

1 Hotels' dependency on online intermediaries and
2 their chosen distribution channel portfolios: Three
3 country insights

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24 **Abstract**

25 New intermediaries are entering the market, challenging the hospitality industry to
26 find an appropriate distribution channel portfolio. This research investigates how
27 many channels hotels in Austria, Germany and Switzerland choose and what role
28 the various channels play. Findings based on 1'014 questionnaires reveal an
29 average mix of 8.06 offline and online channel categories. Traditional channels, such
30 as walk-ins and telephone, still play a major role; however, about one fifth of the
31 bookings are completely generated online. On average, 3.61 online travel agencies
32 (OTAs) are used. With regards to OTA penetration, an oligopolistic market structure
33 is prevalent. Swiss and German hotels' OTA dependency is higher than Austrian's. A
34 series of a posteriori cluster analysis results in four distribution portfolio groups
35 hoteliers choose: multi-channel-, electronic-, real time-, and traditional distributors.
36 Distribution portfolio profiles facilitate learning from strategies used by hotels with
37 certain characteristics such as target group and star-rating.

38

39 **Keywords:** Distribution, multi-channels, Internet distribution systems, online travel
40 agencies, cluster analysis, distribution strategy.

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43 **1. Introduction**

44 In the competitive tourism environment (Michopoulou and Buhalis 2008) hospitality
45 enterprises (e.g. Kang, Brewer, and Baloglu 2007) are exploiting various online
46 distribution channels to increase their visibility (Buhalis 1999), to raise awareness
47 and interest (Chan and Law 2006), and eventually to foster online purchasing (Abou-
48 Shouk, Megicks, and Lim 2012). With the development of the Internet it was
49 assumed that the importance of intermediaries would decrease (Bennett and Lai
50 2005; Tse 2003). It was predicted that a user-friendly and useful hotel website would
51 boost the likelihood of selling products directly to the customers (Ip, Law, and Lee
52 2011). This prediction of dis-intermediation did not come true.

53 Many Online Travel Agencies (OTA) have been entering the market (Gazzoli, Kim,
54 and Palakurthi 2008), increasing the complexity of the online distribution network
55 (Kracht and Wang 2010). Consequently hospitality managers are faced with new
56 challenges concerning marketing (Buhalis 2003) and selling (O'Connor and Frew
57 2004) services. This so called "re-intermediation" (Bennett and Lai 2005) results in a
58 huge amount of online channels which are available in addition to traditional
59 distribution channels, which in turn leads to an increasingly multifaceted distribution
60 environment (Kracht and Wang 2010) challenging the hospitality industry. In order to
61 stay competitive in this environment where customers can conveniently order the
62 whole tourism experience in a "one-stop-shop" offered by OTAs (O'Connor 2008)
63 and where the competitor is only one click away (Law 2009), hoteliers need to
64 allocate scarce resources thoughtfully (Schegg et al. 2013) .

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

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

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

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

94 In the following sections the literature review deals with setting the context of the
95 study by discussing the development of online distribution, ICT driven distribution
96 market developments, and power shifts in distribution networks. The results section
97 presents descriptive findings concerning the role of various distribution channels;
98 demonstrates the penetration rate and how many bookings are generated via
99 different online channels; deals with how many channels are used and the
100 distribution channel portfolio; and gives insights into differences between Germany,
101 Austria and Switzerland. Finally, the theoretical discussion is followed by managerial
102 implications.

103 **2. Literature Review**

104 Economics has dealt with distribution by looking at transaction costs (Nash 2001),
105 management examined competitive strength, channel performance (Yan et al. 2011),
106 bargaining power and profit sharing (Simchi-Levi, Wu, and Shen 2004), while
107 marketing deals with market heterogeneity (Louvieris, Driver, and Powell-Perry
108 2003), positioning (Keller 2010), channel conflict (Pauwels and Neslin 2015) and
109 global marketing strategies based on cross-cultural similarities (Kaynak and Herbig
110 2014; Martenson 1987).

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

116 supported by Szabo et al. (2002) who revealed that in Switzerland the individual
117 drives the society while in Germany and Austria the system promotes the individual.
118 The countries also differ in terms of entrepreneurial orientation and organizational
119 performance: In Austria risk-taking and innovativeness are growth factors, whereas
120 only innovativeness is influential on performance in Switzerland (Filser and Eggers
121 2014). Cultural differences exist between the three countries with regards to the
122 social environment promoting innovativeness, pro-activeness and risk-taking
123 attitudes. Thus, considering country differences in the context of online distribution is
124 important (Law et al. 2015).

125 2.1 The development of online distribution

126 Since the 1990s, the Internet has been changing the way in which business is
127 conducted in the hospitality industry (Buhalis and Law 2008; O'Connor and Frew
128 2004). The development of Computer Reservation Systems (CRS – 1970s), Global
129 Distribution Systems (GDS – 1980s), and the advent of the Internet (1990s)
130 generated a paradigm shift and a change of the distribution management in the
131 industry (Buhalis and Law 2008; Ip, Law, and Lee 2011, 2011).

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

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

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

152 More recently, part of the academic discussion about online distribution shifted
153 towards the use of social media for engaging with prospective (Filiari and McLeay
154 2013; Inversini and Masiero 2014) and loyal consumers (Vermeulen and Seegers
155 2009), the effective use of OTAs and the selection of IDSs in general (Lee, Guillet,
156 and Law 2013; Schegg et al. 2013).

157

158 2.2 ICT driven distribution market developments

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

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

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

181 2.3 Power shifts in distribution networks

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

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

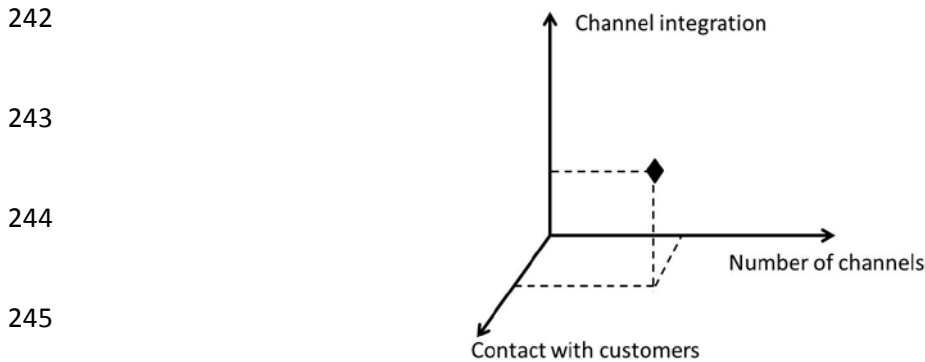
189 The raise of ICT, related changes of consumer behaviour (Mills and Law 2013) and
190 the market, affects hotels as well as other stakeholders in the distribution network
191 unequally - leading to shifts in power (Werthner and Ricci 2004). Some players in the
192 distribution network gain power at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

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

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

224 OTAs ability to create customer value and to deliver convenience in terms of
225 information search and booking (Palmer and McCole 1999) led to a range of
226 challenges for hoteliers. Buhalis (2000) revealed one-sided legal coverage, payment
227 delays and techniques how tour operators' impact on pricing as the main challenges.
228 With increasing dependency on OTAs these aspects are becoming more severe and
229 consequently hoteliers lose control over their own products and brands. Hoteliers
230 need to review their relationships in distribution networks regularly, to make sure that
231 they not only benefit in terms of exposure to the market but also to maximize the
232 share of the total value gained from being part of a network (Ford, Wang, and Vestal
233 2012). In order to manage inter-organizational power, it is important to have an
234 understanding of the channel mix chosen and the dependency on certain channels
235 (Kang, Brewer, and Baloglu 2007). It is essential to strategically choose a
236 manageable amount of channels rather than adding them ad infinitum (O'Connor

237 and Frew 2004) and randomly on an ad hoc basis (Cespedes and Corey 1990). In
 238 order to derive a balanced distribution channel strategy, Coelho and Easingwood
 239 (2003) suggest to have an understanding of the number of channels used, the mix of
 240 self-owned (e.g., hotel website) and third party websites (e.g. OTAs) as well as the
 241 contact with customers (see Figure 1).



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

247

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

252

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

263

264 **3. Research Questions**

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

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

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

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

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

286

287 **4. Methodology**

288 The questionnaire developed comprises a question concerning how bookings are
289 distributed among available direct (telephone, fax, walk-in, etc.) and indirect (tour
290 operator, tourism office, GDS, OTA etc.) channels. Hoteliers specified how much
291 each channel accounts for in percentages. Another question, asks hoteliers to
292 specify the market shares of OTAs such as Booking.com, Expedia, and HRS (the
293 most important channels in the three countries (Top Hotel, 2008)). There was also
294 an option "other", supposing hotelier's use other OTAs than the most important
295 OTAs listed. The final part covers questions about star rating, the size of the hotel in
296 terms of rooms offered, amount of overnight stays, location, main target group (i.e.,
297 leisure or business travellers), and number of opening days in the year 2011.

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

303

304 4.1. Data Analysis

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

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

312 The segmentation basis related to RQ3 is the usage of various distribution channels,
313 i.e., traditional distribution (telephone, fax, letters, walk-ins), electronic requests (e-
314 mail, web booking form), online booking (GDS, IDS/OTA, direct booking on hotel
315 website, hotel chains with CRS, social media), and tourism partners (tour operators,
316 DMO national-local, event & conference organizers). The Euclidean distance is
317 used. In order to profile the clusters ANOVAs and cross-tabs applying Monte Carlo
318 simulation, to account for cells with low counts, are applied (95% confidence interval;
319 number of samples: 10'000).

320

321 **5. Results**

322 5.1 Sample description

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

334

335 **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%

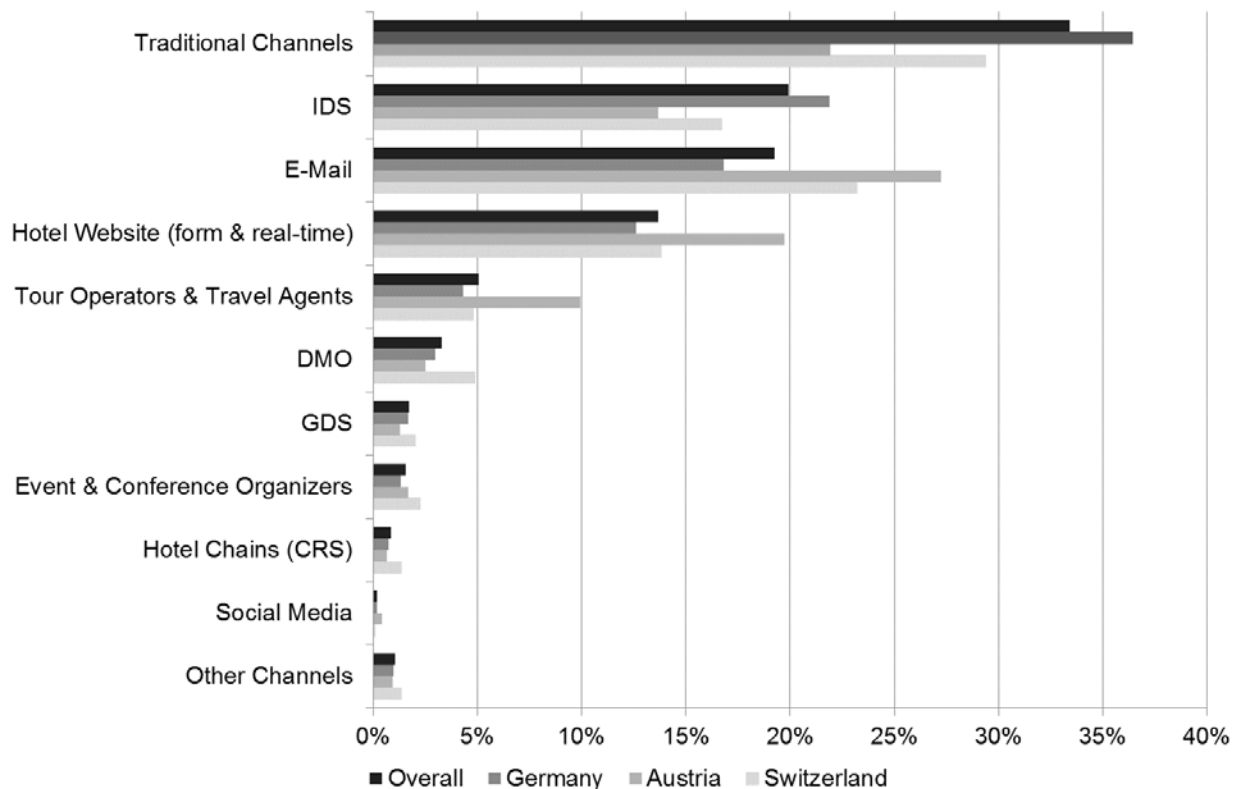
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337

338 5.2 The role of various distribution channels (RQ1)

339 Overall, direct bookings, which are made through telephone, fax, walk-ins, e-mail, a
340 form or a booking engine on hotel websites, are the dominant sales channels
341 accounting for 66.34%. The highest share of direct bookings are generated in Austria
342 (68.89%) followed by Switzerland (66.44%) and Germany (65.89%). Figure 2 shows
343 that telephone, fax, letters, and walk-ins (i.e., traditional channels) are the most
344 important distribution channels in Germany (36.45%) and Switzerland (29.40%). In
345 Austria, 27.24% of times, distribution is done via email followed by traditional
346 channels (21.92%). On average, about one fifth (21.89%) of all bookings are
347 generated electronically in real-time through IDS; Swiss guests (19.93%) use this
348 channel more often than guests in Germany (21.89%) and Austria (13.68%). Nearly
349 5% of Swiss bookings are done through DMOs; less often in the other two countries.
350 Austria leads the ranking in terms of bookings via Tour Operators/Travel Agents and
351 website based (i.e., form and real-time) bookings. Social media does generate only a
352 marginal amount of bookings in all three countries. On average a mix of 8.06
353 channel categories is used to distribute hotels with a maximum of 15 and a minimum
354 of one (STD=2.25).

355



356
357

Figure 2. Distribution channel categories used in 2011

358

359

360 5.3 OTA penetration and hoteliers' dependency on OTAs (RQ2)

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

371 52.55% of all online bookings via this channel. Thus, the dependency of Swiss hotels
372 is higher than that of German hotels. Taking into account the top three most
373 important platforms in each country, Germany is most dependent on OTAs (82.9%)
374 followed by Switzerland (65.5%) and Austria (59.45%). In terms of interpreting
375 results in Table 3, one has to keep in mind that OTAs often are not single players in
376 the online market but they group under parent brands (see Table 1). For example
377 HRS and Tiscover and Hotels.de belong to the HRS Group and overall they account
378 for 42.81% of the bookings. In Germany the HRS group accounts for nearly 55%,
379 showing a higher dependency on one organization than Switzerland on
380 Booking.com.

381

382 **Table 3.** Top ten OTA channels: Penetration and average amount of bookings
383 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

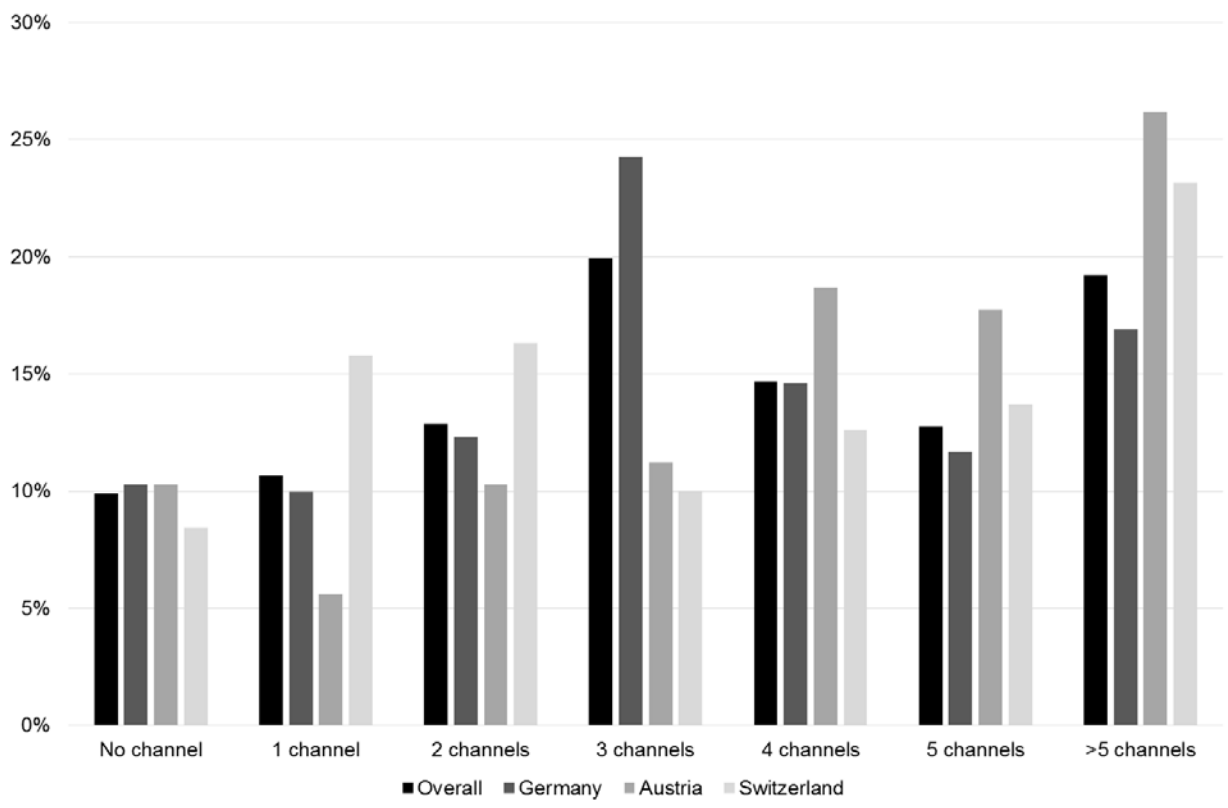
384 ¹ HRS, Hotel.de and Tiscover belong to HRS Group. Total average amount of bookings=42.81%
385 (DE=54.29%, AT=25.99%, CH=13.39%). ² Expedia, Hotels.com and Venere belong to Expedia
386 Incorporation. Total average amount of bookings=5.68% (DE=4.65%, AT=7.34%, CH=8.24%).

387

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

390 On average hoteliers rely on a portfolio of 3.61 different OTAs (STD=2.44). Germany
391 on average uses a mix of 3.47, Switzerland 3.78 and Austria distributes via a mix of
392 4.11 OTAs. 9.9% of hoteliers do not use any OTA while one hotelier is engaged with
393 15 different channels (Figure 3).

394



395

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Figure 3. Amount of OTAs used

399

400

401 5.4 Distribution channel portfolio (RQ3)

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

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

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

426 (17.20%). In Austria only 14.0% of this group of hotel managers use traditional
 427 channels compared to 26.6% in Germany and 26.0% in Switzerland.

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

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

441

442 **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

443

444

445 A cross-tab between class labels and countries shows that there are significant
446 differences between the countries ($\chi^2=79.39$; $p<0.001$). Based on the overall sample,
447 results show that the channel mix approaches applied differ regarding star rating
448 ($\chi^2=26.269$, $p=0.011$), ownership ($\chi^2=36.952$, $p<0.001$), number of rooms offered
449 (average number of rooms 'Overall': $\bar{x}_{\text{Multi-channel}}=63.29$, $\bar{x}_{\text{Electronic}}=35.19$, $\bar{x}_{\text{Real-}}$
450 $\text{time}=43.07$, $\bar{x}_{\text{Traditional}}=39.18$, $p<0.001$), number of opening days (Mean values overall:
451 $\bar{x}_{\text{Multi-channel}}=344.29$, $\bar{x}_{\text{Electronic}}=316.02$, $\bar{x}_{\text{Real-time}}=349.34$, $\bar{x}_{\text{Traditional}}=336.33$, $p<0.001$),
452 whether a hotel targets business or leisure travellers ($\chi^2=79.642$, $p<0.001$), and the
453 location ($\chi^2=93.961$, $p<0.001$). Overall there is a difference between the various
454 distribution portfolio approaches with regards to the average number of off- and
455 online-channels (Mean values overall: $\bar{x}_{\text{Multi-channel}}=9.25$, $\bar{x}_{\text{Electronic}}=7.47$, $\bar{x}_{\text{Real-time}}=7.88$,
456 $\bar{x}_{\text{Traditional}}=7.30$, $p<0.001$) and the average number of OTAs used (Mean values
457 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
458 difference is apparent in all countries (see Table 5). On a country level, all
459 differences are significant for Germany. For Austria there are no differences
460 concerning ownership and target group. Differences with respect to the star rating
461 can only be confirmed for Germany.

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

466 number of OTAs; they offer the most rooms (i.e., 63.29 rooms) and have the largest
467 share of city hotels (35.6%). Electronic distributors on average distribute via 7.47
468 channels. They use the least amount of 2.62 OTAs and offer only 35.19 rooms;
469 cover the largest share of leisure travellers (36.8%) and comprise the majority of
470 resort hotels (87.5%). Real time distributors sell through a similar number of
471 channels. They use 4.25 OTAs and provide on average 43.07 rooms to the majority
472 of business travellers (83.2%) for the longest time throughout the year (349.34 days
473 per year). Traditional distributors use the least channels (7.30), engage with 2.64
474 OTAs and offer 39.18 rooms for 336.33 days per year. Table 6 summarizes the
475 cluster profiles within the categories of the countries (only significant results are
476 presented).

477

478 **Table 5.** Profiles of distribution channel mix clusters for Germany, Austria and
479 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
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
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

480

481

482 6. Discussion and Conclusion

483

484 6.1 Theoretical discussion

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

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

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

505 Looking at distribution channel categories, hoteliers on average rely on a portfolio of
506 8.06 channels. In terms of booking, DMOs and social media only play a minor role;
507 confirming that these channels are more important for market exposure and
508 information provision (Vermeulen and Seegers 2009; Xiang and Law 2012).

509 Compared to OTAs who have a strong position as a booking channel, DMOs may
510 have deficiencies concerning competitive factors such as resources (e.g. finances,
511 knowledge), sales efficiency (i.e. conversion rates) and market reach (Tso and Law
512 2005). OTAs have a global reach, they can build on economies of scope and scale,
513 aggregate products, offer deals in multiple languages and provide a convenient 'one-
514 stop-shop' (Kim, Bojanic, and Warnick 2009, O'Connor and Frew 2004). On average
515 hoteliers use 3.61 OTAs. Interestingly, there is a group of hotels (about 10%) who do
516 not sell anything via OTAs; thus they avoid dependency and high commission rates
517 but at the same time miss opportunities concerning market coverage (O'Connor and
518 Frew 2004).

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

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

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

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

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

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

564

565 6.2 Managerial implications

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

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

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

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

581 Given the high reliance of Switzerland on Booking.com, it shows that this particular
582 OTA has a very central position in the distribution network, which means this player
583 is gaining power (Zeng and Gerritsen 2014). Swiss hoteliers need to make sure that
584 Booking.com is not taking control over their product and marketing strategy (Carroll
585 and Siguaw 2003). Best would be to convince travellers to book directly. This could
586 be done by investing in attractive and well-positioned websites (Ip, Law, and Lee
587 2011; Chung and Law 2003) and by setting up attractive loyalty programmes
588 (Vermeulen and Seegers 2009). Hoteliers’ need to make sure not only to benefit in
589 terms of market coverage but to maximize the value gained from being part of a
590 network (Ford, Wang, and Vestal 2012). The same is true for German hotels when it
591 comes to their dependency on the HRS group.

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

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

600 6.3 Limitations and Future Research

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

611

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