Unlocking the potential of AI for tourism SMEs: insights from Europe-wide research

Results of an online survey among hotels in Austria, France, Germany, Greece and Switzerland

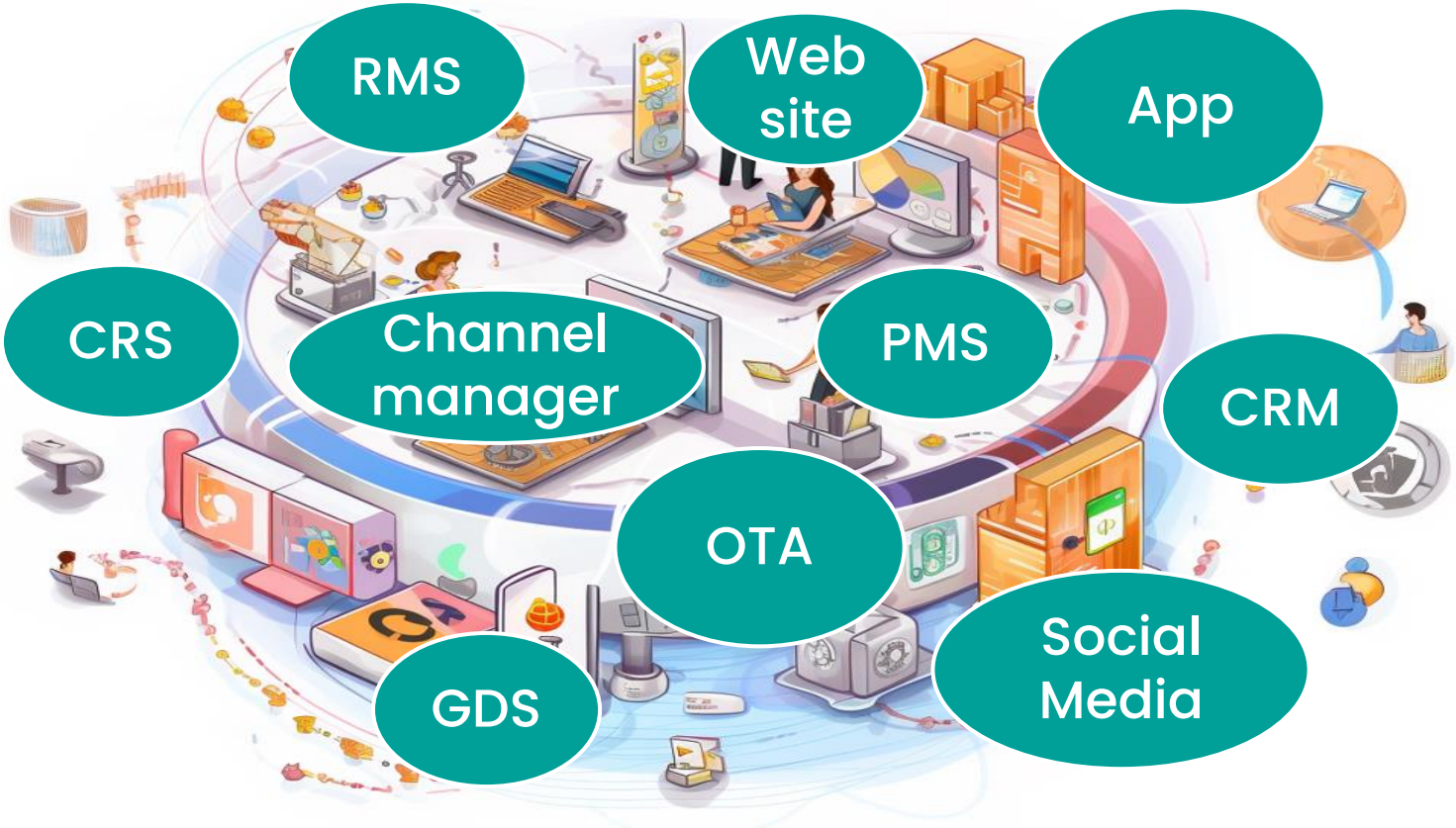
Prof. Roland Schegg
Prof. HES-SO Valais-Wallis & Institute of Tourism (ITO)

Alesia Khlusevich
MSc HES-SO in Business Administration, Management of Information Systems

Wednesday, 08 November 2023

Montreux International Tourism Forum (MITF)

> Complex digital eco-system



* Image générée par Midjourney

> Applications in hospitality: the case in Valais

***BAT** = Gestion technique du bâtiment*

***Check** = Check-In / Check-Out*

***CM** = Channel Manager*

***IBE** = Internet Booking Engine*

***InRoom** = In-Room Entertainment*

***LIV** = Commande de livraison*

***PMS** = Property Management System*

***POS** = Point of Sales System*

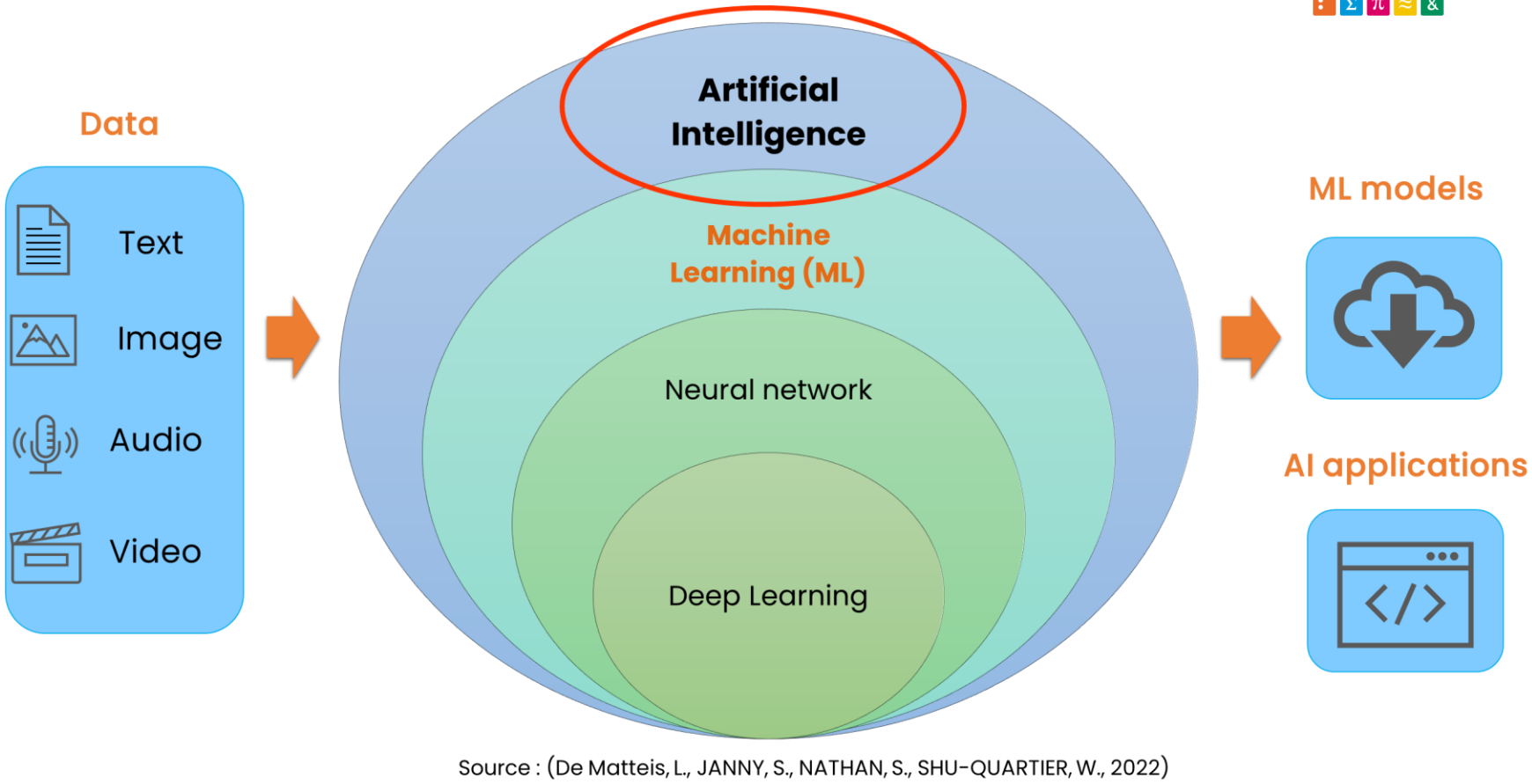
***REP** = eReputation management*

***REV** = Revenue Management System*

***TAB** = Réservation de table*

* From a report "Inventaire des solutions digitales dans les entreprises touristiques du Valais", Institute of Tourism, HES-SO Valais-Wallis, 2023

> About AI



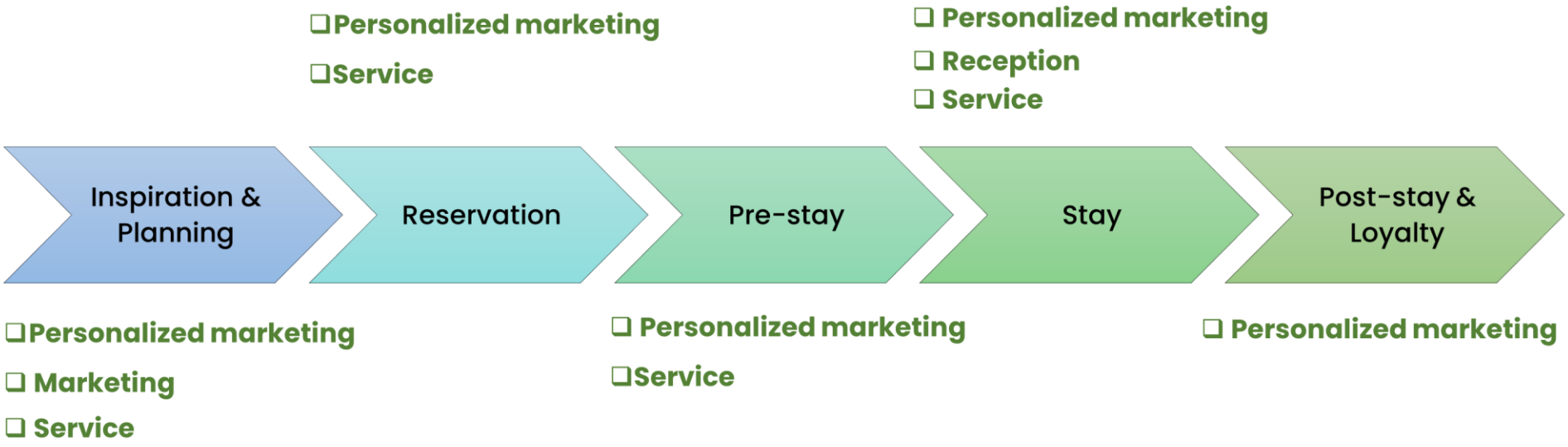
Source : (De Matteis, L., JANNY, S., NATHAN, S., SHU-QUARTIER, W., 2022)

> About AI

- **AI** (Artificial Intelligence): AI is the field in computer science aimed at creating systems that can **perform tasks typically requiring human intelligence**, such as problem-solving, pattern recognition, speech recognition, and decision-making.
- **Machine Learning** (ML): A **subset of AI**, ML focuses on designing, developing, and applying **algorithms that allow machines to learn from data**. Instead of explicitly programming a task, we "train" machines using large data sets.
- **Deep Learning** (DL): A specialized **branch of ML**, DL primarily **uses neural networks** with multiple layers. These models can learn complex representations from vast amounts of data and excel in tasks like image and speech recognition.
- **Neural Networks**: **Algorithms inspired by human brain functions**, consisting of units (neurons) in layers that transmit signals. A neural network learns from data by adjusting its connections. DL employs deep neural networks to process complex data.

> Customer-faced: AI applications domains in hospitality

- ✓Reservations
- ✓Marketing
- ✓Personalizing the customer experience



> AI-Driven Backoffice Operations in Hospitality

Administrative service / Finance / HR / Reception

- Real-time revenue management
- Predictive analytics
- Staff planning

Marketing

- Customer profiling
- Predictive analytics
- Generative AI
- Collection of information regarding customer preferences

Establishment

- Predictive maintenance
- Optimization of energy and water consumption
- CCTV system

F&B

- Table management
- Solution to measure and monitor food waste

✓**Reservations**
✓**Marketing**
✓**Administrative services**
✓**Personnel planning**
✓**Finance**
✓**Operational processes**

> AI applications in hospitality

Forecasts

Discovery

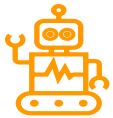
Planning

Generation

AI is a revolution in digital transformation

Facial recognition

Natural language processing



Robotics

Control

> Our research objectives

1. **How can** SMEs in hotel sector **use AI technologies** to improve their operational efficiency, user experience, performance or competitive positioning?

2. **What** are the **main challenges** they face in implementing AI technologies?

3. **How** can these difficulties be **overcome**?

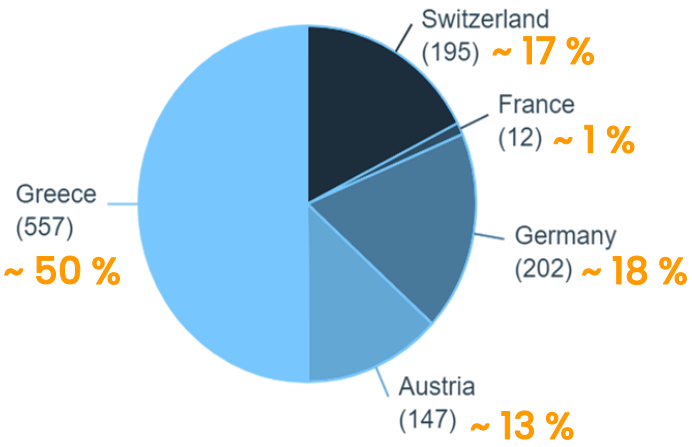
> Our research approach

- The **online survey** was addressed **between May to July 2023** to the member hotels of the different hotel associations:
  - ÖHV in **Austria**
  - IHA in **Germany**
  - GNI/GHR in **France**
  - Research Institute for Tourism (RIT) for the Hellenic Chamber of Hotels in **Greece**
  - HotellerieSuisse in **Switzerland**

- The different **hotel associations contacted** their members either by **email** (A, CH, D, GR) or through **newsletters** (F).

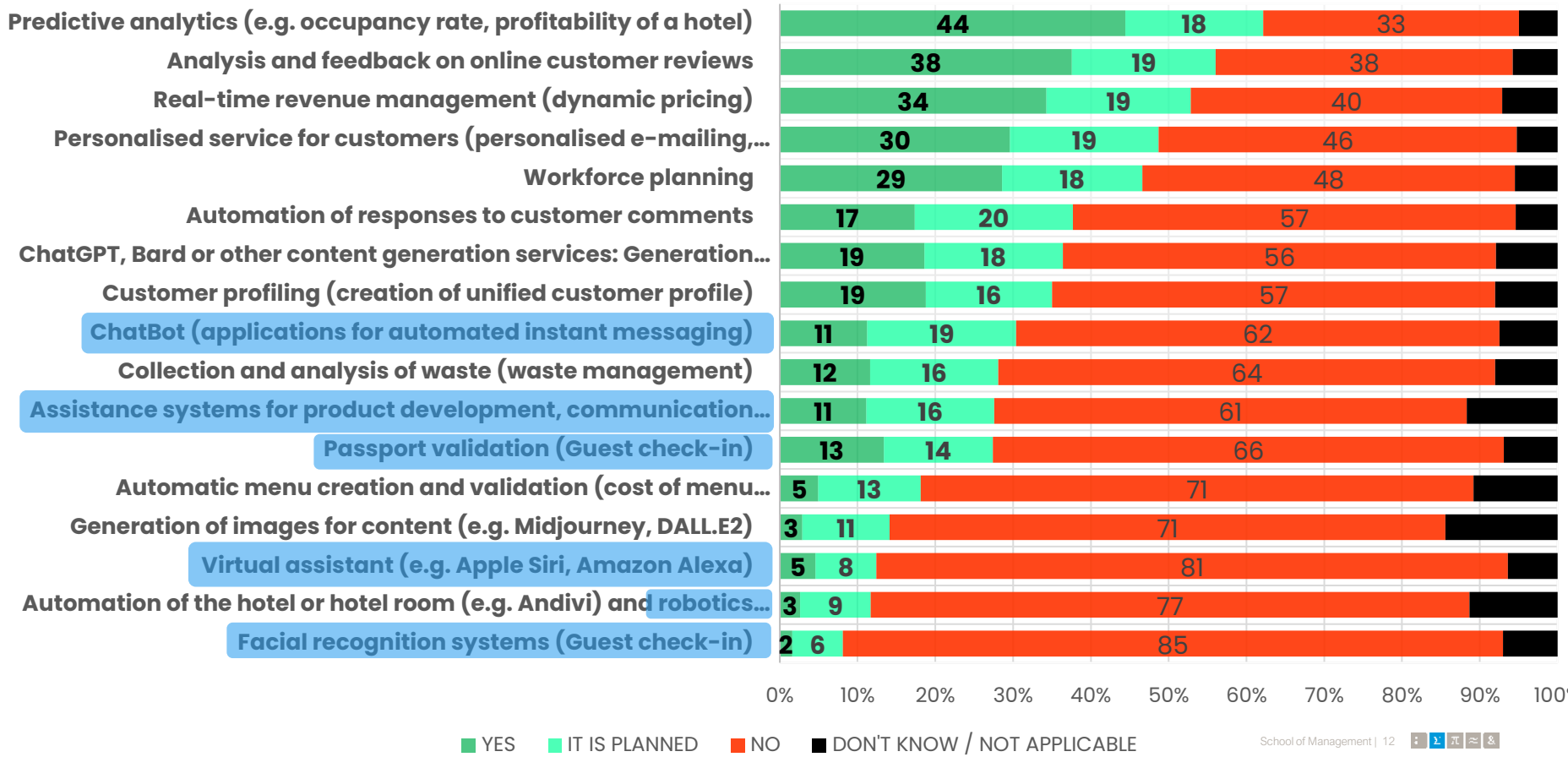
> Sample & characteristics

1,115 individual responses

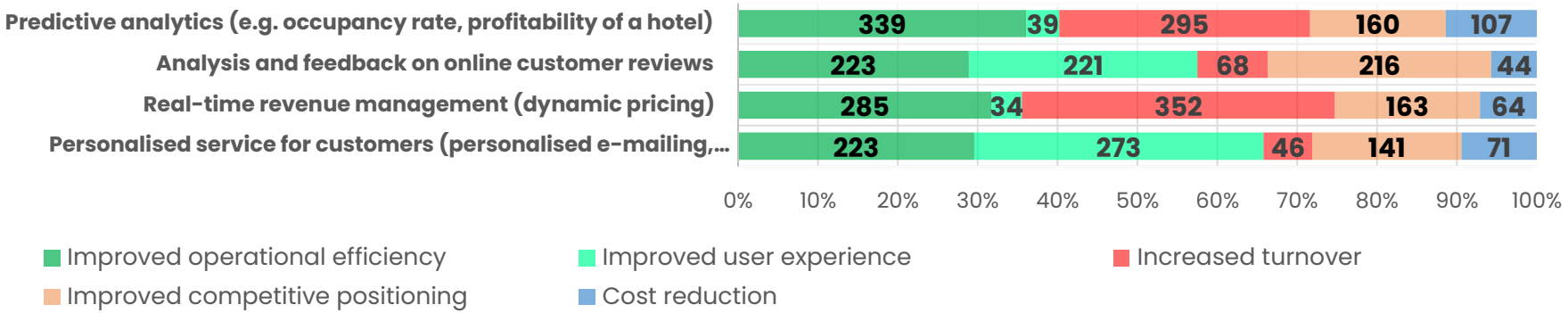


- **Hotel Location**:
  - coastal areas (23%)
  - large cities (23%)
  - rural villages (22%)
  - small towns (16%)
  - mountain villages/stations (15%)
- **Hotel Type**:
  - **independent hotels (82%)**
  - hotel chains (12%)
  - part of a hotel cooperation (6%)
- **Guest Profile**:
  - **vacation/leisure (76%)**
  - business (19%)
- **Hotel Classification**: 90% classified hotels
  - **3-star hotels (35%)**
  - **4-star hotels (34%)**
  - 2-star hotels (17%)
  - 5-star hotels (10%)
- **Hotel Size** (room numbers/median):
  - Austria stands at **50 rooms**
  - Germany at **44 rooms**
  - Greece at **35 rooms**
  - Switzerland leads with **54 rooms**

> Adoption of AI technologies

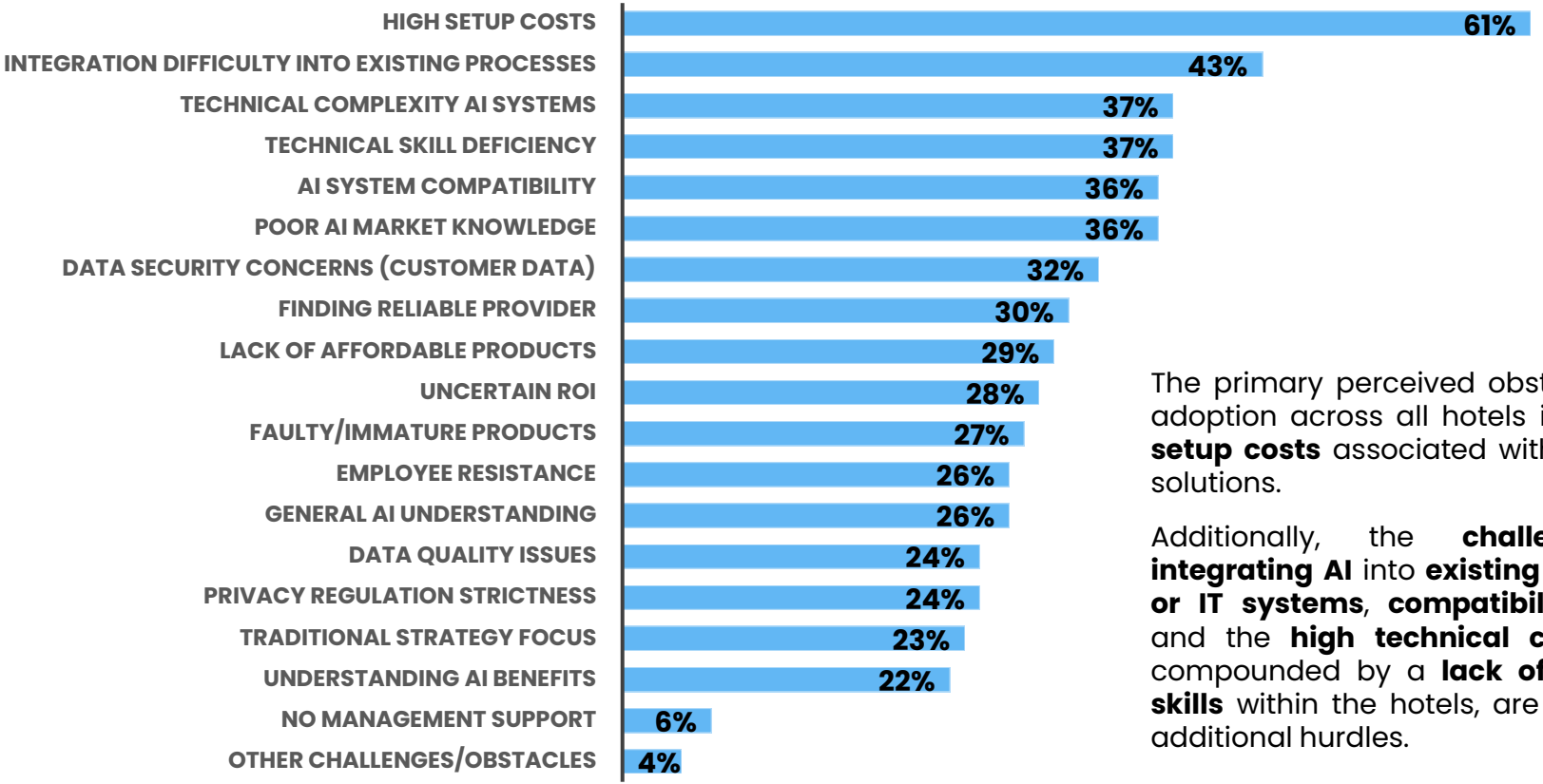


> Perceived Benefits of AI technologies



- **Enhanced operational efficiency** is the primary perceived benefit **for almost all of the 17 AI-based technologies**
- **Improved user experience** is followed closely by **in many instances** (except for back-office operations such as waste management or dynamic pricing, for example)
- **Cost reduction** was identified as a benefit **for most technologies**, but particularly for passport validation, waste management, menu creation, and workforce planning
- **Increased turnover** was highlighted as a significant advantage for **predictive analytics** and **real-time revenue management**
- **Improved competitive positioning** was predominantly associated with AI-based analysis of online reviews.

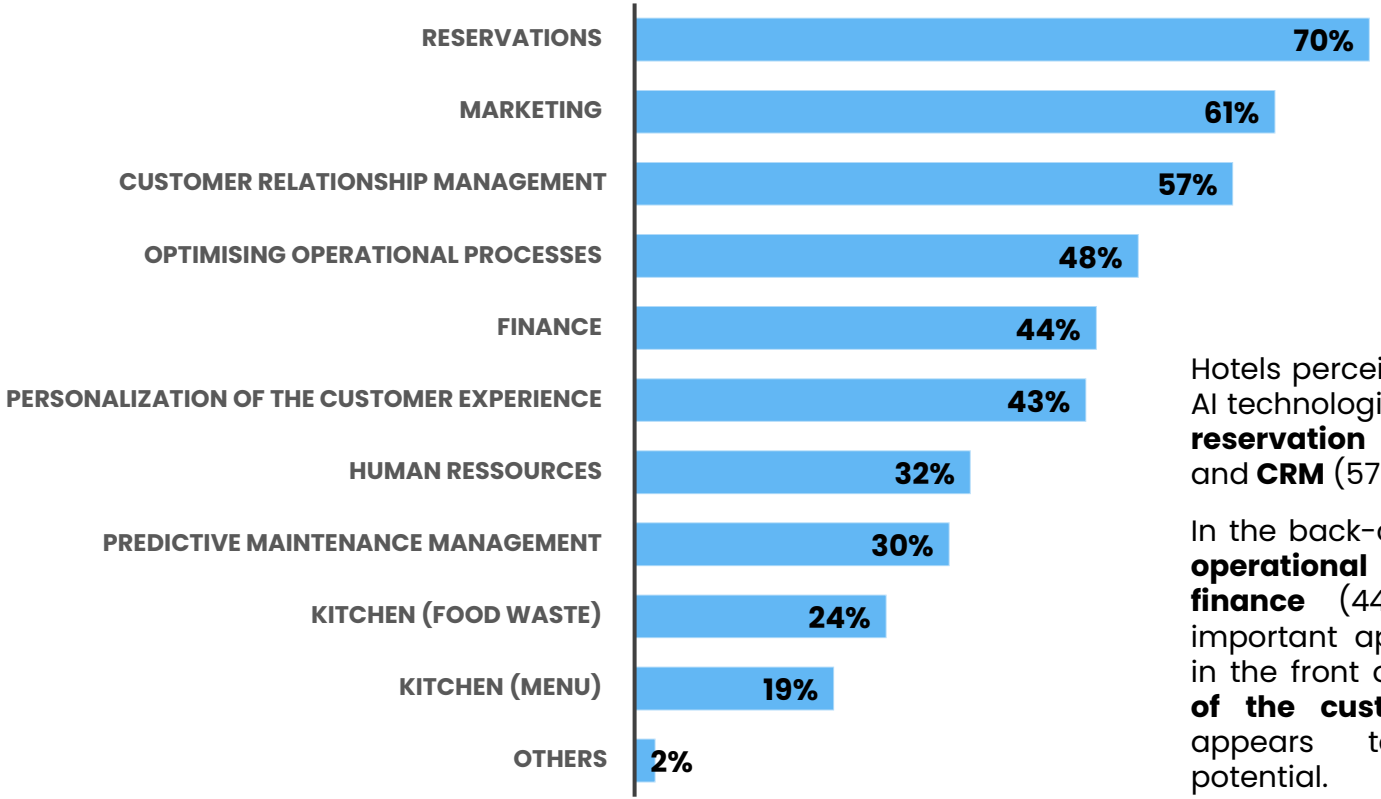
> Challenges & Perceived Barriers



The primary perceived obstacle for AI adoption across all hotels is the **high setup costs** associated with AI-based solutions.

Additionally, the **challenges of integrating AI** into **existing processes or IT systems**, **compatibility issues**, and the **high technical complexity**, compounded by a **lack of technical skills** within the hotels, are viewed as additional hurdles.

> Potential AI Impact Areas for SMEs in Tourism



Hotels perceive the primary benefits of AI technologies to be in the domains of **reservation** (70%), **marketing** (61%), and **CRM** (57%).

In the back-office, the **optimization of operational processes** (48%) and **finance** (44%) are also seen as important application areas, whereas in the front office, the **personalization of the customer experience** (43%) appears to have considerable potential.

> Reflections

- In moving forward, it's crucial for the hotel industry to strike a **balance between embracing AI-driven innovation** and **ensuring that the human touch**, which is central to hospitality, remains intact.

- The industry must also navigate the **challenges of integrating AI into existing systems, ensuring data security**, and addressing concerns related to **privacy regulations**.

- **Collaboration between technology providers, hoteliers, and regulatory bodies** will be key to realizing the full potential of AI in the hotel industry.

> Recommendations for Stakeholders of the Hotel Sector on AI Adoption (I)

Comprehensive Understanding of AI Costs and Benefits:

- **Cost-Benefit Analysis**: Provide hoteliers with a detailed cost-benefit analysis of AI adoption, covering financial, human resources, and technological aspects.

- **ROI Estimation**: Offer tools or consultancy services to help hoteliers estimate the potential return on investment (ROI) from AI adoption, considering both short-term and long-term gains.

> Recommendations for Stakeholders of the Hotel Sector on AI Adoption (II)

Strategic and Operational AI Education:

- **Strategic Workshops**: Organize sessions that delve into the strategic implications of AI, helping hoteliers align AI adoption with their broader business strategy.

- **Operational Training**: Offer hands-on training on the operational aspects of AI, ensuring hoteliers understand how to integrate AI into their day-to-day processes seamlessly.

- **Peer-to-Peer Learning**: Encourage interactions between early AI adopters and those hesitant about the technology. Peer testimonials can be more persuasive than expert opinions in some cases.

> Recommendations for Stakeholders of the Hotel Sector on AI Adoption (III)

Collaboration with Technology Providers:

- **Driving Innovation**: Recognize that technology providers often spearhead innovation in the industry. Their expertise and exposure to various sectors equip them with insights that can be transformative for the hospitality industry.

- **Tailored Solutions**: Technology providers should work hand-in-hand with hoteliers to develop AI solutions that cater to the specific needs and challenges of individual hotels.

- **Ongoing Support**: Ensure that technology providers offer continuous support, updates, and training post-implementation. Their commitment to the success of their solutions is vital for hoteliers to maximize the benefits of AI technologies.

> Recommendations for Stakeholders of the Hotel Sector on AI Adoption (IV)

- In essence, the journey to AI adoption in the hospitality sector requires a holistic approach, **addressing both the technological and human aspects**.

- By **focusing** on **education**, **collaboration**, and **tailored solutions**, the industry can harness the full potential of AI, driving efficiency, enhancing customer experiences, and ensuring a competitive edge in the market.

Contacts

Prof. Roland Schegg

University of Applied Sciences of Western Switzerland
Valais (HES-SO Valais-Wallis)
Institute of Tourism (ITO)

Mail: roland.schegg@hevs.ch
Twitter: @RolandSchegg
LinkedIn: ch.linkedin.com/in/rolandschegg/

Alesia Khlusevich

MSc HES-SO in Business Administration
Management of Information Systems

Mail: alesia.khlusevich@alumni.hes-so.ch
LinkedIn: ch.linkedin.com/in/alesia-khlusevich/