The digitalization of SMEs in service industries: How can policy help?

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Safe and Ethical Cyberspace, digital assets and risks:  
How to assess the intangible impacts of a growing phenomenon?

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Agenda

I  Productivity and services: why talk about digitalization?

II  The economic importance of services with a focus on tourism and retail

III  Possibilities for digitalizing a service industry: The case of tourism

IV  Zooming in: digitalizing tourism in a mid-sized city in Germany

V  Digitalizing retail: a few thoughts on a big challenge

VI  Recommendations and generalized policy implications
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The productivity slowdown (1/3)

- Productivity growth in OECD economies has slowed down since the 1990s and early 2000s (OECD 2016)
- However, productivity growth of the most productive firms ("frontier") has remained robust (OECD 2015)
- Thus, the productivity slowdown is probably not due to a lack of innovation *per se* but to a lack of diffusion (OECD 2015; 2016)


Aggregate productivity growth can be disaggregated into three components (Criscuolo 2015; OECD 2016):

(i) growth at the global frontier,
(ii) growth at the national frontier, and
(iii) growth of laggards

Between each of the three components of productivity growth, diffusion takes place.


“The productivity problem isn’t a lack of global innovation. It’s a failure by many firms to adopt new technologies and best practices” (Criscuolo 2015)

Thus, there is a case for promoting the diffusion of productivity-enhancing innovation across national or regional economies

Encouraging the use of digital technologies is a way to do so!

The economic importance of services

- In Germany, the trade, transportation, and hospitality sectors together account for 16.1 percent of GVA (2017) (Fed. Statistical Office 2018a)

- Tourism is particularly labor-intensive: Tourism accounts for 3.9 percent of GVA in Germany (2015) and for 6.8 percent of domestic employment (BMWi 2017: 8)

- The accommodation and food service industries employ c. 1.6 million people in Germany (2016) (Fed. Statistics Office 2018b)

- Retail employs 3.0 million people in Germany (2012) (HDE 2013: 6)
## Digitalizing tourism: A taxonomy of tools and objectives

<table>
<thead>
<tr>
<th>Digital tool</th>
<th>Rationalization</th>
<th>Value creation</th>
<th>Market development</th>
<th>Market creation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Website with online booking</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Online booking on a platform</td>
<td>?</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Social media</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Enhanced experience app (hotel room, museum, self-guided city tour) or virtual reality</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
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<tr>
<td>Transportation app</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integrated travel app</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Virtual travel website/app for the destination</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

Source: own work.
Zooming in: Digitalizing tourism in a mid-sized city in Germany

- Rosenheim: mid-sized city (c. 60,000 inhabitants) in Upper Bavaria
- Economic hub of a region spanning Bavarian and Austrian regions with c. 500,000 inhabitants between three urban centers (Munich, Salzburg, Innsbruck)
- Site of a growing technical university of applied sciences
- Local clusters in ICT and wood-related technologies; institutionalized cluster initiatives in ICT and retail
- Regional trade hub in retail (350 shops in the central business district)
- Focus on niche tourism: MICE (public conference center) and day trippers (exhibition center of national importance)

Tourism digitalization in Rosenheim: The status quo (1/3)

Public infrastructure (conference center, museums, tourism office)

Source: own survey based on desk research with data researches on online platforms (Tripadvisor, Booking.com, Ticketmaster.de, Google Play Store).

Note: Restaurants as well as hotel in-room apps are not considered.
Tourism digitalization in Rosenheim: The status quo (2/3)

Source: own survey based on desk research with data researches on online platforms (Tripadvisor, Booking.com, Ticketmaster.de, Google Play Store).
Note: Restaurants as well as hotel in-room apps are not considered.
Tourism digitalization in Rosenheim: The status quo (3/3)

- Most hotels have websites and offer direct online booking, but ease and quality vary considerably
- Most hotels are present on online booking platforms
- Attractiveness of websites and availability of add-ons (e.g. 360° pictures) vary considerably
- No city guide app
- Probably no enhanced-experience app in museums or conference center
- No virtual travel offers for the destination
- Almost no apps offered
Digitalizing retail: a few thoughts on a big challenge

- Large online retailers pose a challenge to retail SMEs
- Online platforms enable market development but exercise strong market power
- Personalized service is insufficient to keep retail SMEs competitive
- Reterritorialization of the shopping experience may be a partial answer (e.g. festivals or open-air markets)
- Digitalization offers opportunities for retail SMEs that cleverly combine personal service and digital efficiency

⇒ But precisely how to do so?
Recommendations for the case of Rosenheim:
Digitalizing tourism (and retail)

• Increase the guest experience in public tourism infrastructure (conference center, museums, exhibition center) with apps or virtual reality
• Establish a flagship platform by combining virtual travel, enhanced experience solutions, and personalized service
• Example: virtual museum on the city’s medieval history combined with guided tours, complementary self-guided tour apps, thematically aligned special packages in hotels, restaurants, and stores, and specifically themed events (e.g. festivals, open-air theater, medieval open-air markets)
Recommendations for the case of Rosenheim:
Promoting technology diffusion (1/2)

• Set up a technology transfer center at the Technical University of Applied Sciences specifically dedicated to service digitalization and related cross-cutting themes (e.g. gamification) with multi-disciplinary competences in service management, marketing, health and IT

• Raise funds from private and public (e.g. ERDF) funds

• Set up a unit for applied research to tap into international trends and participate in international R&D projects on service digitalization (e.g. under Horizon 2020)
Recommendations for the case of Rosenheim: Promoting technology diffusion (2/2)

• Stimulate creativity on service digitalization, e.g. through student idea contests, app development nights, hackathons, or a co-working space for students and entrepreneurs on the university campus

• Set up capacity-building programs for service SMEs

• Offer consulting for service SMEs with a built-in feedback loop (possibly leading to interactive learning)

• Promote the diffusion of digital technologies to service industries through scholarships for specifically dedicated student internships in service SMEs

• Objective: generate solutions in applied research and through interactive learning, and diffuse them to service industries through capacity building, in-depth consulting, and the labor market
Recommendations for the case of Rosenheim: Facilitating service SME digitalization

• Raise awareness for the importance of service digitalization among SMEs, e.g. through events and good-practice awards
• Use existing IT cluster initiative for diffusing IT innovation to service industries
• Help service SMEs in finding joint digitalization solutions, e.g. through collaboration in a possible tourism cluster initiative or in existing retail cluster initiative
• Maybe facilitate the setup of digitalization consortia between SMEs (trust building)
• Set up capacity-building schemes for service digitalization and team up with neighboring regions with strong tourism and retail industries (Austria), e.g. under an Interreg project

⇒ Cooperate with strong competitor regions to face common challenges
A scheme for technology transfer to service sectors

Service Technology Transfer Center (Technical University)

- Multi-disciplinary knowledge (e.g. IT, marketing, business, tourism, health)

Generation of application ideas (e.g. idea competitions, hackathons, app nights)

Industry networks (e.g. cluster initiatives, city management)

Outreach

Local/regional government: support (e.g. co-funded by ERDF)

- Internship scholarships
- Interactive consulting
- Capacity building

Awareness raising

Consortia facilitation

Service SMEs
Conclusions and generalized policy implications (1/2)

• Caveat: digitalization is not an end in itself!
• Policy should not actively promote labor-substituting technology uses (e.g. beware of pure self-guided tour apps without complementary personalized service offers)
• Instead, policy should support clever combinations of labor and technology
• Objective: keep the labor intensity of services but increase their labor productivity through technology by creating added value for customers and by building new markets
Conclusions and generalized policy implications (2/2)

- In tourism, policy can play an active role in digitalization by adding value to public tourism infrastructure (e.g. conference centers, museums) through experience-enhancing digital offers.
- Parallel to public physical infrastructure, tourist destinations need public digital infrastructure.
- Collaborative support structures such as cluster initiatives or other institutions for collaboration can be useful for overcoming barriers to service digitalization among SMEs.
- Setting up these collaborative structures needs public support and trust-building (hence, policy support to institutional change).
Thank you for your attention!

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