Managerial and employees' perceptions of improvisation in service settings: a multigroup analysis

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Abstract

This study compares the perceptions of hotel managers and front-line employees concerning the effect of service delivery system design choices on employee behaviours and customer satisfaction. Service managers are faced with the difficult task of designing a system that delivers a consistent but personalized service experience. Services that develop a Service Improvisation Competence (Serv-IC) (Secchi et al., 2018b) can successfully navigate the perceived trade off between consistency and customization. However, this paper highlights a disconnect between the effect of service design choices as intended by managers and actual behaviour reported by employees as a result of the same design choices.

Keywords: Service Delivery Systems Design, Organizational Improvisation, Service Operations Strategy

Introduction
This study compares the perceptions of hotel managers and front-line employees concerning the effect of service delivery system design choices on employee behaviours and customer satisfaction. Service managers in high contact settings are faced with the difficult task of designing a system that delivers a consistent but personalized service experience. Consistency is often pursued through the design of scripts and other formal devices to standardize customer experiences (Tansik and Smith, 2000, Victorino et al., 2013). Flexibility is obtained through offering resources and incentives that empower employees to adapt on the spot to their customers (Bowen and Lawler, 1992, Secchi et al., 2018b).

The relationship between service delivery design choices, employee behaviours, and service outcomes has been at the centre of service research since the pioneering

work of Heskett et al. (1997) on the Service Profit Chain (SPC). However, the relationships between design choices and their implementation is often not straightforward. It is conceivable, for example, that employees would disregard excessively rigid processes in favour of improvised solutions. This phenomenon has been studied by scholars of organizational behaviour (e.g., Brown and Duguid, 1991) and strategy (e.g., Mintzberg, 1994). Given the importance of process execution to service operations, we build on insights from these disciplines to examine the potential discrepancy between service design and execution, along with its implications for service operations research and practice.

To this end, we test a model of antecedents and consequences of Service Improvisation Competence (Serv-IC)(Secchi et al., 2018b) through a survey of hotel managers and employees. We then compare the results across the two samples to identify discrepancies between employees' and managers' perceptions.

Service Improvisation Competence
Secchi et al. (2018b) conceptualised the construct of Service Improvisation Competence (Serv-IC) as a way to capture "the systemic ability of a service firm's employees to deviate from established service delivery processes and routines to respond in a timely manner to unforeseen events using available resources." The construct is a superordinate multidimensional construct composed of three first order components, namely spontaneity, creativity, and bricolage. *Spontaneity* reflects the temporal aspect of improvisation: for a behaviour to be improvised, it has to have a character of immediacy as a response to an unexpected event (Moorman and Miner, 1998a, Moorman and Miner, 1998b, Crossan et al., 2005). *Creativity* reflects the novelty aspect of the improvisational behaviour: in order for behaviour to be considered improvisation, it has to contain some degree of novelty, however small (Moorman and Miner, 1998b). *Bricolage* reflects resource-related aspect of improvisation: improvisers draw from resources immediately available in their environment, sometimes repurposing them to from their intended use (Pina e Cunha et al., 1999, Baker and Nelson, 2005).

Model and Hypotheses
Figure 1 provides a path diagram of our model of antecedents and consequences of service improvisation competence, adapted from the model tested by Secchi et al. (2018b). This model draws from the literature on service operations strategy and considers specific design choices that lead to the development of a service improvisation competence. Roth and Menor (2003) coined the term "service strategy triad" to refer to the factors that determine service outcomes, namely service delivery system design choices, service concept, and target market. The alignment among strategic choices is particularly important to the success of the service proposition. Our model considers two categories of service delivery system design choices that are particularly relevant to our construct of interest. The first one—orgware design choices in the terminology of Voss et al. (2008)—reflects the effort made by the organisation to hire, train, and incentivise people to develop a service orientation. These choices empower employees to go out of their way to satisfy customers. The second category reflects operational choices concerning the rigidity and the complexity of service delivery processes (process standardisation).

The second element of the service strategy triad is captured in our model by the experiential service concept construct, measuring the degree of desired emotional involvement of the customer. The third element (i.e., the market), is captured by two measures. Operationally, customer-induced uncertainty reflects the variability and unpredictability of the customer segment. Strategically, the star rating of the hotel reflects the intended target market in terms of customer expectations as well as prices. We posit that service delivery system design choices will have an effect on employees' improvisation competence mediated by the creation of a felling of empowerment. Conversely, the development of the ability to improvise will be associated with higher customer satisfaction. The contribution of this paper is not in the development and testing of the model, but in the analysis of the different perceptions across our samples of managers and employees. Given the space constraints of these proceedings, we refer the readers to Secchi et al. (2018b) for a detailed discussion of the constructs and hypotheses in the model.
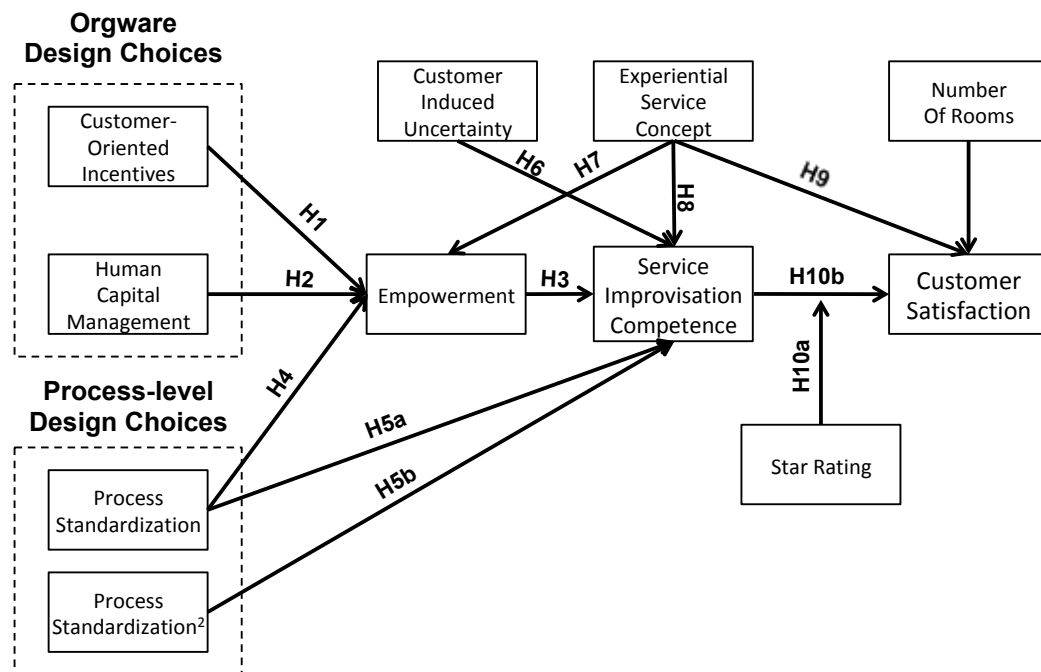

Figure 1. Path model and hypotheses

Data and Methods

This paper uses data originally collected for two independent studies each using a sample of hotel managers and employees respectively (Secchi et al., 2018b, Secchi et al., 2018a). The hospitality industry has several characteristics that make it particularly suited to this study. First, hospitality's high customer contact nature, coupled with a relatively high degree of customer heterogeneity, creates a wealth of opportunities for employees to improvise. Second, the industry exhibits a high variety of management and ownership models, creating a wealth of service delivery system configurations.

We adopted a two-stage approach to survey development and model testing (Anderson and Gerbing, 1988, Roth et al., 2008). After establishing the preliminary validity and reliability of the measurement scales, we collected one sample of hotel employees in customer contact roles (N=137, 8.5 per cent response rate) and a second,

independent sample of hotel managers in charge of employees in customer contact role (N=320, 9 per cent response rate). The data were collected through the Cornell Center for Hospitality Research mailing list. Table 1 reports descriptive statistics of the two samples.

Table 1. Descriptive Statistics

	Employees Sample	Managers Sample
N	137	320
Star Rating		
1-3 Stars	19	80
4-5 Stars	88	190
Occupancy Mean(sd)	68.47% (19.51)	69.91% (15.24)
% respondents with a college degree	20%	51%
% respondents with more than 15 years experience	20%	60.7%

Measurement Properties
The instruments used in this paper are a subset of the measures used in Secchi et al. (2018b) and Secchi et al. (2018a). We used the data from the previous studies, selecting items that had a correspondent in both samples. As a first step in our measurement analysis, we performed confirmatory factor analyses (CFA) of all constructs (except for customer-oriented incentives, which is a single item measure). Serv-IC is a second order superordinate latent construct that captures the shared variance among the first order constructs of spontaneity, creativity, and bricolage (Edwards and Bagozzi, 2000, Edwards, 2001). Therefore, we estimated two separate CFA analyses: one for Serv-IC and one for the other latent constructs. Table 2 and Table 3 report measures of fit for the two models, indicating acceptable evidence of dimensionality. To examine the reliability of our measures, we computed composite reliability for each construct (Bacon et al., 1995). Table 4 reports the composite reliability of the scales.

In order to meaningfully compare the path model across different samples, we further need our scales to behave in the same way in the two samples, that is, we need to establish factorial invariance (Bollen, 1989, Vandenberg and Lance, 2000).

Table 2. Measurement model of Serv-IC

	Employees Sample	Managers Sample[1]
Chi-squared(df)	8.540 (6) (p=.201)	6.700 (7) (p=.461)
RMSEA	0.056	0.000[1]
CFI	0.990	0.989[1]
TLI	0.976	1[1]

[1]The managers model has one item variance fixed to correct convergence issues. RMSEA, CFI, and TLI should not be trusted.

Table 3. Measurement model Other Constructs

	Employees Sample[1]	Managers Sample[1]
Chi-squared(df)	122.375 (101) (p=.073)	198.938 (101) (p<.001)
RMSEA	0.039	0.055
CFI	0.973	0.927
TLI	0.963	0.902

[1]One item in PS loads onto the EMP construct. Two covariances are freed between items within the HCM scale.

Table 4 Composite reliability

	Employees	Managers
Serv-IC	0.86	0.87
Process Std.	0.70	0.71
C-I Uncertainty	0.98	0.98
Exper. Concept	0.98	0.86
HR Management	0.79	0.60
Empowerment	0.77	0.53
Cust. Satisfaction	0.88	0.84

The process of testing measurement invariance across samples consists of the following steps: i) establish that the measurement model has the same loadings and factors in each sample examined independently (form invariance); ii) test a multigroup model in which all parameters are allowed to vary across samples (configural model); iii) constrain the factor loadings across samples and compare the fit with the configural model; iv) add a constraint of intercepts equality across samples and compare fit with the configural model; v) add a constraint on the error terms and compare the fit with the configural model (Bollen, 1989, Vandenberg and Lance, 2000). Each of these steps builds on the previous ones, so that if, for example, factor loading equivalence cannot be shown, the analysis would stop and a test of intercept equivalence would not be conducted. The samples in this study have different sizes, which has been shown to lead to wrong conclusions of measurement invariance. To correct for this problem, we adopt the method proposed by Yoon and Lai (2017), whereby we extract at random from the larger sample a number of observations equal to the smaller sample size repeatedly. Then, we average the results across all equal-sample-size estimations. For the analysis presented in this paper we repeated the sampling and estimation procedure one hundred times.

We first tested the measurement equivalence of the Serv-IC construct. Given the second order nature of this construct, we decomposed the tests of the loadings and intercepts into separate tests of first- and second- order structures (Byrne and Stewart, 2006). The comparison of the configural model and the model with the first-order loadings constrained was not significant ($\Delta\chi^2 = 5.96, p = .310$), providing evidence of invariance. We then constrained the loadings of the second-order factor, which resulted in a significant difference in fit ($\Delta\chi^2 = 72.72, p < .001$) indicating a lack of invariance. We performed tests of individual constraints and we found that the lack of fit originated

from the loading of the bricolage first-order construct. Freeing the loading resulted in a lack of significant difference between the partially constrained model and the configural model ($\Delta\chi^2 = 6.51, p = .369$). We therefore cannot conclude full measurement invariance, but we can proceed under the assumption of partial measurement invariance (Byrne et al., 1989). Constraints on the intercepts resulted in a model significantly different from the unconstrained configural model. The test of invariance for the measurement model involving the other constructs resulted in evidence of loadings invariance ($\Delta\chi^2 = 14.59, p = .265$) and lack of intercept invariance.

Results

Under the assumption of partial measurement invariance, we estimated a path model using averages of the items for the multi-item scales (Anderson and Gerbing, 1988). Using the same procedure adopted for the measurement model, we found that the structural model's paths differ across the two samples ($\Delta\chi^2 = 74.92, p < .001$). Table 5 reports the estimation results for the full path model unconstrained across groups.

Table 5. Unconstrained model across managers and employees samples

Dependent Variable:	Empowerment		Serv-IC		Customer Satisfaction	
Sample	Employees	Managers	Employees	Managers	Employees	Managers
Direct Effects						
Intercept	1.579***	2.601***	-1.671***	-5.059***	3.151***	5.936***
Incentives	0.165	0.383***			0.222***	-0.037
HC Mgt.	0.103	0.046			0.050	0.068
Exper. Conc.	0.421***†	0.052†	-0.103†	0.429***†	0.440***	0.464***
Process Std.	-0.185***†	0.001†	0.026†	-0.128***†		
Process Std.²			0.160*	0.033		
Empowerment			0.387***	0.241***	0.121	-0.015
C-I Uncert.			0.135	0.227***		
Serv-IC					0.207***	0.225***
Star Rating					-0.025†	-0.046†
Serv-ICxStar					-0.236***†	-0.072†
Rooms					0.006	0.078
Indirect Effects						
Incentives			0.034	0.089**	0.018	0.011
HC Mgt.			0.025	0.008	0.013	0.001
Exper. Conc.			0.119***†	0.011†	0.047	0.071***
Scripting			-0.045**†	0.001†	-0.020	-0.017**
Scripting²					0.011	0.003
Empowerment					0.057***	0.038***
C-I Uncert.					0.021	0.030***

N=457; The table reports standardised estimates.
***p<.01, **p<.05, *p<.1
† Significantly different across groups p<.05

We performed a series of tests to identify path estimates that differ across groups. The analysis highlighted important differences in the perceptions of managers and employees concerning the association of specific design elements and employee competences as well as customer satisfaction. More specifically, employees and managers have different perceptions of: i) the effect of process standardisation on

empowerment and improvisation; ii) the mechanism by which experiential service concept influences Serv-IC; and iii) the differential effect of Serv-IC on customer satisfaction in different hotel categories.

The relationship between process standardisation and improvisation competence
Extant research on service scripts—defined as descriptions of the process that front-line employees follow in their interaction with customers—shows that scripts are used as a device to create consistency across service encounters and across disparate servers (Tansik and Smith, 2000, Victorino et al., 2013). Indeed, the managers in our sample seem to operate under the assumption that an increase in service delivery process standardisation results in lower variance in employee behaviour, i.e., a limited ability to improvise. Conversely, employees' responses seem to point to a different narrative.

Figure 2 graphically illustrates the difference between the coefficient estimates. Whereas manages have a linear view of the effect of standardisation, employees report diminishing returns and possibly a reversal of the effect. In other words, excessive standardisation can lead to an increase in the frequency by which employees disregards the formal process in favour of a more improvised solution to customer problems.
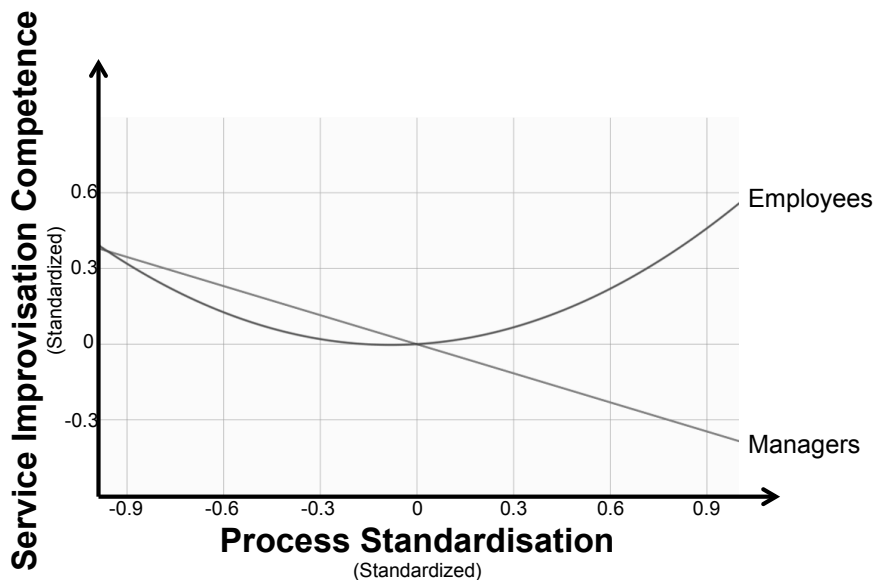

Figure 2. The effect of Process Standardisation on Serv-IC

The relationship between experiential service concept and improvisation competence
Employees and managers report a different perception on the mechanism that links the definition of a service concept to improvisational behaviours of employees. Managers' data reflects a view where in the presence of clear indications of the experiential nature of the service offered, employees will naturally gravitate towards improvisation as a way to accommodate customers' requests. In the employees' data, however, this relationship is fully mediated by the creation of a psychological sense of empowerment. This difference can have important implications for service design. If service designers want to develop a service improvisation competence, they cannot solely rely on the specification of the service concept as an indication to employees that they should feel free to adapt processes to individual customers. Hiring and training practices as well as incentives that make the employees feel empowered in their job are essential to the implementation of a highly experiential service proposition. The fact that the managers

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in our sample did not see this important relationship could lead to significant failures in service delivery.

The relationship between Serv-IC and customer satisfaction
The managers in our sample seem to regard service improvisation competence as having a generally positive association with customer satisfaction. Employees, however, reported a difference between different customer segments as identified by the star rating of the hotel. Figure 3 illustrates the difference. Employees indicate that the value of developing a service improvisation competence is greater in lower-tier hotels. This could be due to the fact that some amount of personalisation is expected in higher-tier hotels. A helpful and accommodating check-in clerk would not be a source of delight in a Ritz-Carlton, while it would be a significant surprise in a roadside motel.
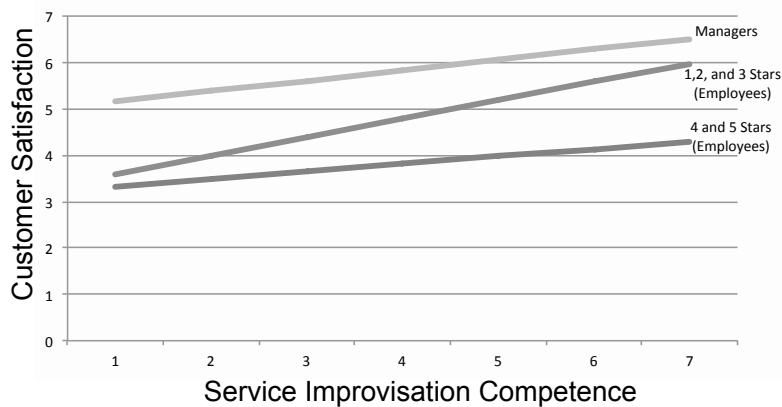

Figure 3. The effect of Serv-IC on Customer Satisfaction

Conclusions
This paper highlights a discrepancy in the perceptions of hotel managers and employees with respect to the effects of service delivery system design choices on employee competences and customer satisfaction. We contribute to the literature on service operations strategy by identifying an important source of misalignment between intended and realised strategy (Mintzberg, 1994). This research emphasizes the importance of creating feedback loops between the execution and the planning stage of service delivery.

> While we recognise that we cannot make strong causal claims concerning the effect of Serv-IC due to the cross-sectional nature of our data, we believe that our results are interesting as a comparison of managerial and employees' perceptions, which are adequately captured by the cross-sectional survey methodology.

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