

The origin, rationale, and impacts of regulations on robots and AI in tourism and hospitality

^aDr. Lisa Cain, ^bDr. Craig Webster

^aChaplin School of Hospitality & Tourism Management, Florida International University. lcain@fiu.edu; ^bDepartment of Applied Business Studies, Ball State University, Muncie, IN USA cwebster3@bsu.edu.

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Abstract

In recent years the robot and its AI software has become increasingly a part of the hospitality and tourism economy. The automation of service industry has been a natural evolution as a result of demographic decline in many countries and the inadequacies of the alternatives to increasing automation. In this paper, the authors explore the role of regulation of service automation and the impact of such regulation on the hospitality and tourism industries.

Using Porter's Diamond Theory of National Advantage, a framework for illustrating the competitiveness of countries and their industries, the authors illustrate the role of regulation in influencing of the competitiveness of the hospitality and tourism industries. The authors demonstrate that regulatory agencies have a major impact on factor conditions, related and supporting industries, aspects of firms and the industry (firm strategy, structure and rivalry), and demand conditions.

In addition, the authors discuss the intentions and the sources of regulatory policies on industry. The authors consider the various levels at which such regulations may be made and how these levels impact global competitiveness. The authors describe the various impacts that a consensus (global regime), the European Union, and national and subnational authorities would have upon the competitive environments of the industry. Additionally, the authors discuss the importance of the political philosophy influencing the regulations, comparing how a liberal, social-democratic, and mercantilist mindset would impact the industry differently, thus impacting competitiveness massively.

Keywords: *Competitiveness, Regulations, Robots, Hospitality, Tourism.*

Introduction

Automation technologies including robots and artificial intelligence are being incorporated into tourism, and hospitality operations in various ways. However, these automation technologies are implemented into an industry that has a high degree of regulation and a need for profitability and customer satisfaction. With the Covid-19 pandemic and a call for less face-to-face contact and more touchless accommodations and interfaces (Van Esch et al., 2021), the current literature has scrutinized the effectiveness of automation technologies as a competitive advantage with mixed results (Io & Lee, 2020; Qiu et al., 2020). However, many view the competitive necessity or advantage of incorporating automation technologies increasingly into hospitality and tourism operations (Ivanov, 2019).

Here, we explore Porter's Diamond (Porter, 1990) to investigate the role of regulation and how it impacts the competitive position of tourism, and hospitality competitiveness. Porter (1990) proposed a four-pronged model (or diamond) to illustrate the impact of various forces on the competitiveness of industries. However, Porter's original model did not fully illustrate how government and regulation would influence the competitiveness of industries. This study examines Porter's Diamond, explaining the various components that impact competitiveness. Then, we explore the qualities of regulation, including the ideologies that influence them as well as the various sources of regulation.

In this investigation, we illustrate a holistic view to explain how the qualities and sources of regulations will influence the competitiveness of tourism, and hospitality industries in many different countries. First, we will explain the structure of Porter's Diamond. Then we move into explaining the ways that ideology and the sources of regulation will impact the regulation of automation technologies in tourism, and hospitality globally. We illustrate that a byzantine interactive system will impact the regulatory elements that will influence the technologies used in tourism and hospitality and that ideology is an important component from which the concepts for regulations stem.

Porter's Diamond and Government

A critical organizational framework used in business to understand competition of countries and industries is Porter's Diamond, introduced by Michael Porter (1990). The model is used frequently to understand how industries can be competitive in markets (e.g., Apriani, Marissa & Igamo, 2022; Tsai, Chen & Yang, 2021). Porter (1990) developed a framework in which four concepts were shown to be linked to illustrate what would impact upon competitiveness in industries. This simple model led to some extending the framework to make it applicable to international markets and competition (Dunning, 1993; Rugman & Verbeke, 1993).

The four components of Porter's (1990) Diamond are illustrated in Table 1.1 below. There are four primary components that Porter (1990) had explained fully. Each of these components are illustrated to influence the competitiveness of the industry. More recently,

some authors have included the role of government as a major component that influences competition within industries, modernizing and improving Porter’s Diamond, and has been used in tourism, and hospitality studies (Estevão et al., 2018; Forbes et al., 2018; Nunes et al., 2018).

Table 1.1. Government and Competitiveness

Central Concepts of Porter’s Diamond	Relationship with Government Example
Firm Strategy, Structure, and Rivalry	Anti-monopoly laws
Factor Conditions	Labor regulations
Related and Supporting Industries	Regulations and taxation of related and supporting industries
Demand Conditions	Macroeconomic policies influencing demand
Government not originally mentioned by Porter (1990)	Laws and regulations limiting the regulatory powers of different layers of government

Although Porter (1990) did not include government as part of his Diamond, he made distinct references to the role of governmental regulation in the text. Porter (1990, p. 74) noted “Managers are pressing for more government support for particular industries. Among governments, there is a growing tendency to experiment with various policies intended to promote national competitiveness—from efforts to manage exchange rates to new measures to manage trade to policies to relax antitrust—which usually end up only under mining it.” As government plays a key role in influencing competitiveness, we investigate the ideologies and sources of regulations.

Political Philosophy and Its Impact on Regulations

The field of political economy investigates the relationship between economics and politics and is thought to have emerged from the classical thinking of Adam Smith and David Ricardo, with later thinkers, including Marxists, criticizing the classical thinkers (Mosco 2009, p. 21). While there are many thinkers and theories in the field, it is possible to reduce the field into a few schools that may influence the nature of the regulation of economies and technologies that could have a massive impact on industry. There are many who have tried to categorize and explain the various philosophies and ideologies of political economy (e.g., Freeden, Sargent & Stears, 2015; Heywood, 2022; Vincent, 2009). Indeed, there is a good reason to believe that many ideologies have a clear and decisive impact upon tourism (Veal, 2017; Webster & Ivanov, 2012; Webster & Ivanov, 2016; Webster, Ivanov, & Illum, 2011). Table 1.2 summarizes four prevailing ideologies of political economy and illustrates how the thought patterns would influence competitiveness of industry.

Table 1.2 Philosophies and Competitiveness of Hospitality/Tourism Products

Political Philosophy	Intention of Policy	Probable Impact on Competitiveness
Mercantilism	Strengthening the national economy	Increased costs on factor conditions Limits of foreign ownership for firms Increased costs on related and supporting industries Restrictions upon demand
Liberalism	Maximizing market potential	Liberalization of factor conditions Liberalization of restrictions on related and supporting industries Increased rivalry and competition in firms Increase of demand conditions
Social Democracy	Protecting working classes and markets	Regulations on factor conditions Regulations on related and supporting industries Regulations on firms Redistribution of wealth distorting demand conditions
Communism	Pursuing outcome equity	Strict regulations on factor conditions High levels of regulation on related and supporting industries Public involvement and high levels of regulation on firms Regulations to change demand conditions to be consistent with political goals of regime

The four major political philosophies are quite different. Liberals favor market-based solutions and thus prefer few regulations to allow for the market to work at its best. In contrast, mercantilists recognize the importance of the economy for supporting the power of the nation-state. The Marxists (social democrats and communists) see the state as an entity to protect and forward the interests of the working classes. Each of these ideologies seems to have an impact, since there is substantial evidence that ideology shapes governmental institutions (Bertelli, 2006; Ennsner-Jedenastik, 2014; Esping-Andersen, 1989) and influences the policies of governments (Budge & Hofferbert, 1990; Hofferbert & Budge, 1992). The ideologies also influence the organizational responses of states towards tourism as an industry (Webster, Ivanov & Illum, 2011). So ideology seems to be the beginning point for determining the values and value systems through which policies and regulations begin, including those regulations that impact upon technologies in a tourism and hospitality ecosystem.

Sources of Government Regulation

Regulations come from various entities and have possess different attributes. At the highest level, there are global regimes, some of which may be formal or informal in nature. Regimes are defined as “principles, norms, rules, and decision-making procedures around which actor expectations converge in a given area of international relations” (Krasner, 1982, pp. 1) and may be codified via large international institutions or may be informal in nature. The major global economic institutions such as the WTO, IMF, and World Bank are the institutions which set a great deal of norms with regards to how economies should be run.

There are also regional cooperative agreements throughout the world. The best known and most developed is the European Union, though there are others (the Association of Southeast Asian Nations, the African Union, the Union of South American Nations). To a large extent, the agreements have not been very visible to the average consumer/citizen (apart from the European Union) but there has been substantial cooperation that does influence markets (Grubel, 2000).

Regulations may also come from states and sub-state political entities. While a naive approach towards politics may suggest that regulations and laws from states and sub-state entities should be in harmony, there are examples of conflicting and sometimes confusing regulations. For example, in the US Federal system, state and federal laws on marijuana often conflict creating a situation in which a state may have legalized the substance for recreational or medicinal use while it is still considered an illegal substance by the Federal Government authorities (Nickles, 2015). In the recent covid pandemic, there were many instances of contradictory governmental regulations creating some confusion regarding the rules for the conduct of business during the pandemic (Lecours et al., 2021).

Technology Regulation

Regulation is considered the government intervening in the economy through the application of legal guidelines (Morgan and Yeung, 2007). Technology and its regulation includes liability, product safety, data protection, intellectual property and many other considerations (Petit, 2017). The regulation of technology will pass through a system and will be influenced by many different levels of government. At the global level, organizations such as the OECD play a role in terms of developing ethics and regulations (Daly et al., 2019), even if their recommendations are not binding. There is a great deal of disagreement regarding ethical frameworks used to regulate AI technologies (Daly et al., 2019).

In the final analysis, ideological perceptions reflecting different approaches towards regulation will filter through various institutions (from global to local ones). Thus, “government” as envisioned by Porter (1990) is a more sophisticated, abstract, and contradictory construct that influences each component of the Diamond. We can expect that regulation will commence with ideological concepts and filter through various contradictory institutions that will have very different clientele that it will be expected to satisfy.

Conclusion

The tourism, and hospitality industries, like all industries, operate within a difficult and byzantine regulatory ecosystem. These regulations necessarily influence the competitiveness of the tourism, and hospitality industries across countries and will subsequently influence competitiveness positively or negatively. At its core, the intention of the policies and the institutions that process the policies will have a massive impact on the competitiveness of companies. Here, we have illustrated that the oversimplified use of “government” in Porter (1990) gives the impression of a fairly uncomplicated and superficial contention that perspectives on regulations not only are filtered through institutions that have clientele that must be satisfied but also that they may be based upon different ideological perspectives that emanate from traditions, culture, and value systems that are very different from each other.

The ideological basis of regulations should be expected to critically impact the competitiveness of tourism, and hospitality industries across countries. While such service industries are likely low priority concerns for mercantilists, since such service industries cannot be used very easily for national defense, such industries may have a very different priority for those with a Marxist world perspective, since service industries employ many who would be seen as the laboring class that would benefit from policies that can be implemented by governments. In addition, we would expect that the baroque regulatory structures that many industries work under because of many levels of regulation and standards will influence companies and sometimes clash with each other and the corporate cultures within industries, making the navigation of the various layers of regulation, practical concerns with service quality, and competitiveness in a global market a great challenge for managers at all levels well into the future.

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