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Title Page

Hotels' dependency on Online Intermediaries and their chosen Distribution Channel Portfolios: Three country insights

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20 **1. Introduction**

21 In the competitive tourism environment (Michopoulou and Buhalis 2008) hospitality
22 enterprises (e.g. Kang, Brewer, and Baloglu 2007) are exploiting various online
23 distribution channels to increase their visibility (Buhalis 1999), to raise awareness
24 and interest (Chan and Law 2006), and eventually to foster online purchasing (Abou-
25 Shouk, Megicks, and Lim 2012). With the development of the Internet it was
26 assumed that the importance of intermediaries would decrease (Bennett and Lai
27 2005; Tse 2003). It was predicted that a user-friendly and useful hotel website would
28 boost the likelihood of selling products directly to the customers (Ip, Law, and Lee
29 2011). This prediction of dis-intermediation did not come true.

30 Many Online Travel Agencies (OTA) have been entering the market (Gazzoli, Kim,
31 and Palakurthi 2008), increasing the complexity of the online distribution network
32 (Kracht and Wang 2010). Consequently hospitality managers are faced with new
33 challenges concerning marketing (Buhalis 2003) and selling (O'Connor and Frew
34 2004) services. This so called "re-intermediation" (Bennett and Lai 2005) results in a
35 huge amount of online channels which are available in addition to traditional
36 distribution channels, which in turn leads to an increasingly multifaceted distribution
37 environment (Kracht and Wang 2010) challenging the hospitality industry. In order to
38 stay competitive in this environment where customers can conveniently order the
39 whole tourism experience in a "one-stop-shop" offered by OTAs (O'Connor 2008)
40 and where the competitor is only one click away (Law 2009), hoteliers need to
41 allocate scarce resources thoughtfully (Schegg et al. 2013) .

42 Some players in the distribution network have been gaining advantages due to their
43 centrality (Zeng and Gerritsen 2014). They gained power in terms of controlling

44 resources (Ford, Wang, and Vestal 2012; Pfeffer 1992). As a consequence less
45 powerful players became dependent concerning their marketing decisions. This
46 dependency, which is defined as the need to maintain relationships to achieve goals
47 (e.g. Tourism Alliance 2014), implies an Information and Communication Technology
48 (ICT) driven shift in the distribution power balance (Tourism Alliance 2014; Zeng and
49 Gerritsen 2014). Some OTAs are taking control of hotels' allotments (Carroll and
50 Siguaw 2003), marketing and pricing (Brewer et al. 2006), forcing hoteliers to
51 constantly re-consider how they select OTAs (Kim, Bojanic, and Warnick 2009).
52 Depending on product and target market sophistication and resources-based issues
53 (Coelho and Easingwood 2008) hotel managers need to allocate the right amount of
54 products to the most relevant portfolio of offline (e.g., walk-ins) and online channels
55 owned by the hoteliers (e.g., hotel website) as well as third party websites such as
56 OTAs' platforms (Gazzoli, Kim, and Palakurthi 2008).

57 Up to now, there is a lack of research looking at the dependency of hotels on a
58 specific Internet Distribution System (IDS) channel/category such as an OTA and the
59 mix of offline and online distribution channels hoteliers choose. In order to better
60 understand how hoteliers select an effective portfolio of channels, this research
61 investigates OTA dependency and the distribution channel mix chosen in the
62 hospitality sector. Due to differences between countries in terms of OTA popularity
63 (Schegg 2014), pro-activeness and risk-taking attitudes (Brodbeck et al. 2000;
64 Szabo et al. 2002), we look at three different countries namely Austria, Germany and
65 Switzerland. In more detail the objective of this study is threefold: (i) to reveal
66 predominant off- and online distribution channels adopted by hotel managers, (ii) to
67 highlight the differences between Germany, Austria and Switzerland concerning the
68 OTA penetration rate and hoteliers' dependency on OTAs (i.e. bookings generated),

69 and (iii) to reveal the amount of channels used as well as differences in the three
70 countries with regards to the portfolio of channels used.

71 In the following sections the literature review deals with setting the context of the
72 study by discussing the development of online distribution, ICT driven distribution
73 market developments, and power shifts in distribution networks. The results section
74 presents descriptive findings concerning the role of various distribution channels;
75 demonstrates the penetration rate and how many bookings are generated via
76 different online channels; deals with how many channels are used and the
77 distribution channel portfolio; and gives insights into differences between Germany,
78 Austria and Switzerland. Finally, the theoretical discussion is followed by managerial
79 implications.

80 **2. Literature Review**

81 Economics has dealt with distribution by looking at transaction costs (Nash 2001),
82 management examined competitive strength, channel performance (Yan et al. 2011),
83 bargaining power and profit sharing (Simchi-Levi, Wu, and Shen 2004), while
84 marketing deals with market heterogeneity (Louvieris, Driver, and Powell-Perry
85 2003), positioning (Keller 2010), channel conflict (Pauwels and Neslin 2015) and
86 global marketing strategies based on cross-cultural similarities (Kaynak and Herbig
87 2014; Martenson 1987).

88 In terms of cross-cultural similarities Brodbeck et al. (2000) found that leadership
89 concepts are culturally endorsed. Austria, Germany and Switzerland share similar
90 cultural values and thus have quite similar patterns concerning leadership (Thill,
91 Venegas, and Grobbschegg 2014). However, they differ concerning the importance of
92 'Humane Orientation' for outstanding leadership (Brodbeck et al. 2000). This is

93 supported by Szabo et al. (2002) who revealed that in Switzerland the individual
94 drives the society while in Germany and Austria the system promotes the individual.
95 The countries also differ in terms of entrepreneurial orientation and organizational
96 performance: In Austria risk-taking and innovativeness are growth factors, whereas
97 only innovativeness is influential on performance in Switzerland (Filser and Eggers
98 2014). Cultural differences exist between the three countries with regards to the
99 social environment promoting innovativeness, pro-activeness and risk-taking
100 attitudes. Thus, considering country differences in the context of online distribution is
101 important (Law et al. 2015).

102 2.1 The development of online distribution

103 Since the 1990s, the Internet has been changing the way in which business is
104 conducted in the hospitality industry (Buhalis and Law 2008; O'Connor and Frew
105 2004). The development of Computer Reservation Systems (CRS – 1970s), Global
106 Distribution Systems (GDS – 1980s), and the advent of the Internet (1990s)
107 generated a paradigm shift and a change of the distribution management in the
108 industry (Buhalis and Law 2008; Ip, Law, and Lee 2011, 2011).

109 Brewer, Feinstein, and Bai (2006) emphasize that Small and Medium sized
110 Hospitality Enterprises (SMHEs) are of particularly interest when discussing the role
111 of distribution management. Looking at the small and medium sized structured
112 hospitality sector several authors provide evidence that the fragmentation caused a
113 reluctance in terms of embracing the Internet (e.g. Law and Jogaratnam 2005;
114 Morosan and Jeong 2008; Toh, Raven, and DeKay 2011). Nowadays hotel
115 managers recognize not only pre-WWW area distribution channels (Scaglione and
116 Schegg 2015) but also the advantages of the Internet in terms of fostering

117 customized marketing activities (Lau et al. 2001) and engaging in sales by using
118 cheaper and frequently accessed online channels (O'Connor and Frew 2004; Brown
119 and Kaewkitipong 2009). In 2009 Law, reported that the Internet has revolutionized
120 the way business was conducted.

121 A growing body of literature has been focusing on online distribution (e.g. Werthner
122 and Ricci 2004) as alternative to increase bookings and revenue (Ball and
123 Queyranne 2009). Research also looked at the importance of accommodation
124 websites (Law and Hsu 2006) and the significance of a coherent web presence
125 (Chung and Law 2003), which is perceived as a crucial factor for success. Brewer,
126 Feinstein, and Bai (2006) confirmed the significance of websites and identified rate
127 control, staff education, customer loyalty, and the control of the hotel image as
128 further challenges hoteliers face.

129 More recently, part of the academic discussion about online distribution shifted
130 towards the use of social media for engaging with prospective (Filiari and McLeay
131 2013; Inversini and Masiero 2014) and loyal consumers (Vermeulen and Seegers
132 2009), the effective use of OTAs and the selection of IDSs in general (Lee, Guillet,
133 and Law 2013; Schegg et al. 2013).

134

135 2.2 ICT driven distribution market developments

136 In 2002 online distribution was seen as a promising shift away from traditional sales
137 channels such as walk-ins and telephone (Kasavana and Singh 2001; O'Connor and
138 Frew 2002). In 2004 Werthner and Ricci reported that tourism had become the top
139 industry in terms of online transactions volume. In 2007 Starkov and Price, recorded

140 that two out of three reservations were made online (i.e. actual transactions) or were
141 influenced by the Internet (i.e. people search online but make reservations over the
142 phone, doing what is called “cross-channel free-riding”, - Chiu et al. 2011; Starkov
143 and Price 2007). In 2009 TravelCLICK analysed thirty international brands/chains
144 and revealed that the majority of hotel reservations (48%) was done online. While
145 traditional storefront travel agents and traditional channels contribute 27% and 25%
146 respectively.

147 In the last years the online travel market experienced a faster growth than the entire
148 travel market (PhoCusWright 2011). This is driven by tourists who nowadays are
149 aware of the variety of choices they have; they are more demanding, more
150 knowledgeable about traveling (Buhalis and Law 2008) and about information search
151 (Xiang, Wöber, and Fesenmaier 2008). Due to the change of tourist behaviour the
152 importance of online distribution has been growing exponentially (Marcussen 2008).
153 Toh, Raven, and DeKay (2011) summarized the main reasons pertaining to the
154 growth of the Internet as a booking channel: (i) it is a valuable channel for intangible
155 goods, (ii) customers expect goods sold online to be cheaper, (iii) it allows for quick
156 price comparisons and decreased search costs, and (iv) customers can bypass
157 travel agencies and connect directly with the seller.

158 2.3 Power shifts in distribution networks

159 The market consists of a network of distribution channel members, which are related
160 to each other (Coughlan et al. 2001). Some channel members have the power to
161 make decisions without considering the interests of other members (Brown, Lusch,
162 and Muehling 1983). The power of a specific organization depends on how much
163 control it has over critical resources, its allies and supporters, its reputation, and on

164 how centrally it is positioned in a certain distribution network (Ford, Wang, and
165 Vestal 2012; Pfeffer 1992).

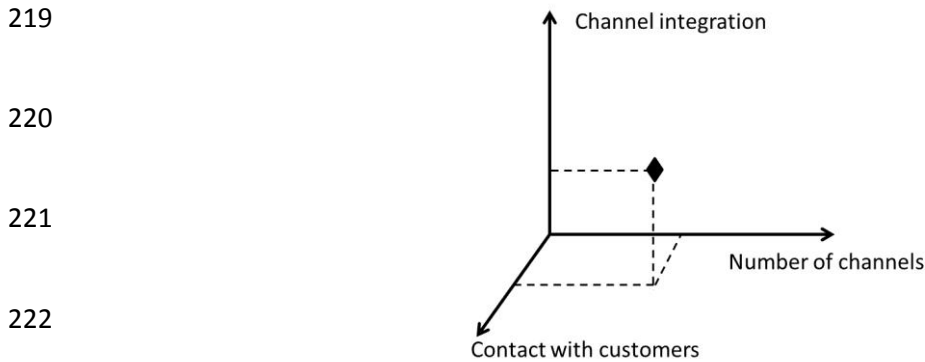
166 The raise of ICT, related changes of consumer behaviour (Mills and Law 2013) and
167 the market, affects hotels as well as other stakeholders in the distribution network
168 unequally - leading to shifts in power (Werthner and Ricci 2004). Some players in the
169 distribution network gain power at the expense of others, which may lead to
170 dependencies (Pearce 2008). Dependency is defined as the need to maintain
171 relationships to achieve goals (Tourism Alliance 2014). This means pricing, product
172 policies and other marketing activities of the dependent organization can be
173 influenced by the more powerful players (Toh, Raven, and DeKay 2011). Distributors
174 who use ICT to tailor their products according to customers' needs will be able to
175 increase their power (Berne, Garcia-Gonzalez, and Mugica 2012). They will gain a
176 more central position, allowing them to take power from other network members (e.g.
177 Lowe et al. 2012). Berne et al. (2012) show that ICT induced changes of the power
178 balance between channels depend on the market structure (i.e., number, size,
179 concentration, and integration of distributors and final buyers) but not on the channel
180 structure (i.e., issues of relationships between channel participants). In other words,
181 only market structures changes affect the power of network members. Unfortunately,
182 the survey by Berne et al. (2012) does not include the growing group of
183 intermediaries of "only-OTAs" (e.g., Priceline); a group which recently gets a lot of
184 attention and power and who has been contributing to structural changes.

185 "Only-OTAs" (e.g., Expedia, Travelocity) emerged in the 1990s. They are third-party
186 companies that have become increasingly powerful in terms of Internet readiness
187 (Morosan and Jeong 2008) and economic force. They put hotels in a disadvantaged
188 position by 'forcing' them to sell a large portion of their inventory through

189 intermediaries, often at discounted rates (Carroll and Siguaw 2003). OTAs sell
190 products from several suppliers, offering consumers a 'one-stop-shop' where they
191 can purchase the whole travel experience (O'Connor and Frew 2002). OTAs have
192 also built their past success on the possibility of building economies of scope,
193 aggregating products and reducing costs to provide the final consumers with
194 cheaper solutions (Kim, Bojanic, and Warnick 2009). Different business models,
195 such as merchant- and opaque models (Enz 2003; Kang, Brewer, and Baloglu 2007)
196 and smart business practices (related for instance to pricing – Tso and Law 2005;
197 Enz 2003) enable OTAs to provide better deals than hotels on their websites
198 (Gazzoli, Kim, and Palakurthi 2008). Further, OTAs take advantage of knowledge
199 they gain through data mining allowing them to tailor direct mail campaigns and
200 loyalty programs accordingly (Toh, Raven, and DeKay 2011).

201 OTAs ability to create customer value and to deliver convenience in terms of
202 information search and booking (Palmer and McCole 1999) led to a range of
203 challenges for hoteliers. Buhalis (2000) revealed one-sided legal coverage, payment
204 delays and techniques how tour operators' impact on pricing as the main challenges.
205 With increasing dependency on OTAs these aspects are becoming more severe and
206 consequently hoteliers lose control over their own products and brands. Hoteliers
207 need to review their relationships in distribution networks regularly, to make sure that
208 they not only benefit in terms of exposure to the market but also to maximize the
209 share of the total value gained from being part of a network (Ford, Wang, and Vestal
210 2012). In order to manage inter-organizational power, it is important to have an
211 understanding of the channel mix chosen and the dependency on certain channels
212 (Kang, Brewer, and Baloglu 2007). It is essential to strategically choose a
213 manageable amount of channels rather than adding them ad infinitum (O'Connor

214 and Frew 2004) and randomly on an ad hoc basis (Cespedes and Corey 1990). In
 215 order to derive a balanced distribution channel strategy, Coelho and Easingwood
 216 (2003) suggest to have an understanding of the number of channels used, the mix of
 217 self-owned (e.g., hotel website) and third party websites (e.g. OTAs) as well as the
 218 contact with customers (see Figure 1).



223 **Figure 1:** Key properties of a multichannel structure (Coelho and Easingwood 2003)

224
 225 A closer look at the actual status quo of the OTA market reveals a market situation
 226 where a handful of big players present themselves on the market with different
 227 brands to target different segments. As presented in Table 1, this means that in
 228 many cases different websites are owned/operated by a few “travel-booking giants”.

229 **Table 1.** OTA parent brands and their sub-brands

Parent brand	Sub-brands	Source
HRS Group	HRS, hotel.de, SURPRICE Hotels, and Tiscover	(HRS Group, 2014)
Expedia Incorporation	Expedia, Hotels.com, Expedia Affiliate Network (EAN), Egencia Hotwire, eLong, Trivago, Venere, CarRentals.com, Classic Vacations, Expedia CruiseShip Centers, Expedia Local Expert	(EXPEDIA INC, 2014)
Priceline Group	Booking.com, priceline.com, agoda.com, KAYAK, rentalcars.com, and OpenTable	(Priceline Group, 2014)
Sabre Holdings Corporation	Sabre, Sabre Holdings, Sabre Travel Network, Sabre Airline Solutions, Sabre Hospitality Solutions, GetThere, Travelocity, Travelocity Business, lastminute.com, holidayautos.com, IgoUgo, Zuji, cubeless and WorldChoiceTravel	(Sabre Holdings Corp., 2014)
Orbitz	Orbitz, CheapTickets, ebookers, HotelClub,	(Orbitz Worldwide, 2014)

Worldwide	RatesToGo, the Away Network, MrJet, Asia Hotels and Orbitz for Business	
Hotelplan Holding	Hotelplan Suisse (MTCH AG), Hotelplan Italia S.p.A., Hotelplan UK Group Ltd., Interhome AG, Inter Chalet Ferienhaus-Gesellschaft GmbH, bta first travel ag and Travelwindow AG	(Hotelplan Holding, 2014)

230
231

232 Looking at various OTAs hoteliers use in different countries, shows that the
233 dependency rate differs. The most important player for Germany is HRS followed by
234 Hotel.de, Booking.com and Expedia (Top Hotel, 2008). In Austria and Switzerland
235 not even 10% use HRS; Booking.com is the strongest channel. A platform popular in
236 Austria only is Tiscover, while Venere is more common in Switzerland. Generally, the
237 market share of OTAs is higher in Germany and Switzerland than in Austria, which
238 means Austrian hoteliers are more independent (Schegg 2014; Top Hotel 2008).
239 This shows that one needs to look at OTA peculiarities of different countries.

240

241 **3. Research Questions**

242 Following Coelho and Easingwood's (2003) framework, the aim of this research is to
243 investigate the number of channels used and the mix and integration of various
244 offline and online channels. In doing so we also reveal the penetration rate of OTAs
245 (i.e., percentage of hotels using a certain OTA; Forlani and Parthasarathy 2003) and
246 hotelier's dependency on OTAs in terms of bookings generated (Ford, Wang, and
247 Vestal 2012; Pfeffer 1992). Due to differences concerning the importance of
248 channels (Schegg 2014; Top Hotel 2008), innovativeness, pro-activeness and risk-
249 taking attitudes (Brodbeck et al. 2000; Filser and Eggers 2014) between Germany,
250 Austria and Switzerland we will focus on the following three research questions:

251 *RQ1: How many channels do hoteliers select and what role do various distribution*
252 *channels play on the Austrian, German and Swiss hospitality market?*

253 *RQ2: Are there differences between hoteliers concerning the OTA penetration*
254 *rate and hoteliers' dependency on OTAs in Austria, Germany and Switzerland?*

255 *RQ3: Are there differences between hoteliers with regards to the portfolio of*
256 *distribution channels chosen in Austria, Germany and Switzerland?*

257 Literature demonstrated that the power balance between various channels depend
258 on the market structure (Berne, Garcia-Gonzalez, and Mugica 2012). Thus, for RQ3
259 distribution channel portfolio clusters will be detected and profiles based on star
260 rating, amount of rooms offered, target group (i.e., leisure vs. business travellers),
261 ownership (i.e., independent vs. chains/corporations) and the amount of channels
262 used will be revealed.

263

264 **4. Methodology**

265 The questionnaire developed comprises a question concerning how bookings are
266 distributed among available direct (telephone, fax, walk-in, etc.) and indirect (tour
267 operator, tourism office, GDS, OTA etc.) channels. Hoteliers specified how much
268 each channel accounts for in percentages. Another question, asks hoteliers to
269 specify the market shares of OTAs such as Booking.com, Expedia, and HRS (the
270 most important channels in the three countries (Top Hotel, 2008)). There was also
271 an option "other", supposing hotelier's use other OTAs than the most important
272 OTAs listed. The final part covers questions about star rating, the size of the hotel in

273 terms of rooms offered, amount of overnight stays, location, main target group (i.e.,
274 leisure or business travellers), and number of opening days in the year 2011.

275 After a pre-test the online questionnaire was distributed. Data collection was done in
276 collaboration with the hoteliers' associations DEHOGA (Germany, DE), ÖHV
277 (Austria, AT), and hotelleriesuisse (Switzerland, CH). In total, the survey was sent
278 twice to 11'751 hotels. The first invitation email was sent in December 2011 followed
279 by a reminder in January 2012.

280

281 4.1. Data Analysis

282 The data is analysed in a descriptive way and different segments are revealed with
283 the Typology Representing Network TRN-32 toolkit (Mazanec 2008).

284 This research will be one of the few studies applying data driven segmentation in a
285 supply side context. It is also a rare example of cluster analyses providing external
286 validation of the results based on various data sets from different countries (e.g.,
287 Tkaczynski and Prebensen 2012). We further follow Dolnicar's (2002) suggestion to
288 test cluster reliability and stability.

289 The segmentation basis related to RQ3 is the usage of various distribution channels,
290 i.e., traditional distribution (telephone, fax, letters, walk-ins), electronic requests (e-
291 mail, web booking form), online booking (GDS, IDS/OTA, direct booking on hotel
292 website, hotel chains with CRS, social media), and tourism partners (tour operators,
293 DMO national-local, event & conference organizers). The Euclidean distance is
294 used. In order to profile the clusters ANOVAs and cross-tabs applying Monte Carlo

295 simulation, to account for cells with low counts, are applied (95% confidence interval;
 296 number of samples: 10'000).

297

298 **5. Results**

299 5.1 Sample description

300 Overall 1'014 questionnaires were usable for the purpose of this analysis (response
 301 rate AT=9.7%, DE=12.8%, and CH=10.1%). The sample sizes for the three countries
 302 are $n_{AT}=117$, $n_{DE}=701$, and $n_{CH}=196$. The sample covers all different star rating
 303 categories. The average number of rooms is 45.2. The majority of 74.4% are
 304 independent hotels. Looking at room numbers and the hotel's ownership, a χ^2
 305 goodness-of-fit test proves that the sample is representative ($\chi^2=2.9243$, $p=0.087$
 306 and $\chi^2=0.121$, $p=0.7275$). In terms of opening days per year, the mean is 336.8. Of
 307 all hotels, 44.3% said to be city hotels; some did not specify. Regarding the target
 308 groups, 43.1% specified leisure travellers as their main target group; a small share
 309 focuses on "other target groups". Details about country differences are summarized
 310 in Table 2.

311

312 **Table 2.** Sample description for Germany, Austria and Switzerland

	Overall (n=1'014)	Germany (n=701)	Austria (n=117)	Switzerland (n=196)
Not rated or no stars	22.9%	28.8%	4.3%	11.2%
1-2* hotels	5.8%	5.4%	1.7%	9.7%
3* hotels	43.2%	44.2%	25.6%	50.0%
4* hotels	24.5%	19.5%	66.7%	16.8%
5* hotels	1.7%	1.1%	0.9%	4.1%
Ø number of rooms	45.2	41.5	58.7	50.0
Min/ max number of rooms	3 / 600	3 / 485	7 / 252	6 / 600
Independent hotel	74.4%	78.2%	70.9%	62.8%
Hotel cooperation	17.0%	15.4%	17.9%	21.9%
Hotel chain	6.5%	4.7%	9.4%	11.2%
Ø number of opening days	336.8	346.5	309.0	320.3

Share of leisure	43.1%	32.7%	74.4%	61.7%
Share of business guests	46.9%	55.5%	19.7%	32.7%
Share of city hotels	44.3%	49.5%	29.1%	34.7%
Share of resort hotels	33.6%	24.8%	59.0%	50.0%

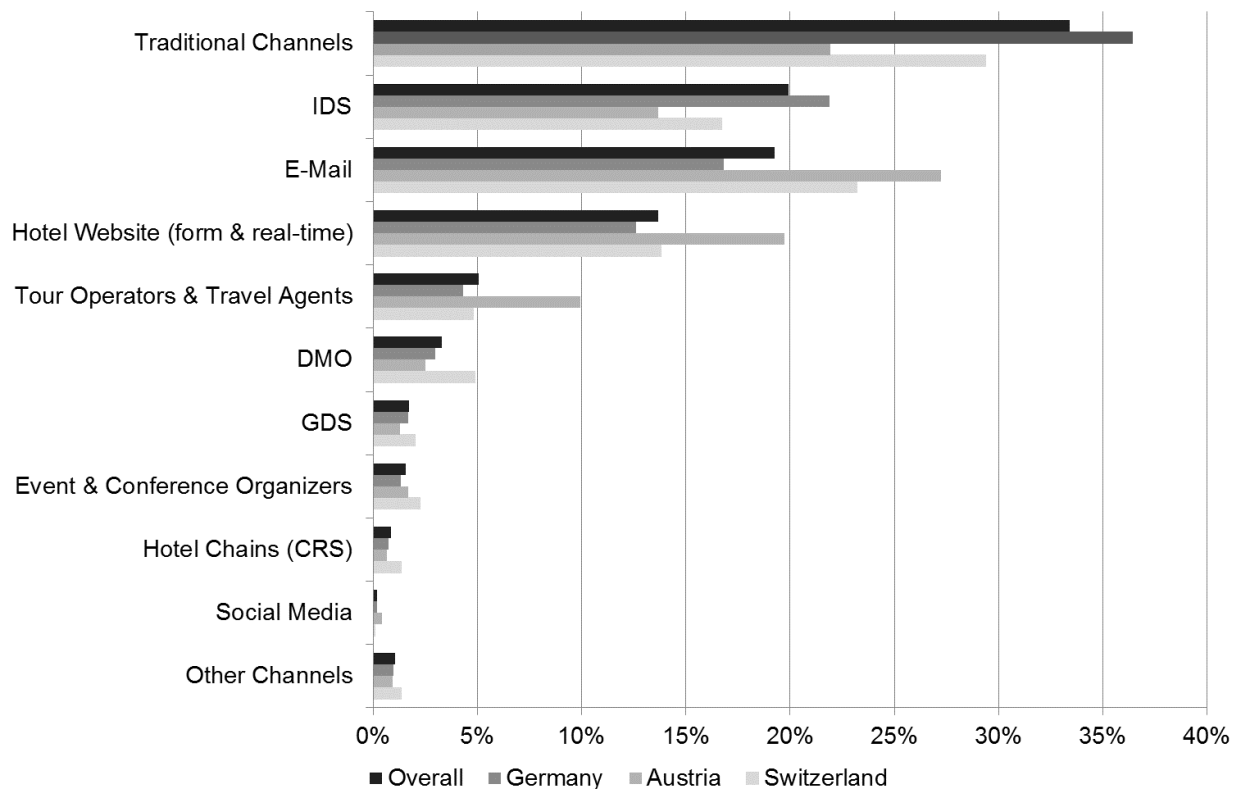
313

314

315 5.2 The role of various distribution channels (RQ1)

316 Overall, direct bookings, which are made through telephone, fax, walk-ins, e-mail, a
317 form or a booking engine on hotel websites, are the dominant sales channels
318 accounting for 66.34%. The highest share of direct bookings are generated in Austria
319 (68.89%) followed by Switzerland (66.44%) and Germany (65.89%). Figure 2 shows
320 that telephone, fax, letters, and walk-ins (i.e., traditional channels) are the most
321 important distribution channels in Germany (36.45%) and Switzerland (29.40%). In
322 Austria, 27.24% of times, distribution is done via email followed by traditional
323 channels (21.92%). On average, about one fifth (21.89%) of all bookings are
324 generated electronically in real-time through IDS; Swiss guests (19.93%) use this
325 channel more often than guests in Germany (21.89%) and Austria (13.68%). Nearly
326 5% of Swiss bookings are done through DMOs; less often in the other two countries.
327 Austria leads the ranking in terms of bookings via Tour Operators/Travel Agents and
328 website based (i.e., form and real-time) bookings. Social media does generate only a
329 marginal amount of bookings in all three countries. On average a mix of 8.06
330 channel categories is used to distribute hotels with a maximum of 15 and a minimum
331 of one (STD=2.25).

332



333
334

Figure 2. Distribution channel categories used in 2011

335

336

337 5.3 OTA penetration and hoteliers' dependency on OTAs (RQ2)

338 Looking at OTAs reveals that the three platforms used most often overall and in all
 339 three countries are Booking.com, HRS, and Hotel.de. The figures with regards to
 340 how many hoteliers use the various platforms in a target market/country (i.e., the
 341 penetration rate) and the amount of online bookings generated (i.e., dependency on
 342 OTAs) vary between the countries. Table 3 shows that in Germany 83.95% of
 343 hoteliers distribute via HRS while the numbers are lower in Austria (65.98%) and
 344 Switzerland (58.86%). Table 3 also shows that a high penetration rate not
 345 necessarily means high dependence on the respective platform; for instance 84.46%
 346 of German hotels work with Booking.com generating 29.10% of bookings. In
 347 Switzerland about 5% more hotels use this platform (89.71%) but they generate

348 52.55% of all online bookings via this channel. Thus, the dependency of Swiss hotels
349 is higher than that of German hotels. Taking into account the top three most
350 important platforms in each country, Germany is most dependent on OTAs (82.9%)
351 followed by Switzerland (65.5%) and Austria (59.45%). In terms of interpreting
352 results in Table 3, one has to keep in mind that OTAs often are not single players in
353 the online market but they group under parent brands (see Table 1). For example
354 HRS and Tiscover and Hotels.de belong to the HRS Group and overall they account
355 for 42.81% of the bookings. In Germany the HRS group accounts for nearly 55%,
356 showing a higher dependency on one organization than Switzerland on
357 Booking.com.

358

359 **Table 3.** Top ten OTA channels: Penetration and average amount of bookings
360 generated (in %)

	OTA channel penetration				Ø amount of online bookings - channel dependency			
	Overall	DE	AT	CH	Overall	DE	AT	CH
Booking.com	86.46	84.46	92.78	89.71	35.36	29.10	42.56	52.55
HRS ¹	76.85	83.95	65.98	58.86	28.34	36.83	11.24	9.13
Hotel.de ¹	68.17	78.04	53.61	42.86	13.03	16.97	5.65	3.82
Expedia ²	28.36	25.34	29.90	37.71	2.83	2.15	3.45	4.77
Venere ²	26.50	21.11	38.14	38.29	1.59	1.08	3.08	2.49
Hotels.com ²	16.09	15.71	11.34	20.00	1.26	1.42	0.81	0.98
Unister	11.46	13.18	10.31	6.29	0.77	0.94	0.61	0.29
Lastminute.com	10.07	9.12	10.31	13.14	0.46	0.45	0.44	0.51
Tiscover ¹	9.72	4.56	51.55	4.00	1.44	0.49	9.10	0.44
eBookers	7.52	5.24	3.09	17.71	0.47	0.28	0.09	1.30
eBay	6.71	6.42	14.43	3.43	0.59	0.54	1.08	0.50
Bergfex	4.75	0.84	31.96	2.86	1.28	0.18	7.88	1.35
GHIX	3.94	0.84	3.09	14.86	0.77	0.04	0.60	3.33
Hotel.ch	3.47	1.86	0.00	10.86	0.21	0.09	0.00	0.72

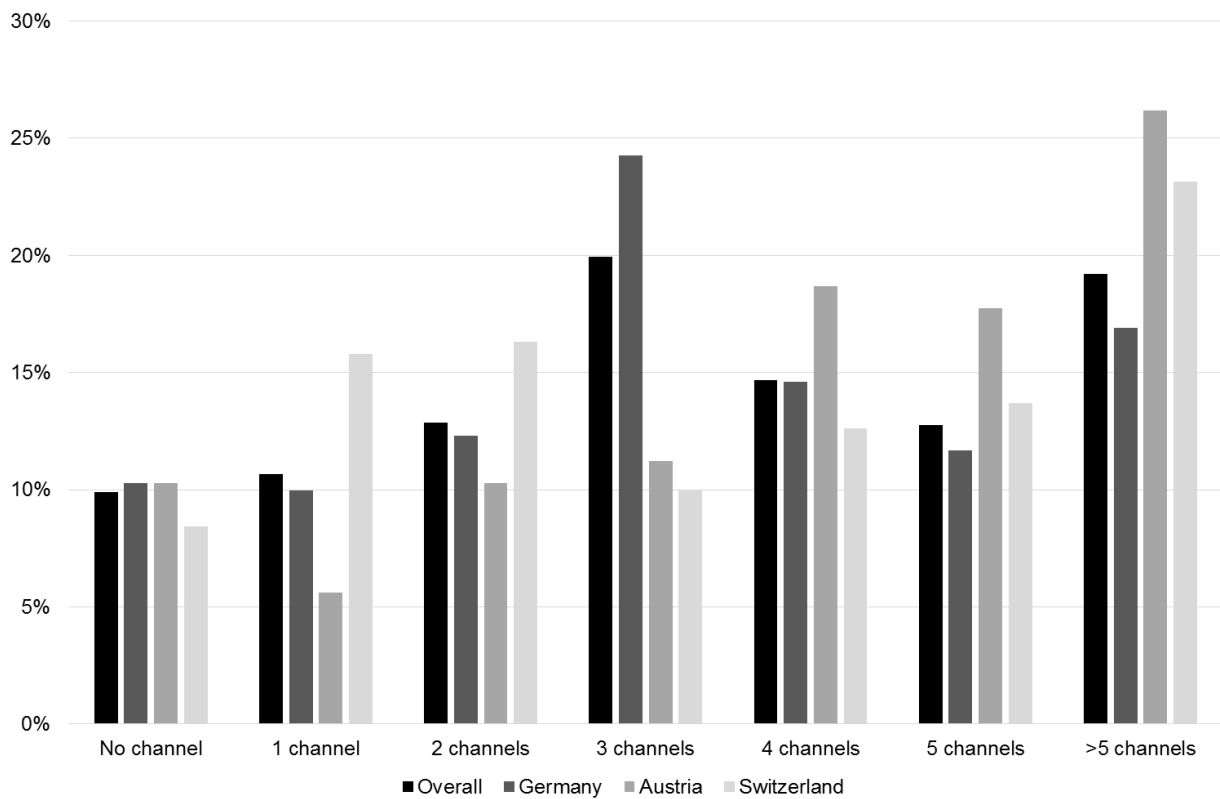
361 ¹ HRS, Hotel.de and Tiscover belong to HRS Group. Total average amount of bookings=42.81%
362 (DE=54.29%, AT=25.99%, CH=13.39%). ² Expedia, Hotels.com and Venere belong to Expedia
363 Incorporation. Total average amount of bookings=5.68% (DE=4.65%, AT=7.34%, CH=8.24%).

364

365 An examination of the dependency based on star rating, ownership, segment/s
366 targeted, and location emphasizes the power of the three main players.

367 On average hoteliers rely on a portfolio of 3.61 different OTAs (STD=2.44). Germany
368 on average uses a mix of 3.47, Switzerland 3.78 and Austria distributes via a mix of
369 4.11 OTAs. 9.9% of hoteliers do not use any OTA while one hotelier is engaged with
370 15 different channels (Figure 3).

371



372

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374

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Figure 3. Amount of OTAs used

376

377

378 5.4 Distribution channel portfolio (RQ3)

379 Considering the whole sample, the data driven clustering, based on how hoteliers
380 tap into the potential of traditional channels, electronic inquiries, online bookings, and
381 if they take advantage of tourism partners, results in a four segment solution. The
382 weighted simple structure index (wSSI) is 0.39 and the uncertainty reduction for 50
383 replications yields to an index of 95.47%. Repeating the cluster analysis based
384 country specific data is used to externally validate cluster results. The prototype table
385 presented in Table 4 shows that the four clusters can be detected in all three
386 countries. The wSSI for all countries is satisfactory (DE: 0.39; AT: 0.51; CH: 0.48)
387 and based on 50 replications the indices (DE: 95.62%; AT: 98.48%; CH: 96.57%)
388 provide evidence for stable clusters. In the following descriptions, each of the four
389 paragraphs first contains a general description of each cluster, followed by
390 differences between Germany, Austria and Switzerland in terms of group size, and
391 finally peculiarities for each country are mentioned (Table 4).

392 *Multi-channel distributors:* This group utilizes the full potential of all possible
393 distribution channels; generating large shares from each channel (e.g., overall 29.1%
394 are generated via traditional channels, 22.6% via electronic enquiries, 30.4% via
395 GDS and other online channels, and 17.8% via tourism partners). This is the biggest
396 group in Germany and Switzerland but only second largest in Austria. The most even
397 usage of all channels can be found in Switzerland; in Germany this group generates
398 fewer bookings via partners while Austria generates most via partners.

399 *Electronic distributors:* The most important channels for this group are email and
400 online reservation forms. However, this majority of more than 55% of electronic
401 requests is supplemented by reservations through traditional channels. The largest
402 group is in Austria (30.84%), followed by Switzerland (24.21%) and Germany

403 (17.20%). In Austria only 14.0% of this group of hotel managers use traditional
 404 channels compared to 26.6% in Germany and 26.0% in Switzerland.

405 *Real-time distributors*: Approximately, 60% of all reservations of this group are real-
 406 time online reservations i.e. via GDS/travel platforms etc. Real-time distribution
 407 managers also get reservations via traditional channels; all other channels only play
 408 a minor role. In Germany and Austria this group accounts for nearly one fourth of all
 409 hoteliers (i.e., 24.58% and 23.36% respectively); while in Switzerland only 15% of
 410 managers opt for this channel mix. Similar to the segment of *Electronic distributors*
 411 this group takes less advantage of additional bookings via traditional channels.

412 *Traditional distributors*: More than half of all reservations are done via telephone, fax,
 413 letter, and walk-ins; online channels and tourism partners only play a minor role. The
 414 cluster size for the three countries is between 23% and 28%. As shown in Table 4 it
 415 should be noted that hoteliers in Austria (44.1%) distribute less through traditional
 416 channels than in Switzerland (53.0%) and Germany (60.4%). Austria basically uses
 417 a combination of traditional channels and website form/ email.

418

419 **Table 4.** Prototype table - distribution channel mix clusters (in %)

	Channel mix clusters	Cluster size	Telephone/ letter/ fax/ walk ins	Website form/ email	GDS/ travel platforms etc.	Tourism partners
Overall	Multi-channel	30.06	29.1	22.6	30.4	17.8
	Electronic	23.73	25.4	54.5	12.5	7.7
	Real-time	21.62	20.9	13.1	58.9	7.1
	Traditional	24.58	60.5	18.7	14.7	6.1
Germany	Multi-channel	30.41	32.0	22.9	29.8	15.2
	Electronic	17.20	26.6	55.6	11.6	6.2
	Real-time	24.58	22.3	12.5	58.4	6.7
	Traditional	27.80	60.4	17.2	15.8	6.6
Austria	Multi-channel	22.43	18.7	31.4	16.6	33.3
	Electronic	30.84	14.0	65.7	10.9	9.5
	Real-time	23.36	15.0	18.6	53.8	12.6
	Traditional	23.36	44.1	37.1	13.7	5.1
Switzerland	Multi-channel	34.21	21.6	22.2	32.2	24.0

Electronic	24.21	26.0	55.0	11.9	7.1
Real-time	15.26	16.7	14.8	60.9	7.6
Traditional	26.32	53.0	25.3	14.3	7.4

420

421

422 A cross-tab between class labels and countries shows that there are significant
423 differences between the countries ($\chi^2=79.39$; $p<0.001$). Based on the overall sample,
424 results show that the channel mix approaches applied differ regarding star rating
425 ($\chi^2=26.269$, $p=0.011$), ownership ($\chi^2=36.952$, $p<0.001$), number of rooms offered
426 (average number of rooms 'Overall': $\bar{x}_{\text{Multi-channel}}=63.29$, $\bar{x}_{\text{Electronic}}=35.19$, $\bar{x}_{\text{Real-time}}=43.07$, $\bar{x}_{\text{Traditional}}=39.18$, $p<0.001$), number of opening days (Mean values overall:
427 $\bar{x}_{\text{Multi-channel}}=344.29$, $\bar{x}_{\text{Electronic}}=316.02$, $\bar{x}_{\text{Real-time}}=349.34$, $\bar{x}_{\text{Traditional}}=336.33$, $p<0.001$),
428 whether a hotel targets business or leisure travellers ($\chi^2=79.642$, $p<0.001$), and the
429 location ($\chi^2=93.961$, $p<0.001$). Overall there is a difference between the various
430 distribution portfolio approaches with regards to the average number of off- and
431 online-channels (Mean values overall: $\bar{x}_{\text{Multi-channel}}=9.25$, $\bar{x}_{\text{Electronic}}=7.47$, $\bar{x}_{\text{Real-time}}=7.88$,
432 $\bar{x}_{\text{Traditional}}=7.30$, $p<0.001$) and the average number of OTAs used (Mean values
433 overall: $\bar{x}_{\text{Multi-channel}}=4.71$, $\bar{x}_{\text{Electronic}}=2.62$, $\bar{x}_{\text{Real-time}}=4.25$, $\bar{x}_{\text{Traditional}}=2.64$, $p<0.001$). This
434 difference is apparent in all countries (see Table 5). On a country level, all
435 differences are significant for Germany. For Austria there are no differences
436 concerning ownership and target group. Differences with respect to the star rating
437 can only be confirmed for Germany.

439 Overall, with between 21.4% and 26.8% the amount of independent hotels is
440 assigned almost equally between the various clusters. A majority of 41.2% of 5*
441 hotels use a multi-channel distribution approach. With 9.25 off- and online channels
442 this cluster on average uses the largest number of channels, as well as the largest

443 number of OTAs; they offer the most rooms (i.e., 63.29 rooms) and have the largest
444 share of city hotels (35.6%). Electronic distributors on average distribute via 7.47
445 channels. They use the least amount of 2.62 OTAs and offer only 35.19 rooms;
446 cover the largest share of leisure travellers (36.8%) and comprise the majority of
447 resort hotels (87.5%). Real time distributors sell through a similar number of
448 channels. They use 4.25 OTAs and provide on average 43.07 rooms to the majority
449 of business travellers (83.2%) for the longest time throughout the year (349.34 days
450 per year). Traditional distributors use the least channels (7.30), engage with 2.64
451 OTAs and offer 39.18 rooms for 336.33 days per year. Table 6 summarizes the
452 cluster profiles within the categories of the countries (only significant results are
453 presented).

454

455 **Table 5.** Profiles of distribution channel mix clusters for Germany, Austria and
456 Switzerland

		Multi-channel	Electronic	Real-time	Traditional	χ^2 and p-value
Germany	Not classified	22.7%	25.0%	25.2%	28.3%	$\chi^2=31.107$ p=0.001
	1-2* hotels	18.8%	12.5%	28.1%	40.6%	
	3* hotels	28.6%	15.5%	25.6%	30.3%	
	4* hotels	44.8%	13.4%	19.4%	22.4%	
	5* hotels	25.0%	0.0%	25.0%	50.0%	
	Independent hotel	26.6%	19.4%	23.2%	30.8%	$\chi^2=24.082$ p=0.001
	Ø number of rooms (STD)	56.96 (60.2)	29.80 (27.2)	40.28 (51.5)	38.71 (43.7)	p<0.001
	Ø no. opening days (STD)	351.41 (26.7)	337.41 (40.6)	349.53 (30.5)	345.02 (34.2)	p=0.007
	Leisure guests	26.4%	29.6%	17.6%	26.4%	$\chi^2=41.700$ p<0.001
	Share of city hotels	33.8%	10.6%	27.8%	27.8%	$\chi^2=37.786$ p<0.001
Ø number of off-/online channels	9.11	6.78	7.94	7.28	p<0.001	
Ø number of OTAs	4.48	2.27	4.18	2.59	p<0.001	
Austria	Ø number of rooms (STD)	86.43 (60.5)	46.42 (24.9)	65.32 (34.6)	37.86 (22.8)	p<0.001
	Ø no. opening days (STD)	329.96 (48.7)	281.82 (67.0)	357.24 (17.7)	325.00 (43.4)	p<0.001
	Share of city hotels	27.3%	21.2%	45.5%	6.1%	$\chi^2=35.588$ p<0.001
	Ø number of off-/online channels	8.56	8.45	7.45	6.29	p=0.004
	Ø number of OTAs	5.08	3.42	5.35	2.57	p=0.001
Switzerland	Independent hotel	27.5%	35.8%	15.0%	21.7%	$\chi^2=16.910$

Ø number of rooms (STD)	71.42 (94.7)	34.75 (27.1)	41.87 (33.9)	41.91 (32.6)	p=0.009 p=0.009
Ø no. opening days (STD)	331.10 (42.1)	311.52 (66.3)	342.96 (45.5)	288.46 (78.1)	p=0.002
Leisure guests (within category)	33.6%	35.3%	15.1%	16.0%	$\chi^2=12.513$ p=0.048
Share of city hotels	48.5%	17.6%	22.1%	11.8%	$\chi^2=18.688$ p=0.006 p<0.001
Ø number of off-/online channels	9.91	7.89	7.87	7.60	p<0.001
Ø number of OTAs	5.21	2.56	3.90	6.29	p<0.001

457

458

459 6. Discussion and Conclusion

460

461 6.1 Theoretical discussion

462 This study's contribution to knowledge is twofold: Content wise, it looks at the
 463 distribution channel portfolio hoteliers choose, the dependency on OTAs and
 464 countries differences. From a methodological point of view, it presents one of the few
 465 studies dealing with supply side based cluster analysis and the external validation of
 466 the cluster results, using data from different countries.

467 Contrary to what many previous studies predicted (Kasavana and Singh 2001;
 468 O'Connor and Frew 2002) results of this research (RQ1) show that traditional
 469 channels (i.e., telephone, fax, letters and walk-ins) still play a dominant role in terms
 470 of distributing hotel rooms. Even though for German and Swiss hoteliers, traditional
 471 channels continue to be most important, in Austria, bookings via email overtook
 472 traditional channels. This may be supported by results of a study by Schegg (2014)
 473 that showed that Austrian hotels use more ICT tools and are ahead compared to the
 474 hotels in the two other countries when it comes to technology adoption. The
 475 multivariate results of the cluster analysis and other studies support this higher
 476 usage of cheaper online channels (O'Connor and Frew 2004; Brown and

477 Kaewkitipong 2009). Compared to Germany and Switzerland, Austria is also different
478 concerning the cluster labelled *Traditional distributors*. First of all, this group is
479 smaller in Austria, it distributes less via telephone, fax, letter, or walk-ins and it takes
480 advantage of the less expensive direct online channels (O'Connor and Frew 2004)
481 such as website forms and email.

482 Looking at distribution channel categories, hoteliers on average rely on a portfolio of
483 8.06 channels. In terms of booking, DMOs and social media only play a minor role;
484 confirming that these channels are more important for market exposure and
485 information provision (Vermeulen and Seegers 2009; Xiang and Law 2012).

486 Compared to OTAs who have a strong position as a booking channel, DMOs may
487 have deficiencies concerning competitive factors such as resources (e.g. finances,
488 knowledge), sales efficiency (i.e. conversion rates) and market reach (Tso and Law
489 2005). OTAs have a global reach, they can build on economies of scope and scale,
490 aggregate products, offer deals in multiple languages and provide a convenient 'one-
491 stop-shop' (Kim, Bojanic, and Warnick 2009, O'Connor and Frew 2004). On average
492 hoteliers use 3.61 OTAs. Interestingly, there is a group of hotels (about 10%) who do
493 not sell anything via OTAs; thus they avoid dependency and high commission rates
494 but at the same time miss opportunities concerning market coverage (O'Connor and
495 Frew 2004).

496 Findings about the dependency of hoteliers on OTAs (RQ2) show that
497 Booking.com's penetration rate is highest in Austria. The penetration rate in
498 Switzerland is high too but their average number of bookings from Booking.com is
499 above 50%; thus their dependency is higher than in Austria and Germany. Results
500 demonstrate that a high penetration of a certain intermediary does not necessarily
501 mean a similar high dependency. High penetration puts opportunities in terms of

502 increasing visibility in place (Buhalis 1999) while high dependency means loss of
503 control about the product and marketing activities (Toh, Raven, and DeKay 2011).
504 The dominant players leverage market knowledge as they have the data, the know-
505 how and the personnel to reveal insights through data mining (Kim, Bojanic, and
506 Warnick 2009; Gazzoli, Kim, and Palakurthi 2008; Toh, Raven, and DeKay 2011).

507 Examining OTAs with regards to their parent brands uncovers an oligopolistic market
508 structure. Although, the most relevant OTA used by hoteliers is Priceline, the highest
509 penetration is observed with HRS, followed by Expedia Inc. Especially German
510 hotels are highly dependent on the HRS group risking to be controlled with regards
511 to pricing, product policies, promotion and other marketing activities (Toh, Raven,
512 and DeKay 2011; Carroll and Siguaw 2003).

513 Regarding the distribution channel mix chosen by hoteliers (RQ3) we can see that
514 *Multi-channel distributors* is the biggest group overall in Germany and Switzerland.
515 Using multiple channels maximises the chance to of raising awareness and selling
516 (Chan and Law 2006; Abou-Shouk, Megicks, and Lim 2012); however, at the same
517 time an growing amount of channels increases distribution management complexity
518 (Kracht and Wang 2010). Austria is somewhat different again; the group of *Electronic*
519 *distributors* is the biggest there. This shows the focus on direct distribution via
520 website forms and emails which diminishes the risk of dependency (Toh, Raven, and
521 DeKay 2011; Carroll and Siguaw 2003) while taking advantage of cheaper online
522 channels (Ip, Law, and Lee 2011). With regards to *Multi-channel distributors*, Austria
523 relies most on tourism partners. Hence, there is evidence that not only the
524 importance of certain OTAs (Schegg 2014) but also the importance of NTOs,
525 associations, travel agencies and event-organizers differs between countries. A

526 follow-up study should investigate whether these results are an indication that
527 Austria is more successful in forming strategic alliances (Ashton and Scott 2011).
528 Profiling the cluster groups shows that there are significant differences between the
529 three countries concerning market structure variables (Berne, Garcia-Gonzalez, and
530 Mugica 2012; Werthner and Ricci 2004). More specifically, the distribution channel
531 mix chosen differs in terms of star-rating, the amount of opening days, number of
532 rooms offered, ownership, location, target group, and amount of channels and OTAs
533 used. This confirms that service outputs such as product, target market
534 sophistication, and resources-based aspects such as competitive strength and
535 company size have to be considered in order to choose the right channel mix
536 (Coelho and Easingwood 2008).

537 Finally, from a methodological point of view this article aligns with the few available
538 studies using supply side data as a segmentation base (Claver-Cortés, Molina-
539 Azorín, and Pereira-Moliner 2006). Moreover, results have also been successfully
540 validated externally using different samples.

541

542 6.2 Managerial implications

543 As mentioned earlier, distribution portfolio profiles facilitate learning from common
544 strategies used by hotels with different characteristics such as target group and star-
545 rating.

546 In all three countries Multichannel distributors engage in the biggest number of
547 channel categories and OTAs and are most prevalent in bigger (around 65 rooms)

548 five star city hotels, while smaller (around 35 rooms) resort hotels are the most
549 dominant in the group of electronic distributors who use the least amount of OTAs.

550 As findings revealed differences between countries, strategies must be applied
551 accordingly (see Table 5). Based on the results of this study it is recommended that
552 hoteliers in Germany and Switzerland may observe how Austrian hoteliers are more
553 successful in terms of generating direct bookings via email and forms. Hoteliers may
554 be able to see how Austrian hotel websites are designed and how they trigger selling
555 products directly to the customers (Ip, Law, and Lee 2011). Further, “findability” of
556 hotel owned websites might be an issue worth looking at (Law and Hsu 2006; Xiang,
557 Wöber, and Fesenmaier 2008).

558 Given the high reliance of Switzerland on Booking.com, it shows that this particular
559 OTA has a very central position in the distribution network, which means this player
560 is gaining power (Zeng and Gerritsen 2014). Swiss hoteliers need to make sure that
561 Booking.com is not taking control over their product and marketing strategy (Carroll
562 and Siguaw 2003). Best would be to convince travellers to book directly. This could
563 be done by investing in attractive and well-positioned websites (Ip, Law, and Lee
564 2011; Chung and Law 2003) and by setting up attractive loyalty programmes
565 (Vermeulen and Seegers 2009). Hoteliers’ need to make sure not only to benefit in
566 terms of market coverage but to maximize the value gained from being part of a
567 network (Ford, Wang, and Vestal 2012). The same is true for German hotels when it
568 comes to their dependency on the HRS group.

569 Out of the three countries Austria is the most independent. Thus, it is recommended
570 to observe Austrian hoteliers and how they succeed to have a high penetration rate
571 (i.e., availability of benefits OTAs come with if needed) but at the same time being

572 less dependent (i.e., having full control). Given the dependency of all countries on
573 certain OTAs and the fact that the complexity of distribution tends to further increase
574 (Kracht and Wang 2010) hoteliers need to constantly monitor their relationships to
575 make sure that they maximize the value that can be gained from being part of a
576 distribution network (Ford, Wang, and Vestal 2012).

577 6.3 Limitations and Future Research

578 This study has some limitations to be considered. Since, we used a convenience
579 sample there are some hotel star-rating groups, which are underrepresented.
580 Austria, Germany and Switzerland where analysed; however, an in-depth
581 understanding of other markets, for instance, rising source markets, such as China
582 (who uses different channels due to government restrictions) is essential allowing
583 hoteliers to successfully distribute their services globally. Also, a longitudinal study
584 revealing insights concerning changes of power balances between network
585 members is appreciated (Berne, Garcia-Gonzalez, and Mugica 2012; Werthner and
586 Ricci 2004). Generally, there is a need for more studies to get a better understanding
587 of the role and the centrality of various players.

588

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