | .030 | .029 | .003 | .034 | .008 |
| Step3: The two-way interaction | | | | | | | | | | | | | | |
| EO × ED ($H_2$) | | | .065*** | | | | .022 | | | .025* | | | | .030* |
| EO × BT($H_3$) | | | | .090*** | | | .075** | | | | -.009 | | | .029 |
| EO × SN($H_4$) | | | | | .045** | | .042** | | | | | .161*** | | .155*** |
| EO × TR ($H_5$) | | | | | | .014 | -.019 | | | | | | .062** | .035** |
| Marker variable | | | | | | | -.027 | | | | | | | -.003 |
| $R^2$ | .033 | .475 | .544 | .567 | .496 | .477 | .596 | .063 | .525 | .534 | .525 | .791 | .554 | .807 |
| $\Delta R^2$ | --- | | | | | | | | | | | | | |
| Adjusted $R^2$ | -.004 | .440 | .510 | .535 | .460 | .439 | .556 | .027 | .493 | .500 | .491 | .776 | .521 | .788 |
| *F*-value | .904 | 13.513 | 16.312 | 17.898 | 13.501 | 12.484 | 15.089 | 1.754 | 16.461 | 15.710 | 15.160 | 51.970 | 17.009 | 42.752 |

Note: Unstandardized regression coefficients are reported.

□p<.05; □□p<.01; □□□p<.001 (two-tailed test).

*$\Delta R^2$ means the increase in $R^2$ from the model to the previous model.*

**Table 3:** Intercorrelations, shared variances, and marker variables adjustment (n = 192) [a]

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Firm age (log) | 1 | .0081 | .063 | -.098 | -.005 | -.010 | -.148 | -.079 | -.124 | -.064 | -058 | .029 | -.139 | -.096 |
| 2. Firm Industry | .087 | 1 | .132 | .039 | -.002 | -.063 | -.005 | .013 | -.083 | -.043 | -.06 | .048 | -.033 | -.60 |
| 3. Firm ownership | .069 | .138 | 1 | -.120 | .069 | -.034 | -.055 | .07 | .049 | .057 | .039 | -.013 | .063 | -.01 |
| 4. Firm size (log) | -.091 | .045 | -.113 | 1 | .165 | .055 | .357 | .178 | .027 | -.059 | -.237 | .253 | .062 | .015 |
| 5. Year Experience (log) | -.034 | .004 | .075 | .171* | 1 | -.130 | .221 | .018 | -.059 | .042 | -.011 | -.013 | .047 | -.02 |
| 6. Background | -.003 | -.056 | -.027 | .061 | -.123 | 1 | .005 | .008 | -.028 | -.039 | -.016 | -.072 | -.020 | .021 |
| 7. Firm type | -.141 | .001 | -.048 | .363** | .227** | .011 | 1 | .027 | -.053 | -.247 | -.013 | .024 | -.128 | .127 |
| 8. Entrepreneurial orientation (EO) | -.072 | .019 | .076 | .184* | .024 | .014 | .033 | 1 | .35 | .378 | .378 | .075 | .455 | .49 |
| 9. Environmental dynamism (ED) | -.117 | -.076 | .055 | .033 | -.052 | -.021 | -.046 | .356** | 1 | .53 | .456 | .07 | .603 | .554 |
| 10. Business network ties (BT) | -.057 | -.036 | .063 | -.052 | .048 | -.032 | .240** | .384** | .536** | 1 | .473 | .013 | .595 | .534 |
| 11. Social network ties (SN) | -.051 | -.044 | .045 | -.023 | -.005 | -.009 | -.006 | .384** | .462** | .479** | 1 | .041 | .373 | .43 |
| 12. Technology resources (TR) | .035 | .054 | -.006 | .259** | -.006 | -.077 | .030 | .081 | .076 | .019 | .047 | 1 | .083 | .069 |
| 13. Financial Return (FR) | -.132 | -.027 | .069 | .068 | .053 | -.013 | -.121 | .461** | .609** | .601** | .379** | .089 | 1 | .638 |
| 14. Growth (GR) | -.089 | -.053 | -.004 | .021 | -.004 | .027 | -.120 | .496** | .560** | .540** | .436** | .075 | .644** | 1 |
| MV = Marker variable | .007 | -.073 | .006 | .004 | .039 | .027 | .027 | -.076 | -.125 | -.035 | -.112 | -.072 | -.113 | -.121 |
| Mean | 1.59 | .18 | .13 | 1.96 | 2.92 | .31 | .54 | 5.33 | 4.26 | 4.60 | 4.88 | 2.63 | 4.83 | 3.86 |
| Standard deviation (SD) | .21 | .38 | .33 | .42 | .56 | .46 | .49 | .79 | .91 | .62 | .81 | 1.02 | .82 | .81 |
| HSV= Highest shared variance | --- | ---- | --- | ---- | ---- | --- | --- | .24 | .37 | .36 | .19 | .00 | .41 | .01 |

[a]Note: Correlations below the diagonal are before the MV adjustment, whereas the correlations above the diagonal are after the MV adjustment (□p=<.05, two-tailed test).

Appendix A: Entrepreneurial-based networking (Illustrative examples)

| Concepts | Illustrative quotes |
|---|---|
| Entrepreneurial dimensions | 'demand for new service is high but we cannot afford to go for new services simply because of our low budget'… and 'low priority of the available budget'…<br>Nevertheless, other informants put more emphasis on proclivity towards innovation. 'We have begun to use service automation and the results are satisfactory';<br>'our experience shows that mobile service and self-service have enabled us to reduce our costs';<br>'our genuine culture is to make every possible effort to enhance customer loyalty and satisfaction…and we do our best to pursue perfection in the details of our products and services'…<br>one informant states how innovation is key to the success of traditional Japanese firms.'; 'we have adopted self-service check-in kiosks and our customers are pleased with the easy check-in and check-out'. |
| Networks | Sociality and interactions with customers, suppliers, and competitors were frequently emphasized in our interviews.<br>'interactions with our stakeholders is unavoidable'; '<br>some of the comments we get through are our social networks are bitter, but we do our best to fix the problem as soon as possible…of course we cannot satisfy everybody, but we do our best';<br>'we regularly observe the comments that our customers write about us, oftentimes we discuss with our colleagues the comments that we receive through social media';<br>'our service is for people, and we have a good connection with our customers, travel agencies and trusted partners';<br>'connection with our business partners and customers is vital for us and I guess social networking is a key to success for us'.<br>'If we do not use social media and networking, we can hardly survive; we are extremely dependent on social and business connections, as customers choose and evaluate us through social media, and we take seriously the need to make them happy to receive good feedback'. |
| Environment | 'Although many people believe that our industry is slow to change, we have adopted different and new technologies, and the results are very effective and satisfactory';<br>'due to the nature of our business, we have to change our marketing strategy often'. |