



SERVICE INNOVATION IN THE PANDEMIC AGE

A KEYNOTE SPEECH AT THE SEMINAR ON PRODUCTION PLANNING AND INVENTORY CONTROL
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OUTLINES

- WHAT ARE SERVICES?
- WHY SERVICES?
- SUSTAINABLE SERVICES
- THE IMPACT OF COVID-19 ON THE SERVICES SECTOR
- CONCLUSIONS

Awareness of the importance of service innovation as an engine for the economic growth is a recent phenomenon.



WHAT ARE SERVICES?

HISTORICAL VIEW

Late 18th Centuries – Early 19th Centuries

- Classical economists focused on the creation and possession of wealth.
- Goods (commodities) were objects of value over which ownership rights could be established and exchanged.

Adam Smith (1776) “The Wealth of Nations”

- Productive & nonproductive labor.
- Unproductive labor created services that perished at the time of production and therefore didn't contribute to wealth.

Today

- Production and consumption are separable for many services.
- Many services are designed to create durable value for their recipients.
- Ownership and non-ownership.

WHAT ARE SERVICES?

“The work that servants did for their masters”

“The action of serving, helping, or benefiting; conduct tending to the welfare or advantage of another”

“Act, deeds, performances, or efforts”

“Something which can be bought and sold but which cannot be dropped on your foot”

“The lack of transfer of ownership when buying a service”

DEFINITION OF SERVICES

Services are economic activities performed by one party to another. Often time-based, these performances bring about desired results to recipients, objects, or other assets.

In exchange for money, time, and effort, service customer expect value from access to labor, skills, expertise, goods, facilities, networks, and systems. However, they do not normally take ownership of the physical element involved.

Five Broad Categories within the Non-ownership Framework



Labor,
skills, and
expertise
rentals



Rented
goods
services



Defined
space and
facility
rentals



Access to
shared
facilities



Access
and use of
networks
and
systems

WHY SERVICES?

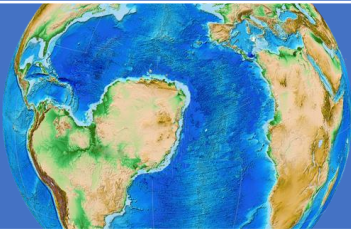
THE ROLE OF SERVICES SECTOR IN THE GLOBAL ECONOMY

- The Services sector plays the biggest role in the economy of the world.
- Most new jobs are generated by services (49% of the population employed by this sector).
- Services make up for at least 50% of the GDP in over half the countries around the globe and accounts for almost 65% of the World's GDP.
- The United States services sector accounts for 77% of the country's GDP.

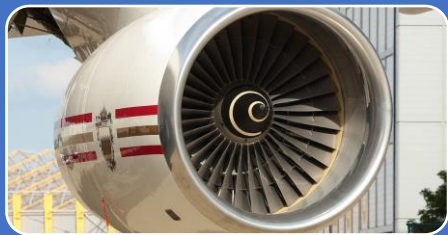
Goods increasingly need services to function



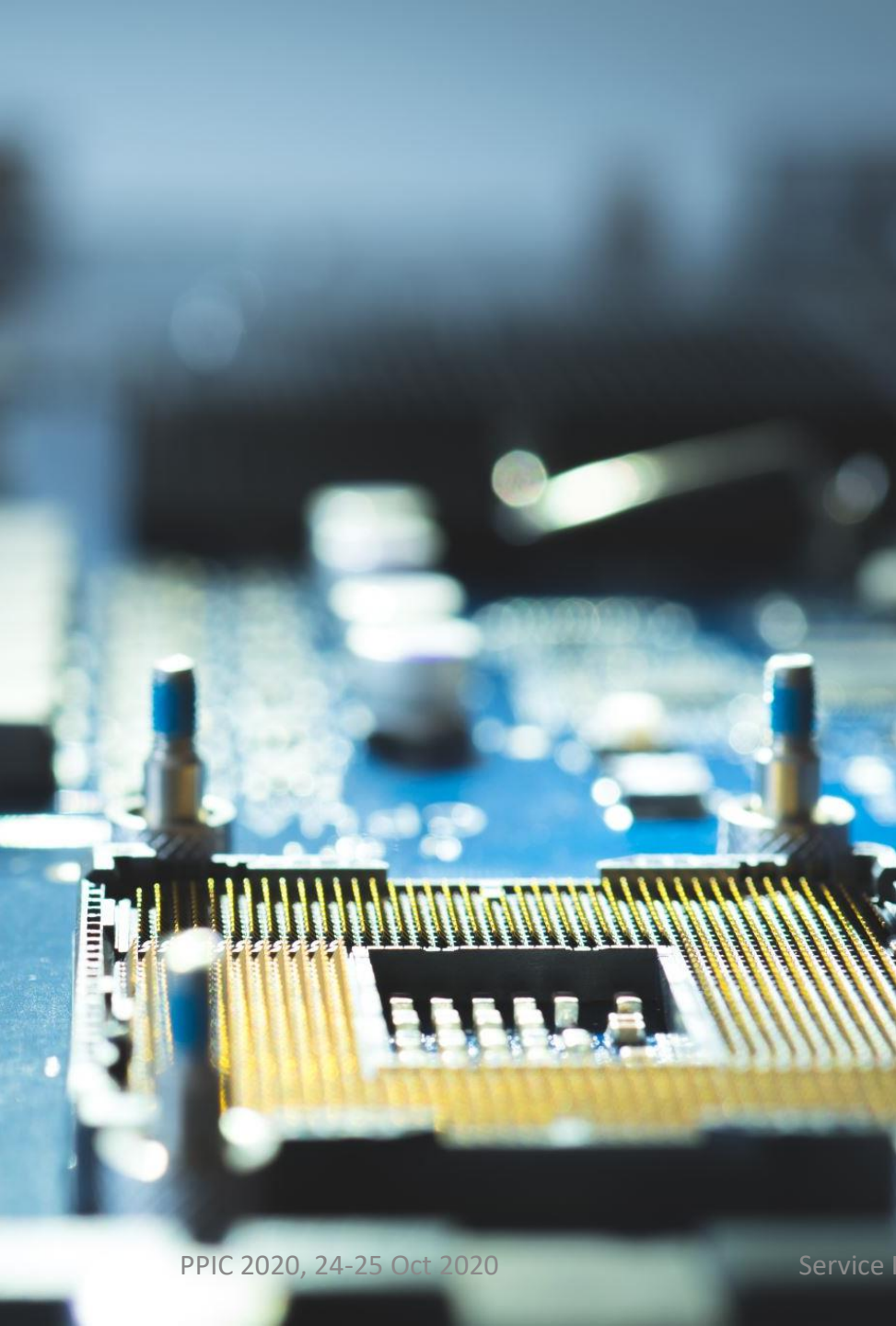
“Nearly half our business comes from products and services that didn’t exist a few years ago.” (IBM’s CEO Ginni Rometty)



“Health Care Just Became the U.S.’s Largest Employer.” “Services are the new steel.” (The Atlantic’s Derek Thompson)



Many manufacturing firms have moved from just bundling supplementary services with their physical products to marketing certain elements as standalone services e.g. IBM Global Services – SSME – “T”-shaped; Rolls-Royce



Functional Products (FP)

- A current trend among manufacturing corporations is to incorporate service offers and soft parts into regular product offers and also to extend the providers' ownership of the product throughout the entire product lifecycle
- The concept of FP incorporates hardware, software, service-support system and management of operation into a combined effort providing a function to customers with an agreed-upon level of availability, improved productivity or efficiency

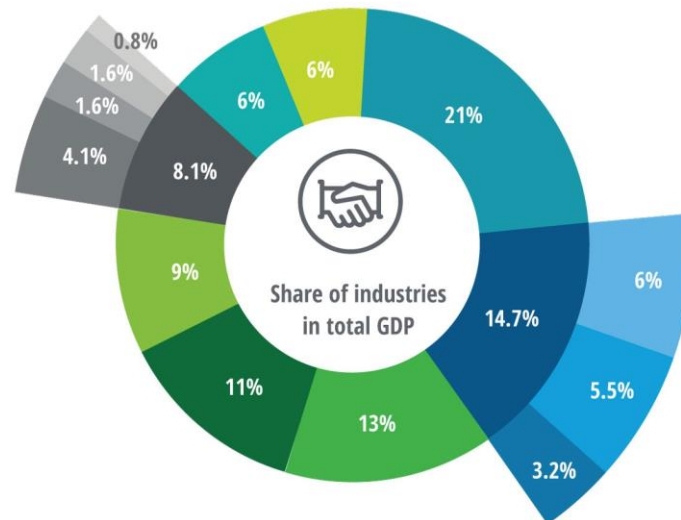
The concept of FP has similarities with, e.g., Functional Sales (FS), Extended Products, Total Care Product (TCP), Product-Service System (PSS) and Industrial Product-Service Systems (IPS2), Servicizing, Service Engineering, Servitization or Through-life Engineering Services (TES) in the sense of increasing the focus on soft parts such as services, knowledge, and know-how additionally offered.

The FP, originating from hardware aspects, has most commonalities with PSS/IPS2 , TCP, TES and FS, adding, however, additional complexity development-wise.

FIGURE 1

The industry that makes up Wall Street (finance, insurance, and real estate) is the biggest contributor to GDP

- Arts and entertainment, recreation, accommodation, food, and other services (except government)
- Information
- Finance, insurance, and real estate
- Educational services, health care, and social assistance
- Manufacturing
- Professional and business services
- Trade, transport, and warehousing
- Agriculture, mining, utilities, and construction
- Wholesale trade
- Agriculture, forestry, fishing, and hunting
- Retail trade
- Mining
- Transportation and warehousing
- Utilities
- Construction



Sources: Bureau of Economic Analysis (BEA); Haver Analytics LP.

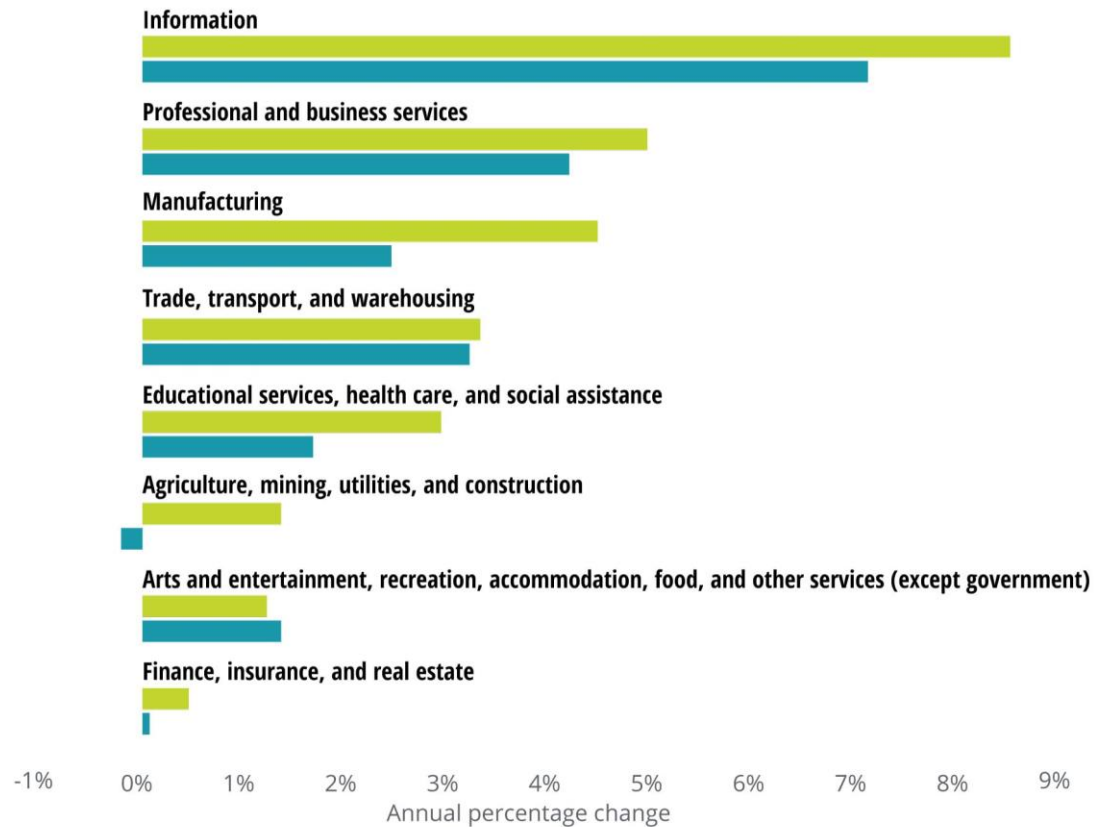
.Deloitte Insights | deloitte.com/insights

FIGURE 2

Services are the engine of US growth

Real value-added annual growth, by industry

■ 2018 ■ 2017



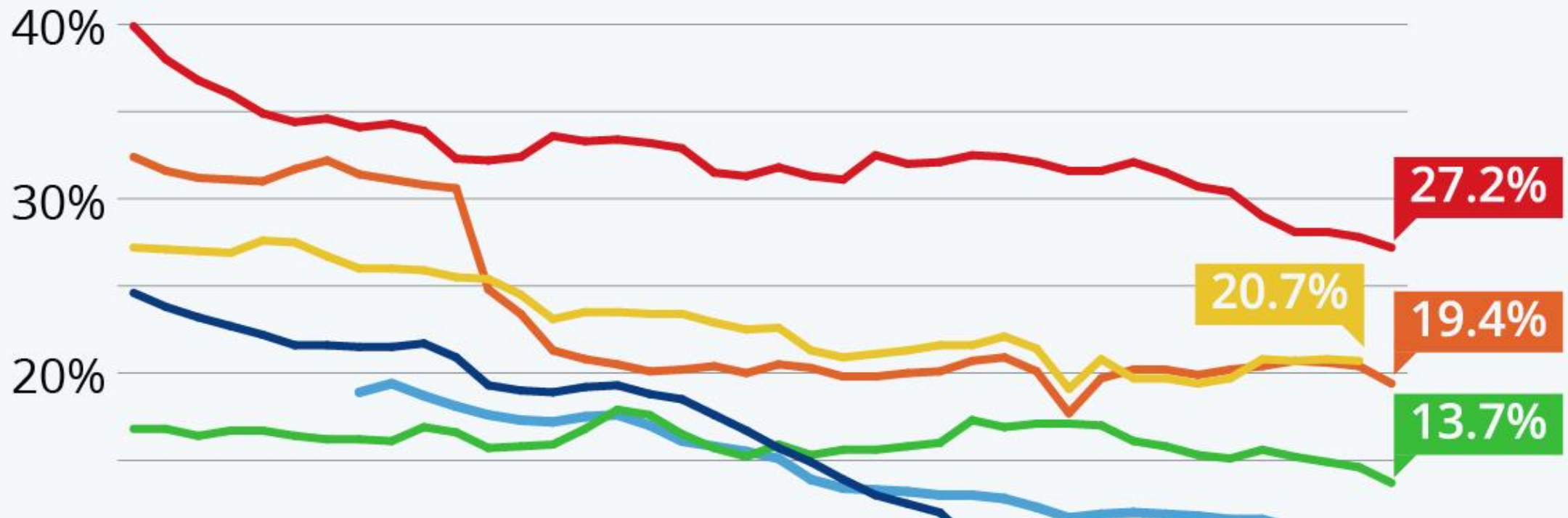
Sources: Bureau of Economic Analysis (BEA); Haver Analytics LP.

Deloitte Insights | deloitte.com/insights

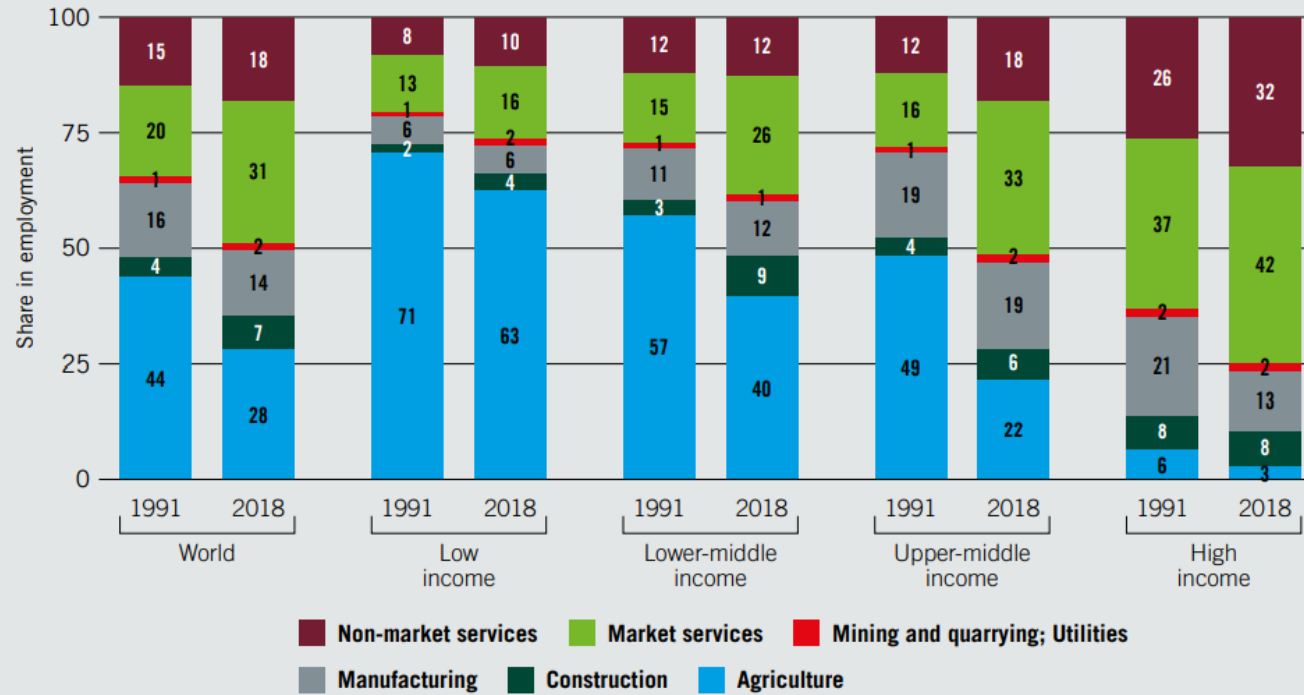
Manufacturing value added as a percentage of GDP in selected countries (1980-2019)



China United Kingdom Japan
India United States Germany



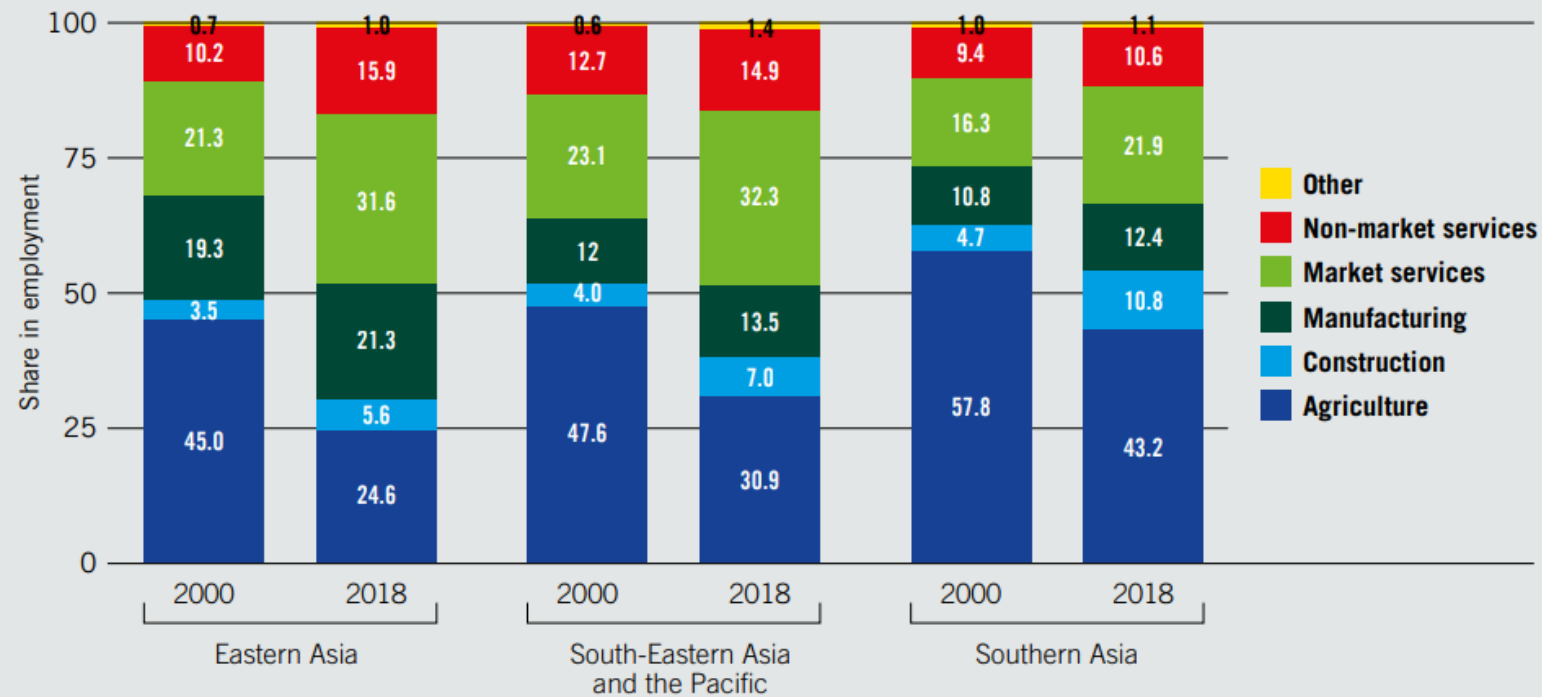
Distribution of employment by aggregate sectors, global and by country income group, 1991 and 2018 (percentages)



Note: The categories of aggregate economic activities are defined in the documentation for the ILOSTAT database (https://www.ilo.org/ilostat-files/Documents/description_ECO_EN.pdf).

Source: ILO modelled estimates, November 2018.

Employment shares by economic sector, Asia and the Pacific, 2000 and 2018 (percentages)

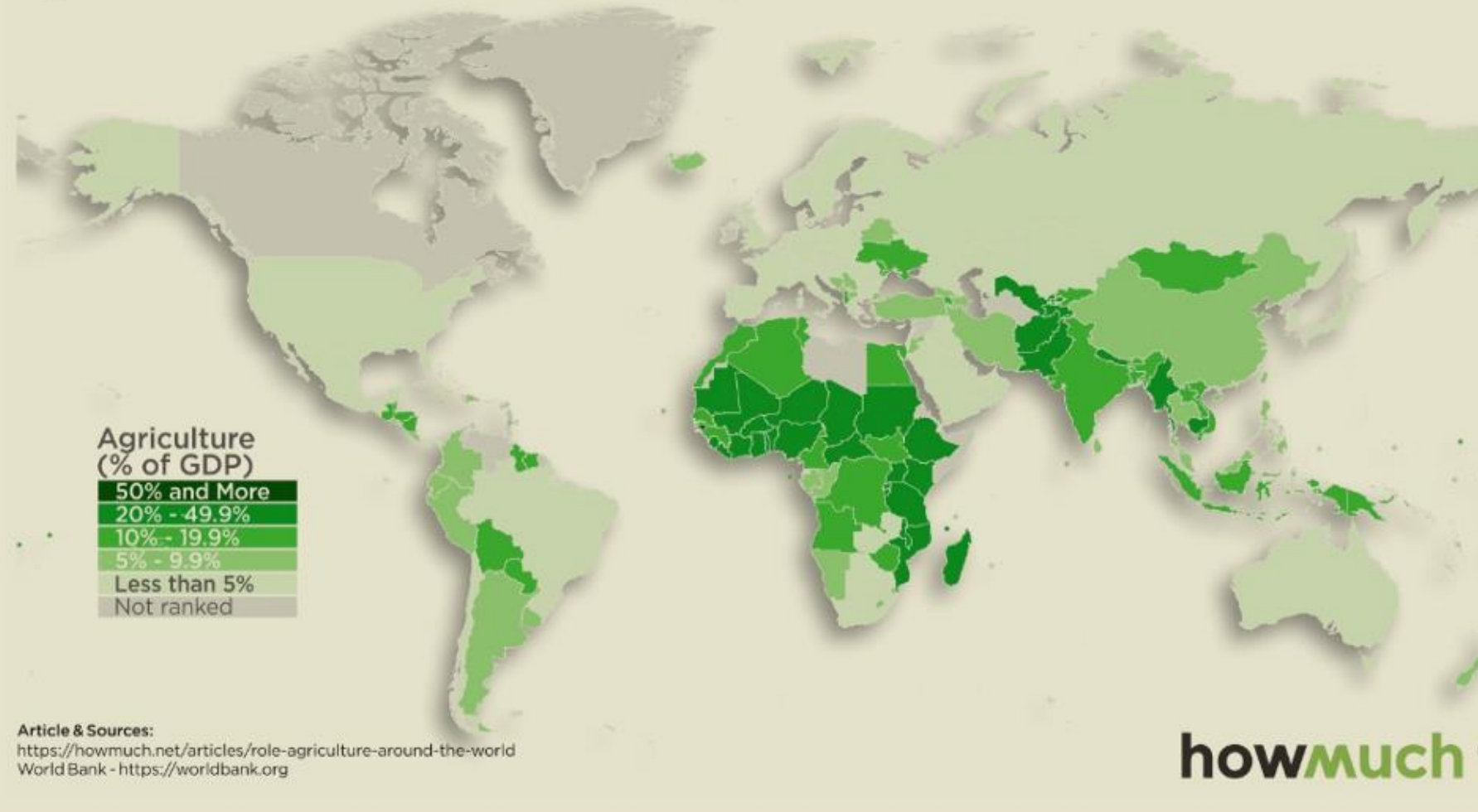


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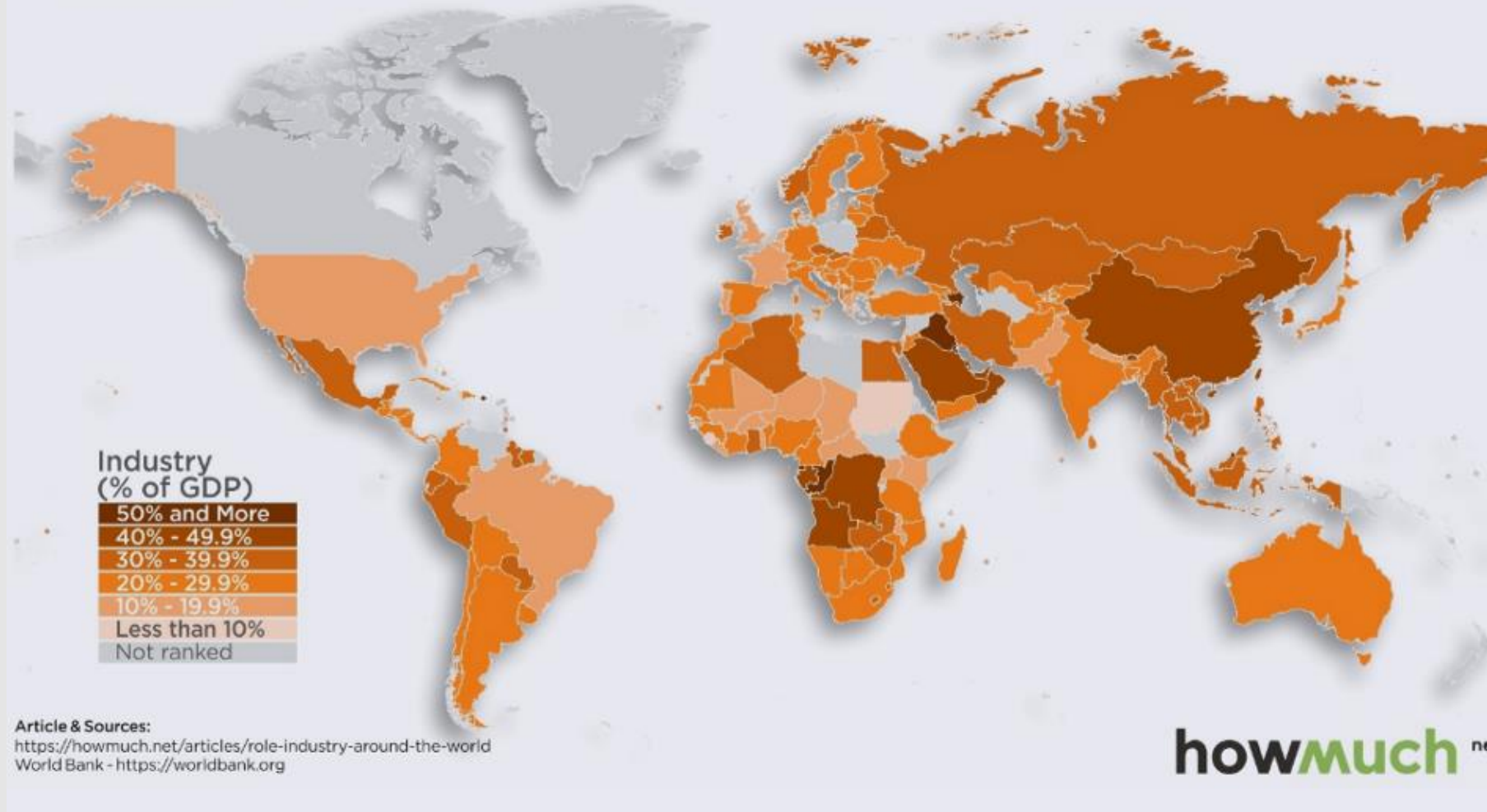
The Role of Agriculture in the World Economy

Agriculture as Share of Total GDP (%)



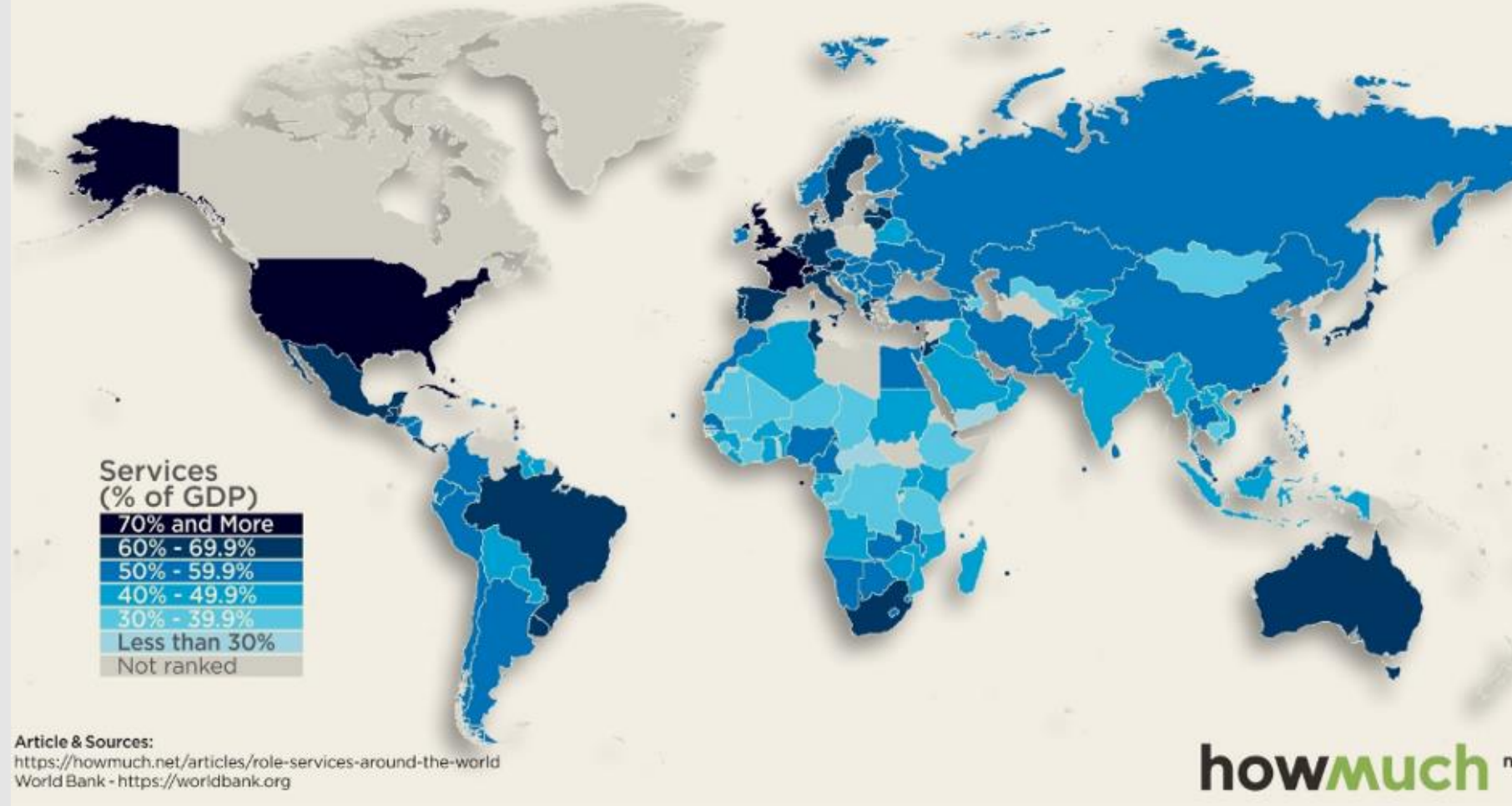
The Role of Industry in the World Economy

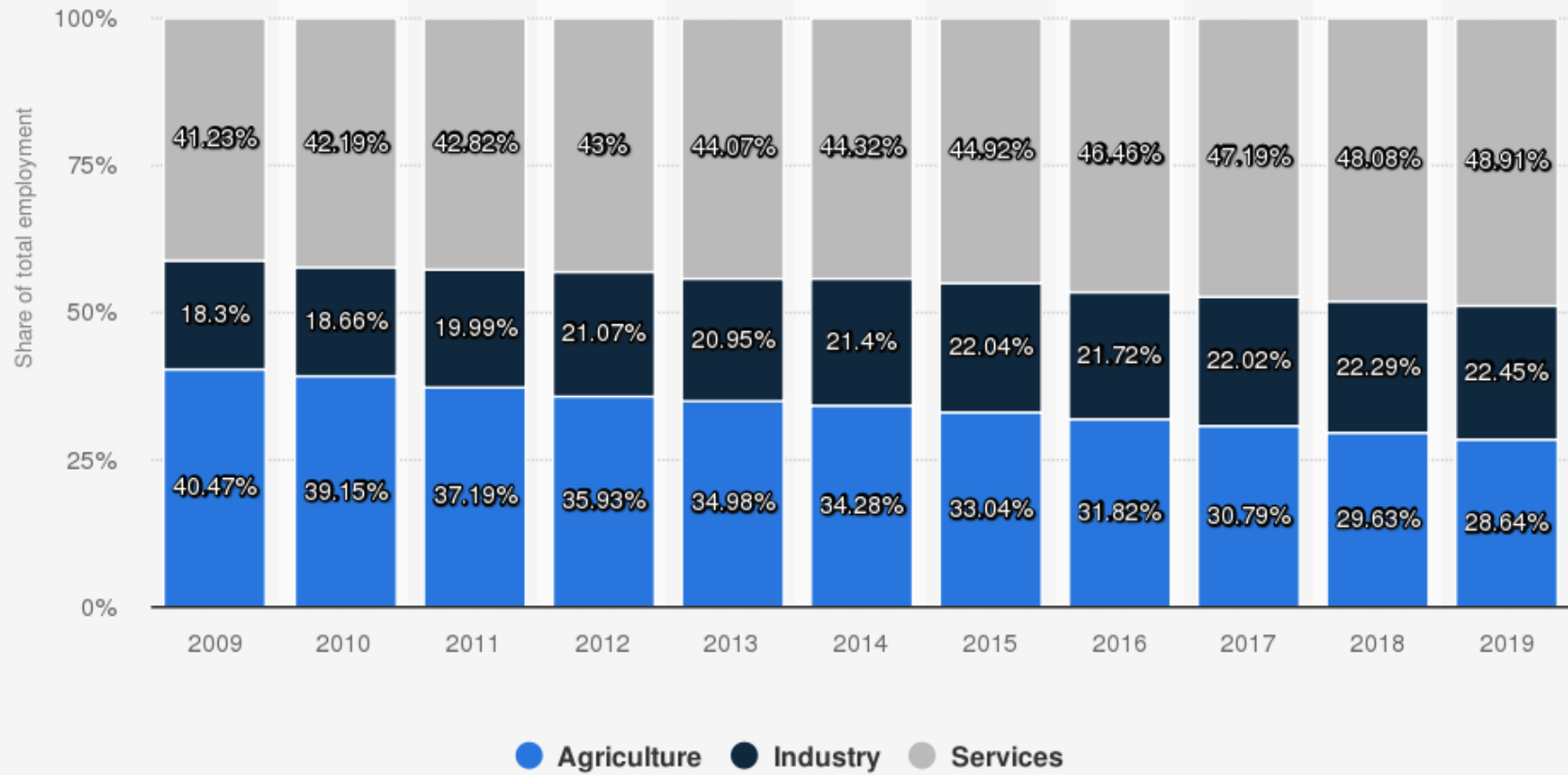
Industry as Share of Total GDP (%)



The Role of Services in the World Economy

Services as Share of Total GDP (%)

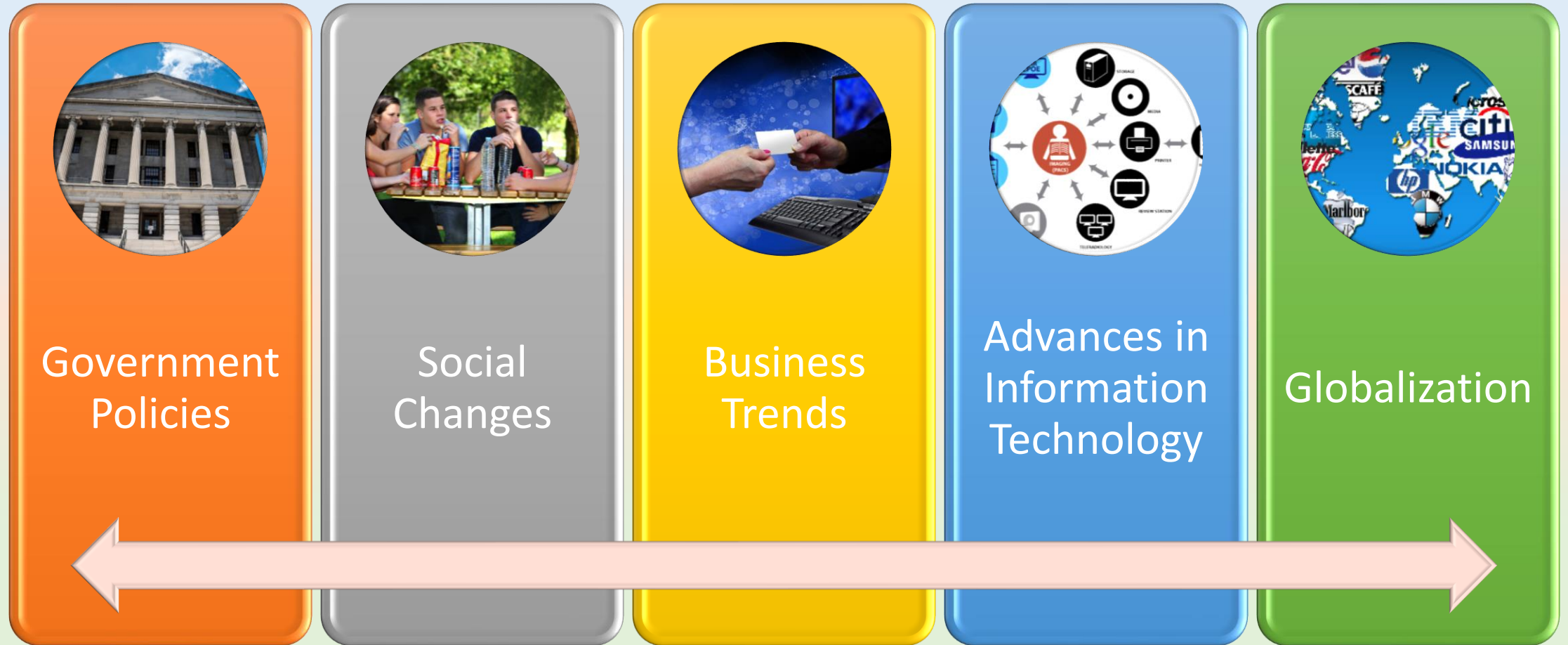




Source
World Bank
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Additional Information:
Indonesia; World Bank

Factors Stimulating the Transformation of the Service Economy



FACTORS STIMULATING THE TRANSFORMATION OF THE SERVICE ECONOMY

GOVERNMENT POLICIES

- Changes in regulations
- Privatization
- New rules to protect consumers, employees, and the environment
- New agreement on trade in services

SOCIAL CHANGES

- Rising consumer expectations
- Ubiquitous social networks
- More effluence
- More people short of time
- Increased desire for buying experiences vs. things
- Rising consumer ownership of computers, cell phones, and high-tech equipment
- Easier access to more information
- Immigration
- Growing but aging population

BUSINESS TRENDS

- Push to increase shareholder value
- Emphasis on productivity and cost savings
- Manufacturers add value through service and sell services
- More strategic alliances and outsourcing
- Focus on quality and customer satisfaction
- Growth of franchising
- Marketing emphasis by nonprofits

ADVANCES IN INFORMATION TECHNOLOGY

- Growth of the internet
- Wireless networking and technology
- Digitalization on text, graphics, audio, and video
- Cloud technology
- User-generated content
- Location-based services
- Big data
- Artificial intelligence
- Improved predictive analysis

GLOBALIZATION

- More companies operating on a transnational basis
- Increased international travel
- International mergers and alliances
- “Offshoring” of customer service
- Foreign competitors invade domestic market

STIMULATING FACTORS

New markets dan product categories create increased demand for services in may existing markets, making it more competition intensive.

Innovation in service products and delivery systems is stimulated by application of new and improved technologies.

Success hinges on (1) understanding customers and competitors, (2) viable business models, (3) creation of value for both customers and the firms, and (4) increased focus on services marketing and management.

Services Profit Chain

Top Management leadership underlies the chain's success

Internal quality as delivered by operations and IT drives employee satisfaction

Customer loyalty drives profitability and growth

Customer satisfaction drives customer loyalty

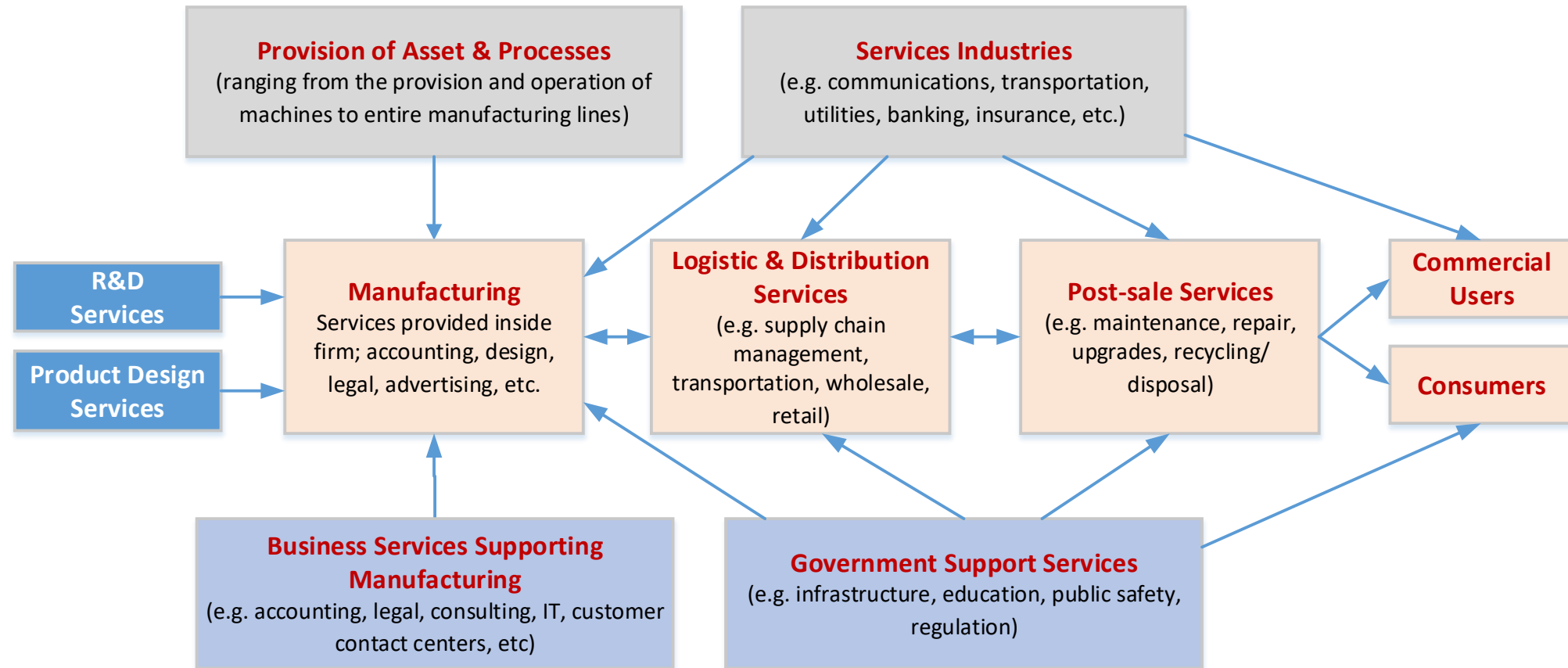
Value drives customer satisfaction

Quality and productivity drive value

Employee loyalty drives service quality and productivity

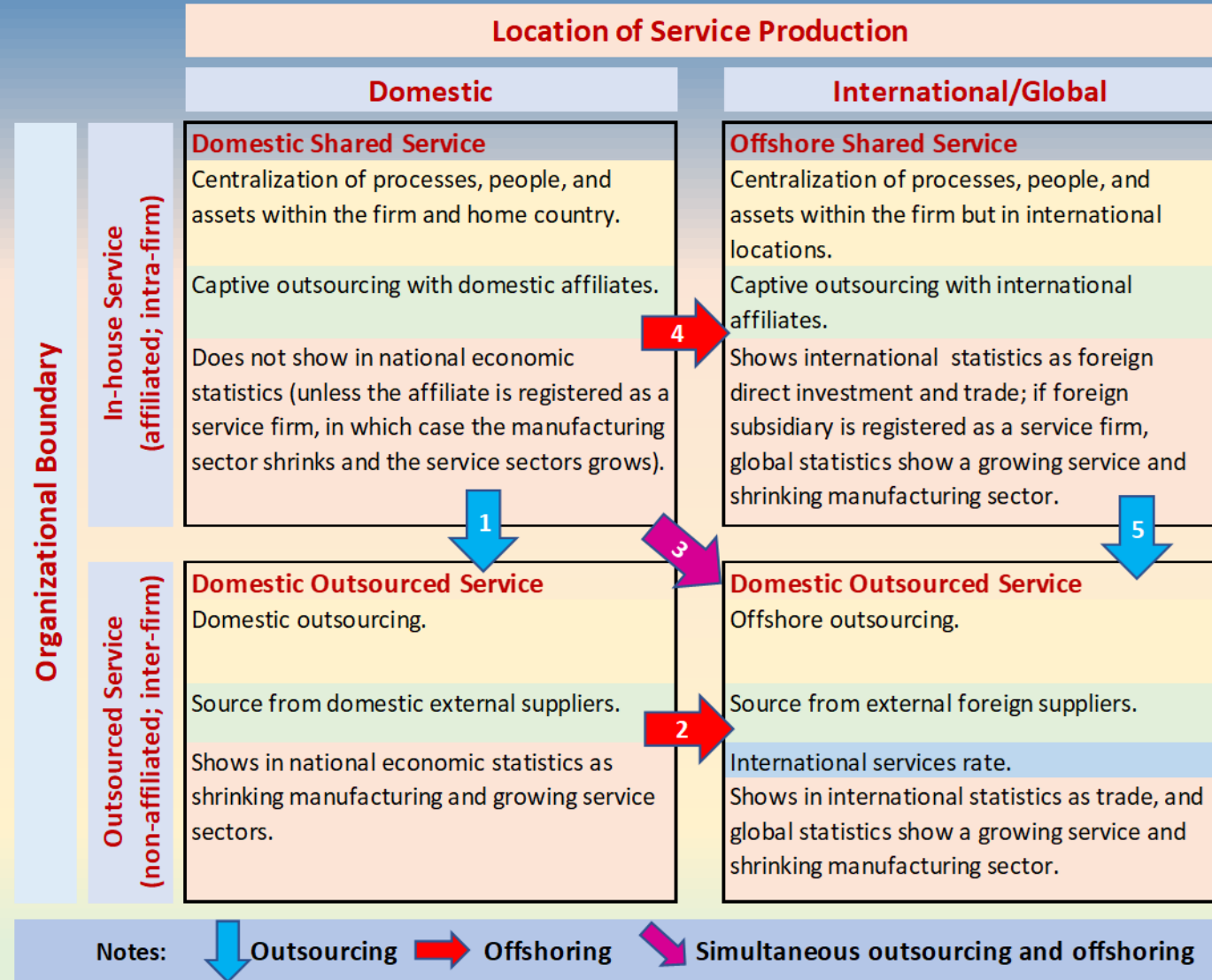
Employee satisfaction drives employee loyalty

Outsourcing as the important driver for the growth of the service sector



Adapted from Wirtz & Lovelock (2016)

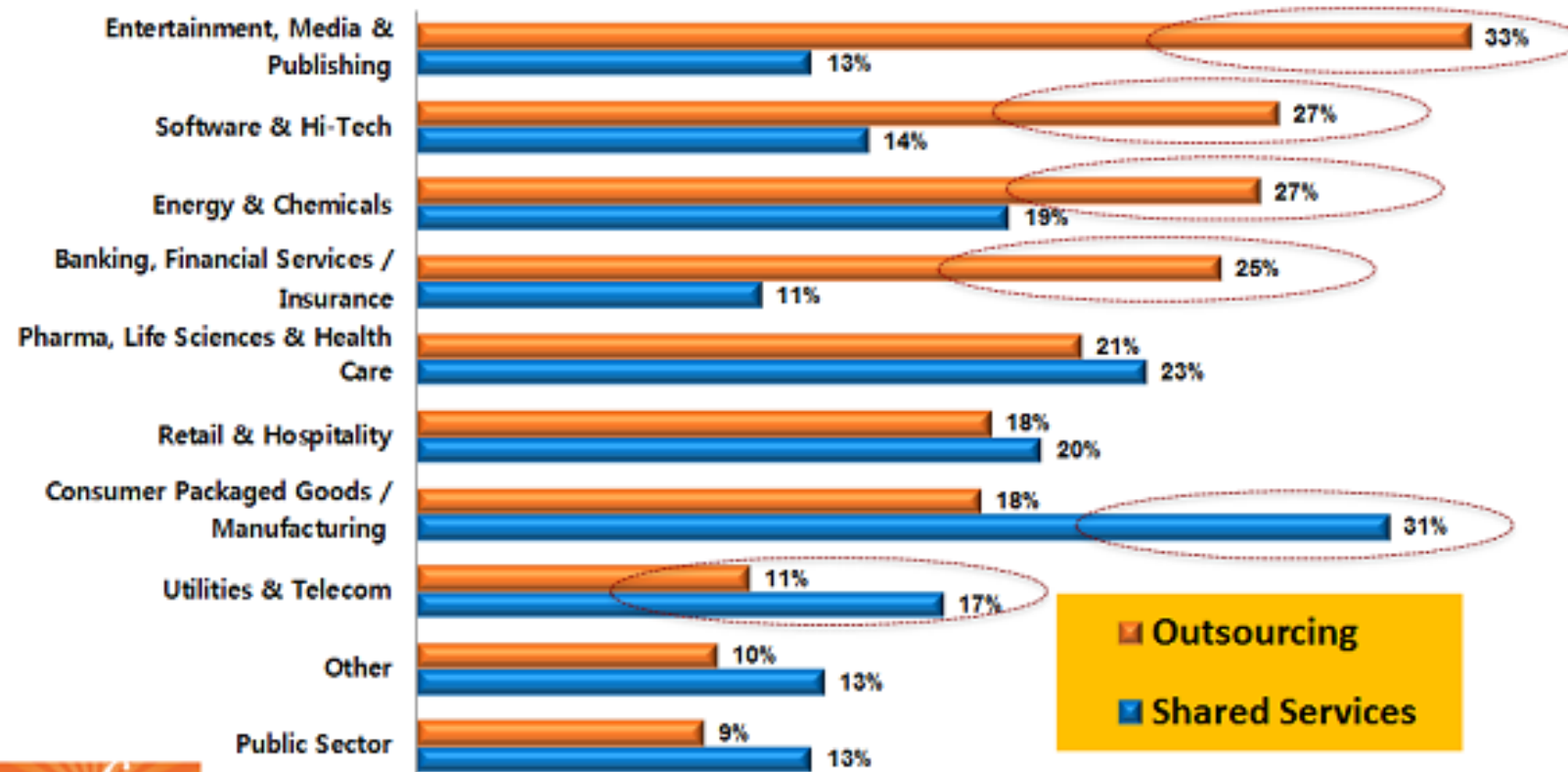
OUTSOURCING AND OFFSHORING



Adapted from Wirtz & Lovelock (2016)

Industries going through *secular change* more focused on outsourcing than shared services

Will your company increase / reduce its reliance on the following operating models for general and administrative functions, over the next three years? Answer = Increase Significantly



Source: HfS Research and the London School of Economics Outsourcing Unit, 2011
Sample: 247 Buyers of Outsourcing Services (all more than \$1bn in annual revenues)

SUSTAINABLE SERVICES

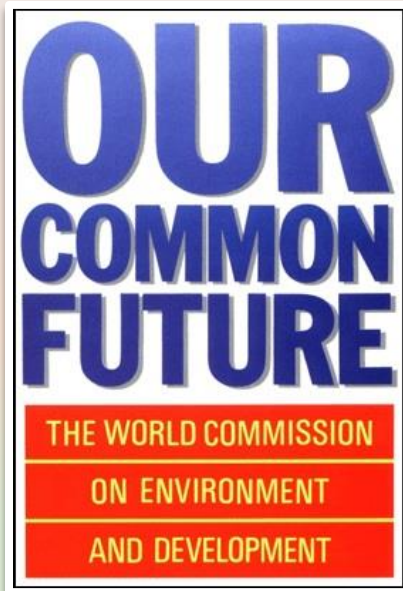


SUSTAINABILITY

SUSTAINABLE DEVELOPMENT



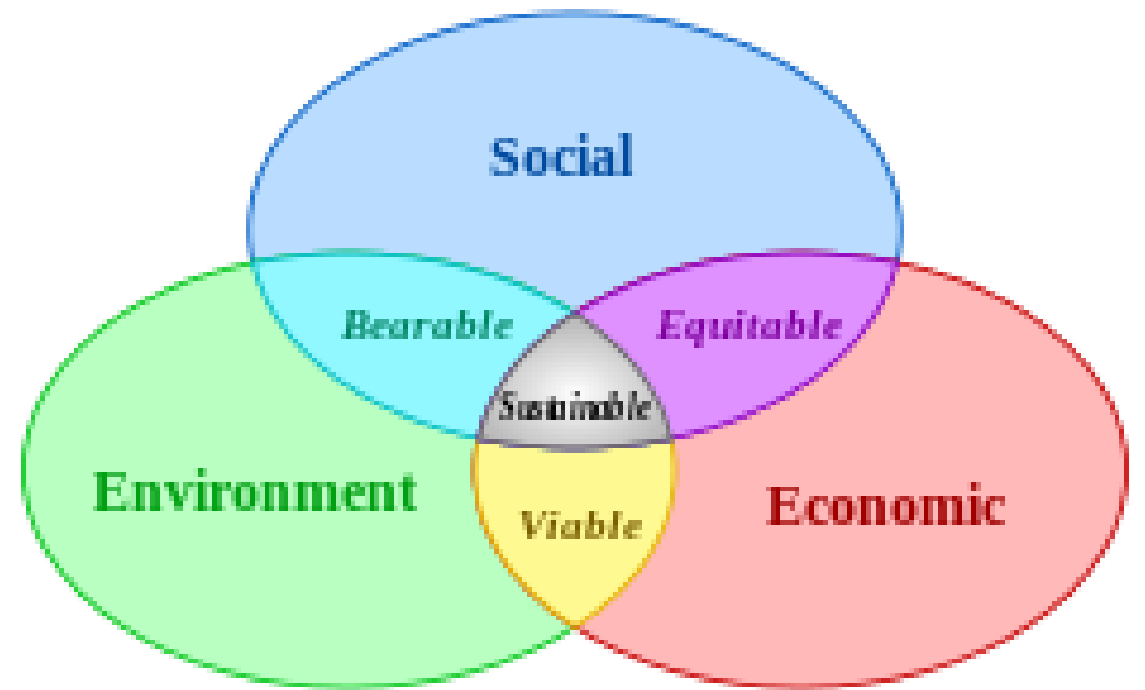
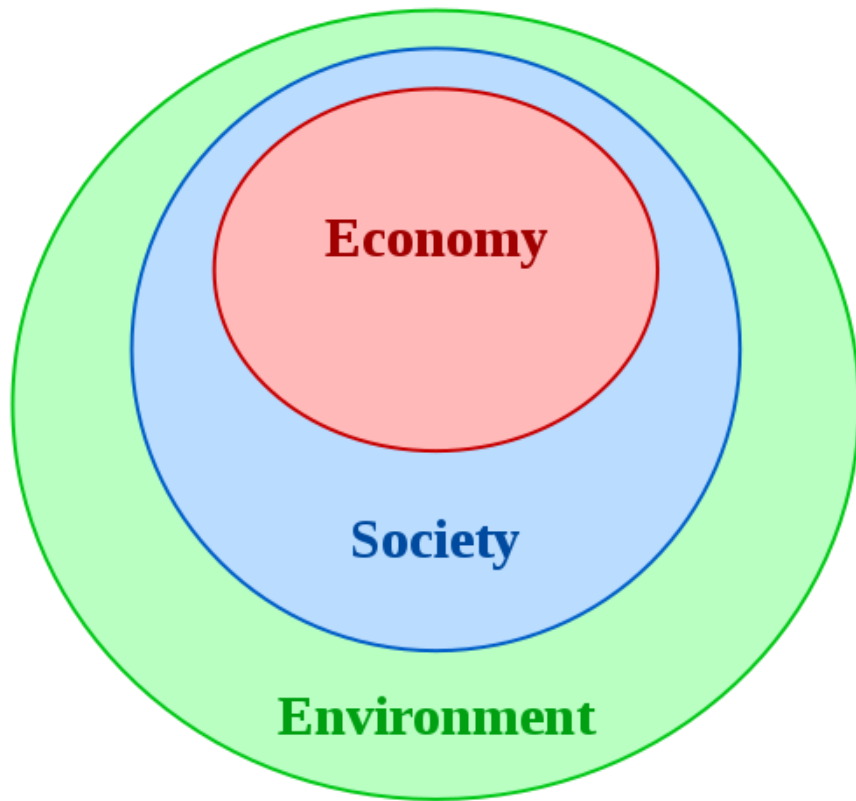
“Meeting the needs of the present generation without compromising the ability of future generations to meet their own needs.”

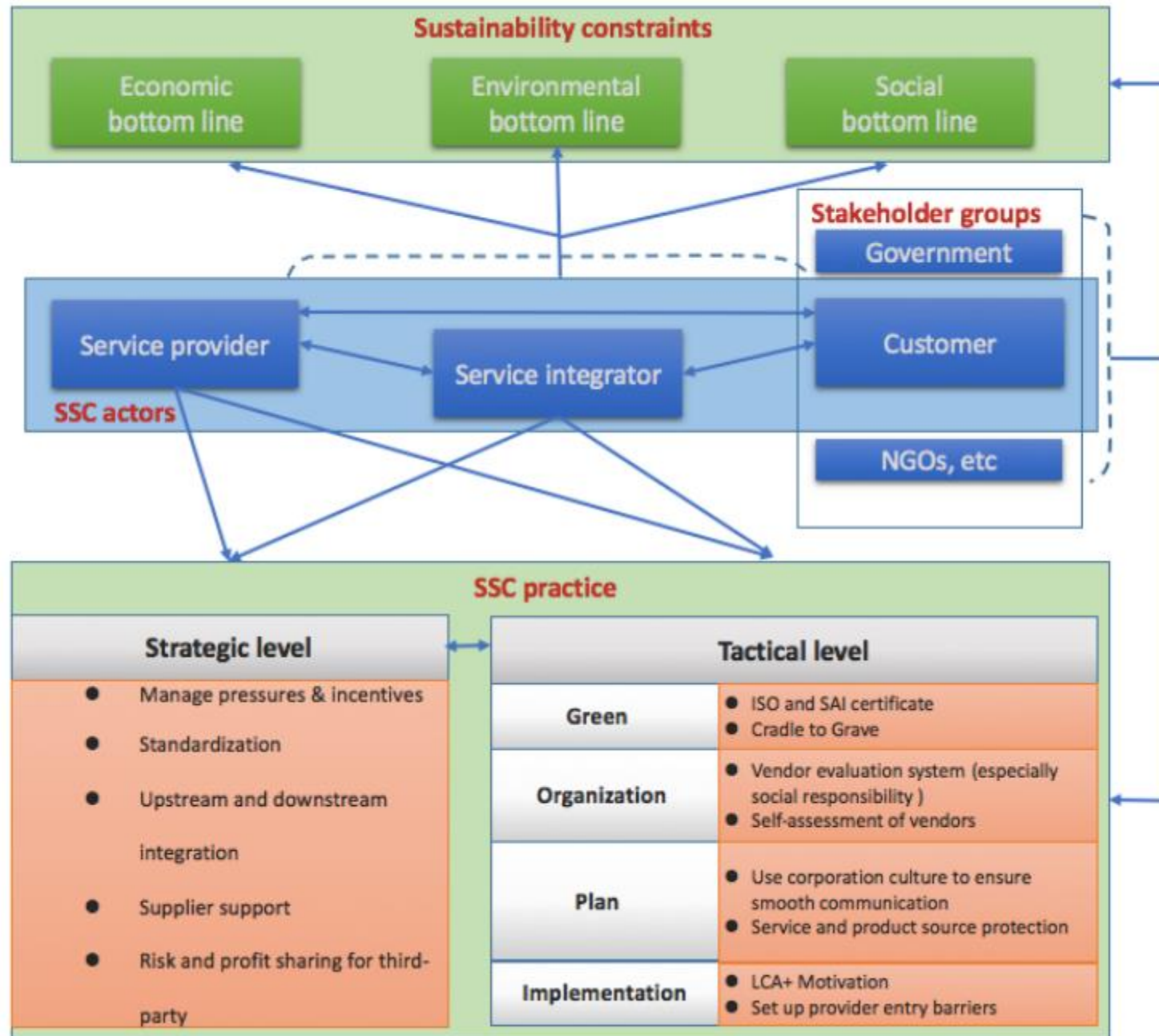


Sustainability can be referred to as a system that is economically effective, environmentally sustainable and socially fair.

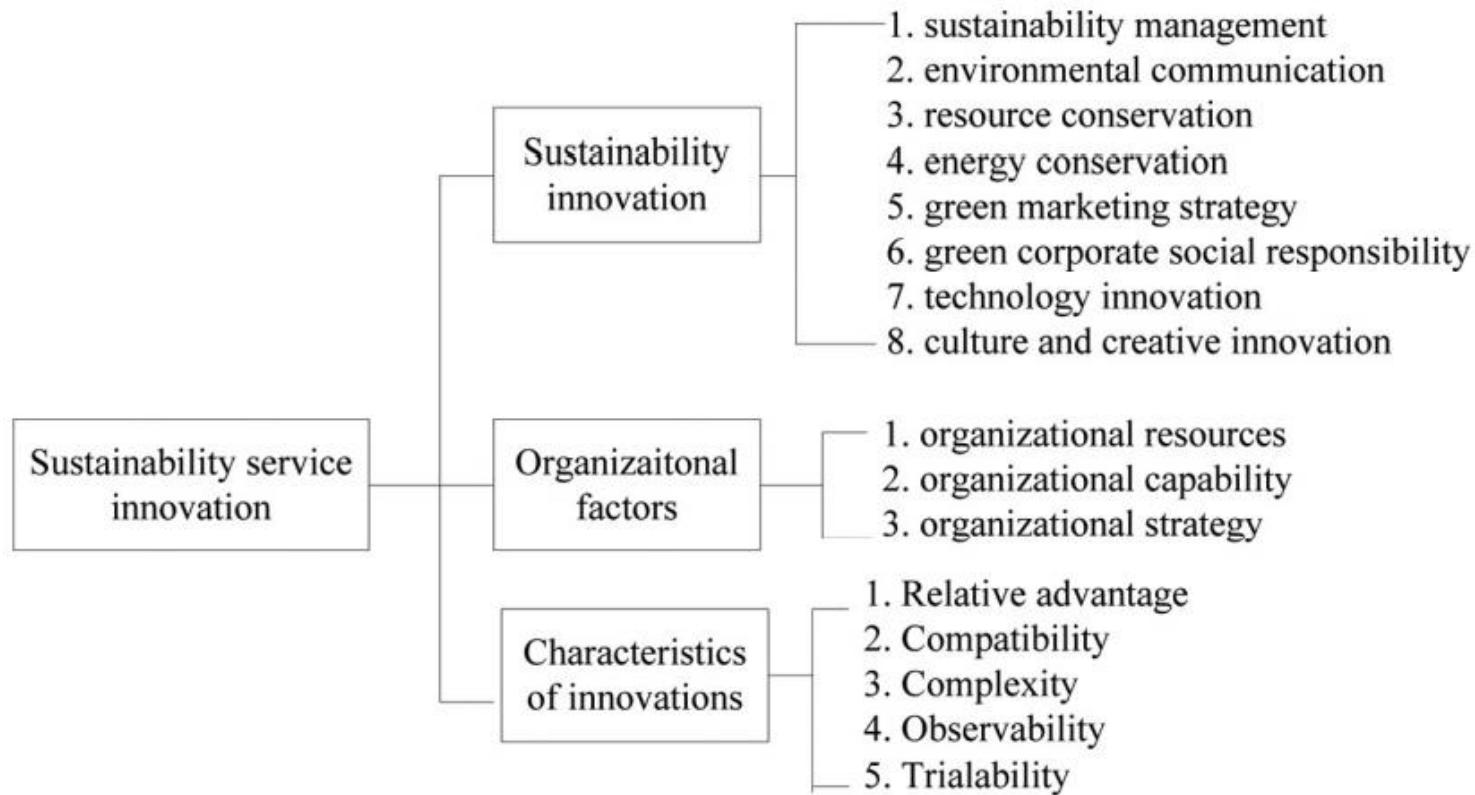
Dr. Gro Harlem Brundtland

THE TRIPLE BOTTOM LINE OF SUSTAINABILITY





(Liu et al., 2017)



Sustainable Service Innovation

(Horng et al., 2018)

Increasing Variety of Services

Increasing customer demands



Diversified customer demands



Variety of products and services

Strategies



Customer-centred strategies

- B2C
- B2B



Increased productivity



Integrated customer expectations and satisfaction

Customer-centered strategies

Mass Customization (MC)

To fulfil individual customer needs with near-mass-production efficiency

Product–Service Systems (PSS)

Integrated products with a set of services to maximize the added value and meet specific customer demands

Consequences of variation

- Lower production lot sizes
- High change over time and heavy workload in terms of quantity and quality
- Supply cost due to decreasing purchased lot size
- Extended setup times
- Stochastic aspects in the production lead times depending on the level of customization of each product variant
- Higher average lead time due to scarcity of some supplied or outsourced components
- High overall environmental impact due to the lack of resource sharing (more energy and material consumption)


How to meet customers' diversified demands?

PPIC Challenges

Increasing the number of product and service variants.



Increasing the number of components, modules, process sequences, service delivery activities, operators, and suppliers.



Additional efforts on the part of the operators to move from one variant to another during production or deliver a variety of services requiring each specific qualification.

Multiple performance: sustainability indicators

ECONOMIC ASPECT

- Financial performance indicators
 - Net profit margin
 - Return on investment
 - Cost savings
- Delivery reliability indicators:
 - Product delivery
- Operating cost indicators:
 - Material, energy, labour, capital costs etc.

ENVIRONMENT ASPECT

- Pollution and emissions indicators:
 - Greenhouse gas emissions/ carbon footprint
 - Waste and disposal
- Resource consumption indicators:
- Reused / recycled material in the product
 - The use of green material
 - Consumption of electricity, water, fuel, etc.
 - Percentage of defective products

SOCIAL ASPECT

- Community indicators:
 - Sustainability awards
- Consumer indicators:
 - Consumer complaints
- Manpower indicator
 - Missing work days
 - Labour turnover
 - Labour safety and health
 - Manpower productivity
 - Capability in terms of sustainability
- Workers' attendance
- Labour relations

THE IMPACT OF COVID-19 ON THE SERVICES SECTOR

THE COVID-19

- The COVID-19 outbreak started in December 2019 in Wuhan city in China.
- It is a global pandemic.
- On the 11th of March 2020, the World Health Organization (WHO) declared the outbreak of COVID-19 as a pandemic.
- It is not focused on low-middle income countries.
- Interest rates are at historical lows.
- The world is much more integrated.
- This current crisis is generating spillover effects throughout supply chains .

Lessons from the Past : Outbreaks affecting the tourism sector

- The 9/11 terror attack in 2001 ravaged U.S
- Severe acute respiratory syndrome (SARS): 2003-2005
- The bird flu (or Avian flu): 2009
- The swine-flu pandemic & global economic crisis: 2008
- Covid-19: 2020:
 - As of June 5, 2020, there were 6.7 million COVID-19 cases and nearly 400,000 deaths from the disease worldwide (Worldometer 2020).
 - During the second quarter of 2020, the pandemic wiped out the global labor equivalent of 195 million full-time workers, most of them in the service sector (Nebehay, 2020)

1918 Global Influenza

- Killed 40 million people worldwide in 1918 and 1919
- Costs: more than \$4 trillion
- GDP Contraction: 5%

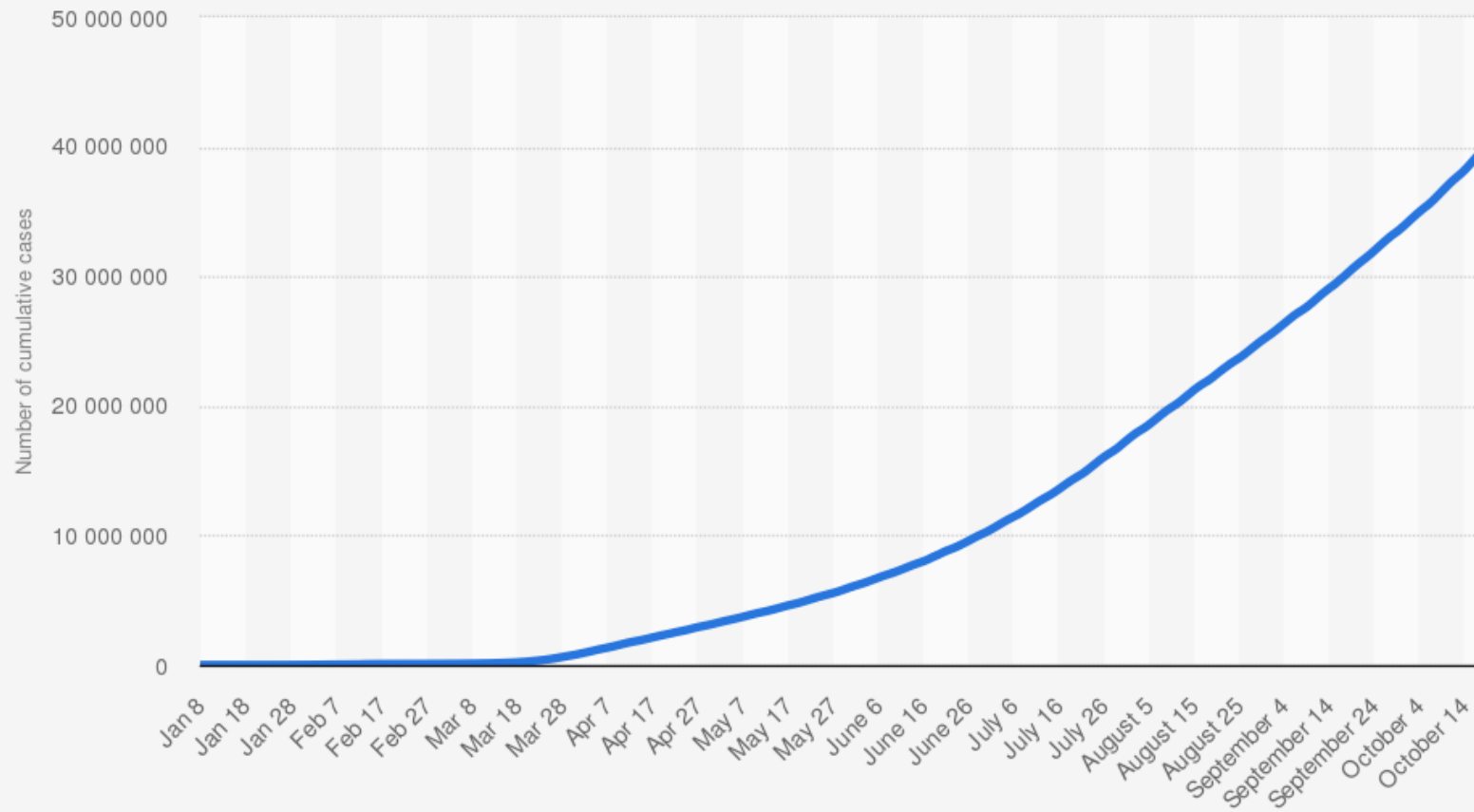
Ebola 2013-2016

- 11,300 deaths in West Africa
- Costs: US\$ 53 billion
- GDP Contraction: 20% Sierra Leone's GDP in 2015

2002/3 SARS

- Over 900 people had died
- Costs: \$54 billion

Number of cumulative cases of coronavirus (COVID-19) worldwide from January 8 to October 18, 2020, by day



Sources
OWID; ECDC
© Statista 2020

Additional Information:
Worldwide; OWID; ECDC; January 8 to October 18, 2020

The Impact of the COVID-19

The spread of COVID -19 pandemic in many countries around the world



Slowing down economic activities



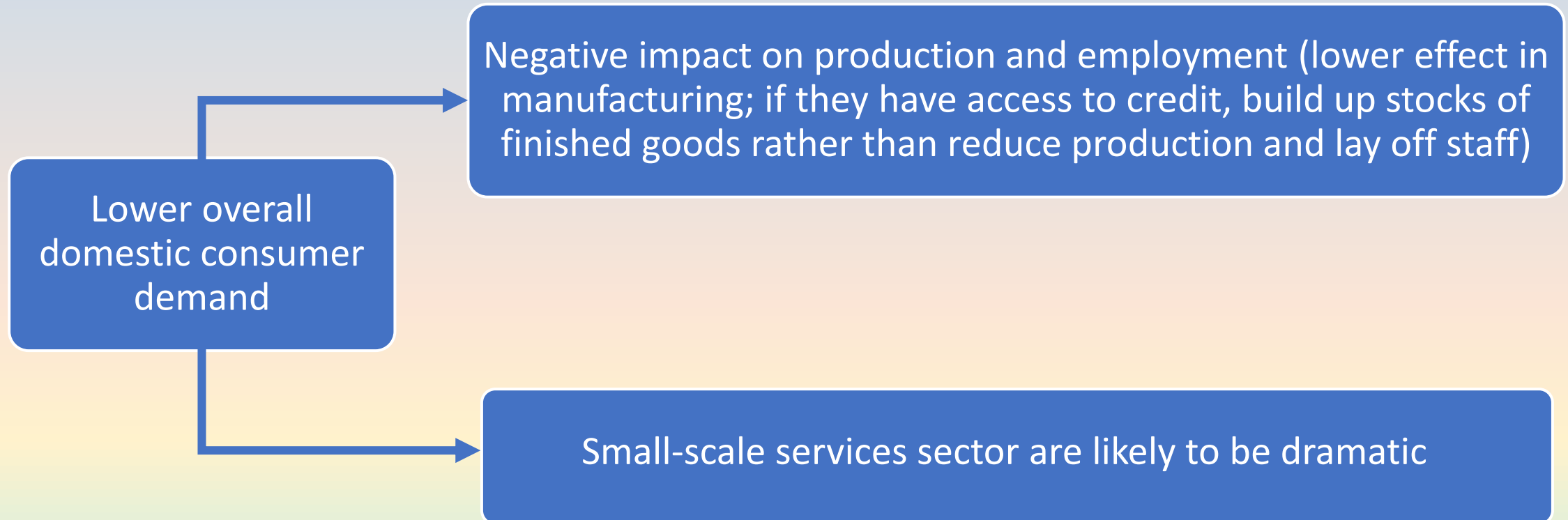
Changes in supply and demand

The COVID-19: Changes in supply and demand

- Demand for food, medical assistance, and other essential items may rise.
- Lower demand for non-essential goods such as apparel and various services.
- Industry variation: Service hit hardest.

Factors Causing the Decline in Demand

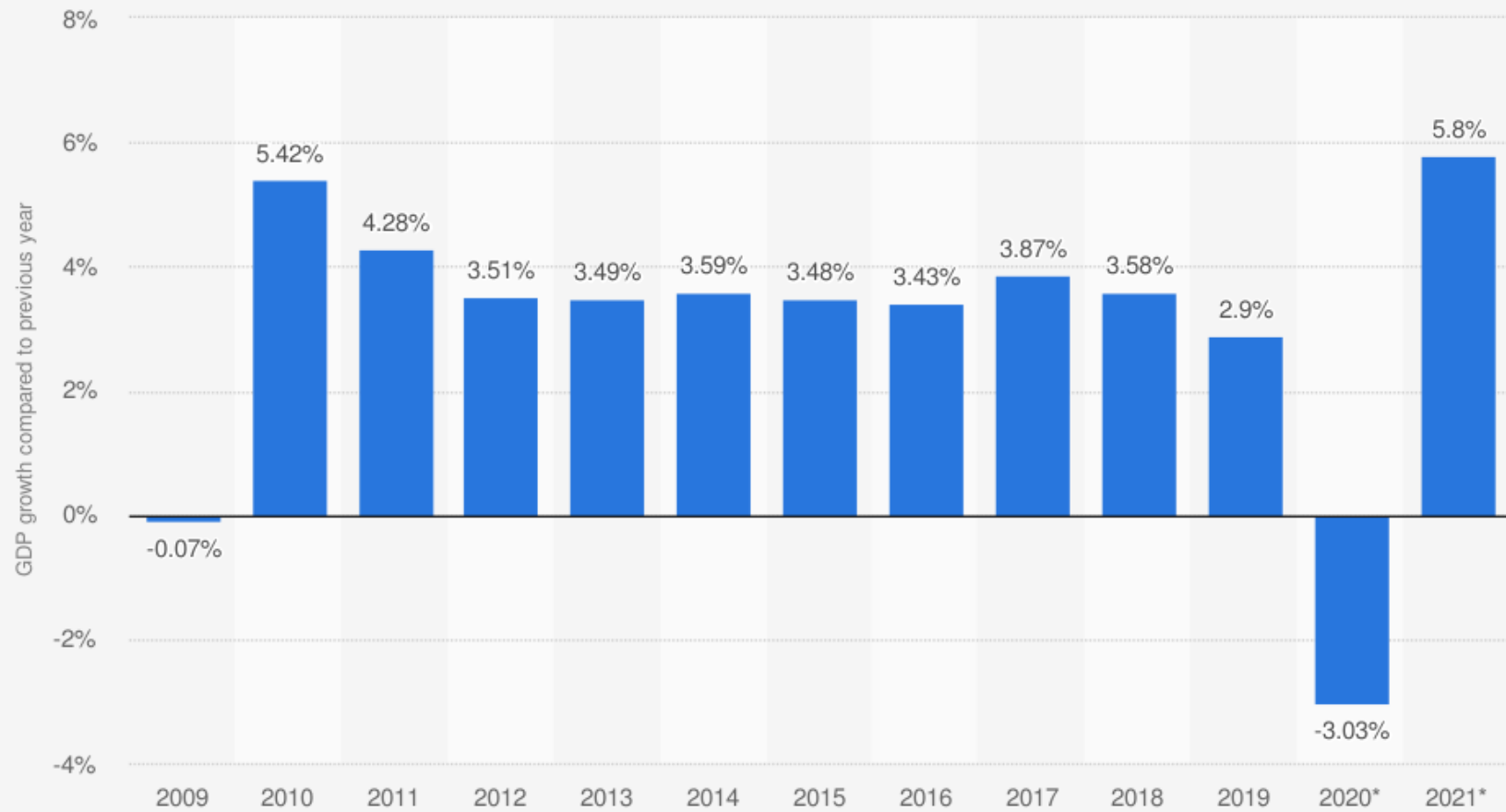
- Foreign buyers delaying or withdrawing orders;
- Tourists, both local and foreign, cancelling trips;
- The declines in the stock market which erodes peoples' wealth and their willingness to spend;
- Shortages of imported raw materials and spare parts.



GDP Contractions Due to Covid-19

- Since the 2008 global financial crisis, the global economy is now facing its biggest challenge (OECD).
- The global trade is expected to fall up to 32% in 2020 (WTO).

Growth of the global gross domestic product (GDP) from 2009 to 2021 (compared to the previous year)



Source
IMF
© Statista 2020

Additional Information:
Worldwide; IMF



The Impact of the COVID-19 Pandemic Crisis on the Travel and Tourism Sector



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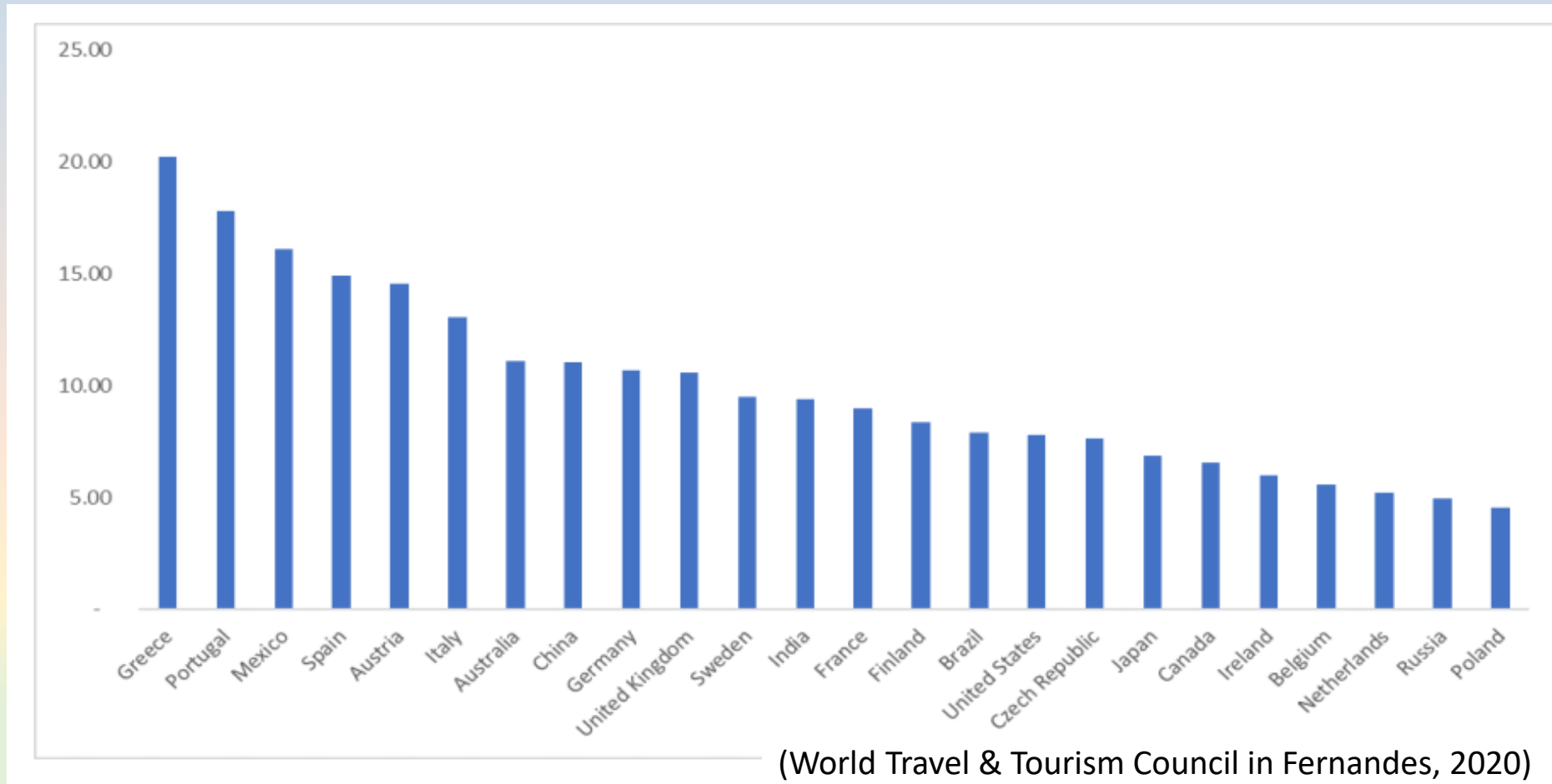
Why are Travel & Tourism Important?

- Brings in an Influx of Wealth
- A Source of Diverse Income
- Job Opportunities
- Building Infrastructure
- Social Advantages
- Environmental Protection
- Business Opportunities

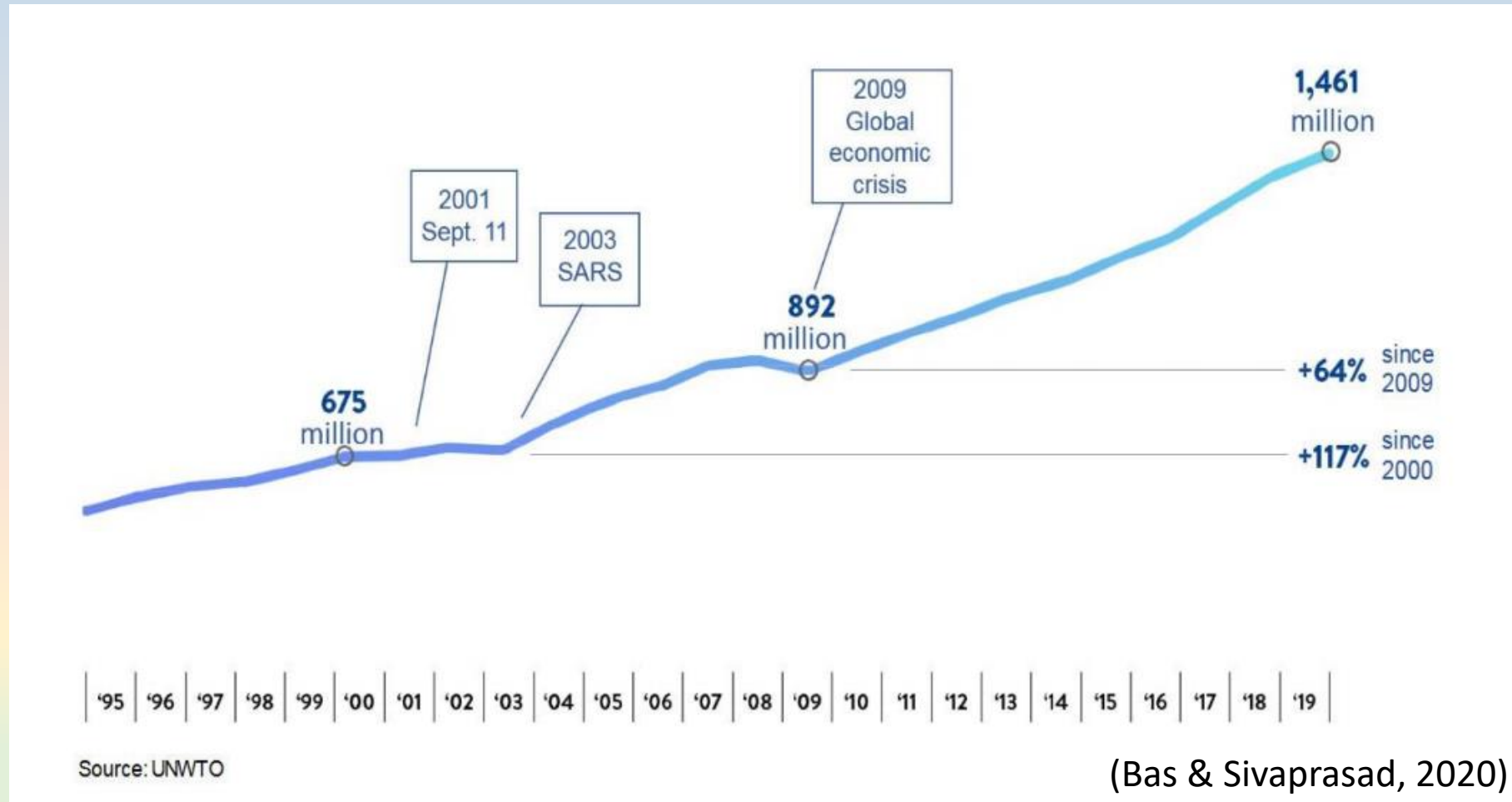
The Role of Travel and Tourism Sector

- The travel and tourism (T&T) industry is one of the largest and most active industries in the global economy.
- In 2019, the total contribution of the T&T industry accounted for 10.4 percent of the total GDP worldwide (The World Travel & Tourism Council (WTTC), 2020).
- Tourism sector is one that is severely affected in the event of an economic crisis occurring (Sheldon & Dwyer, 2010; Smeral, 2010; Song & Lin, 2010).
- The United Nations World Tourism Organization (UNWTO, 2020):
 - In 2019 the growth in international tourist arrivals continues to outpace the economy
 - 75 million jobs are at risk in the T&T sector, a 20% to 30% expected drop in international tourist arrivals and the sustainability risk for 80% of small and medium-sized firms

The distribution of Travel and Tourism's Total Contribution to GDP in Different Countries



Global International Tourist Arrivals



Spillover of COVID-19 to the T&T Sector

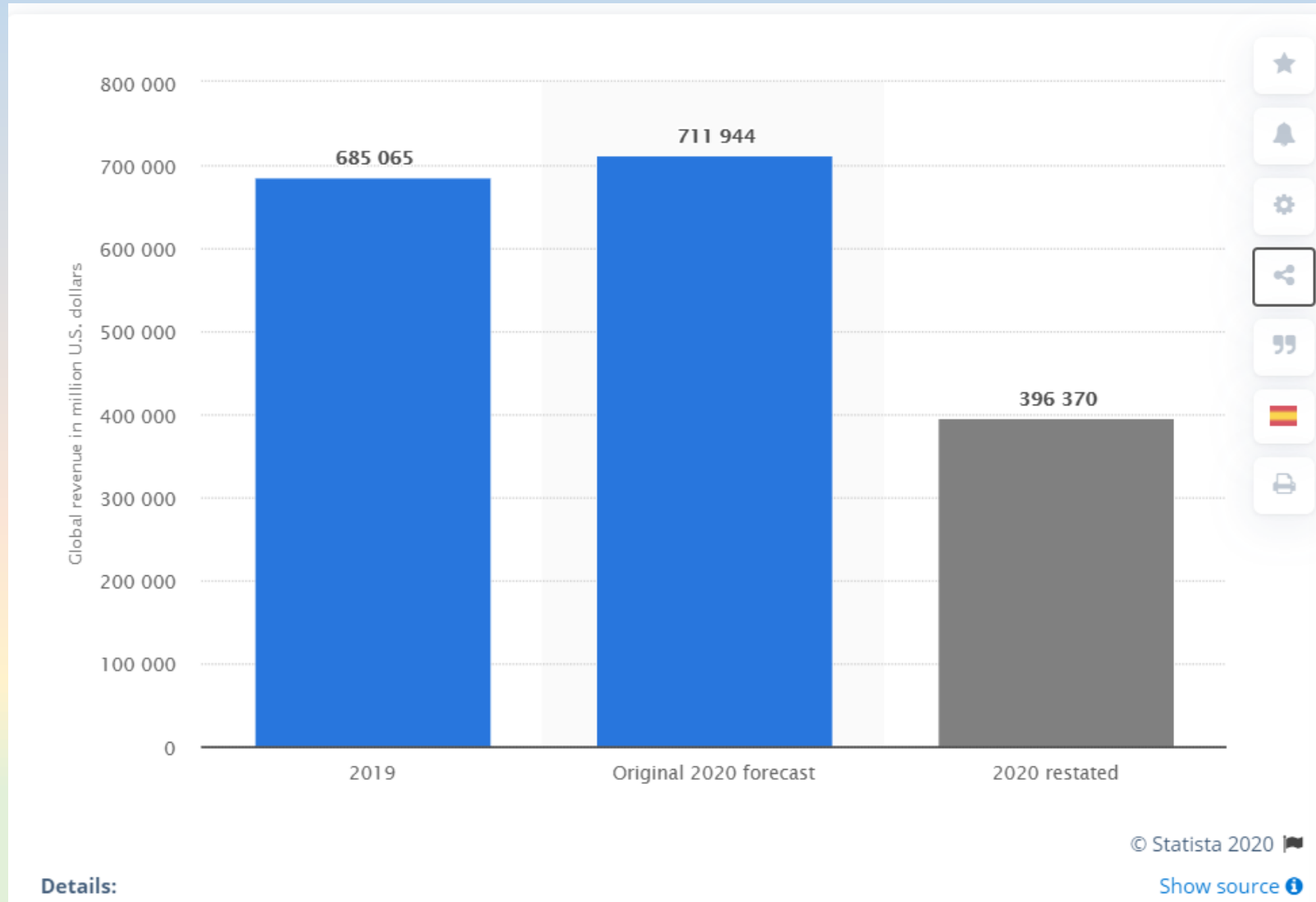
- Spillover to the travel industry.
- Spillover to the hospitality industry.
- Spillover to the sports industry.
- Spillover to oil-dependent countries.
- Spillover to import-dependent countries.
- Spillover to the financial sector: Banks and Fintech.
- Spillover to financial markets.
- Spillover to the event industry.
- Spillover to the entertainment industry.
- Spillover to the health sector.
- Spillover to the education sector.



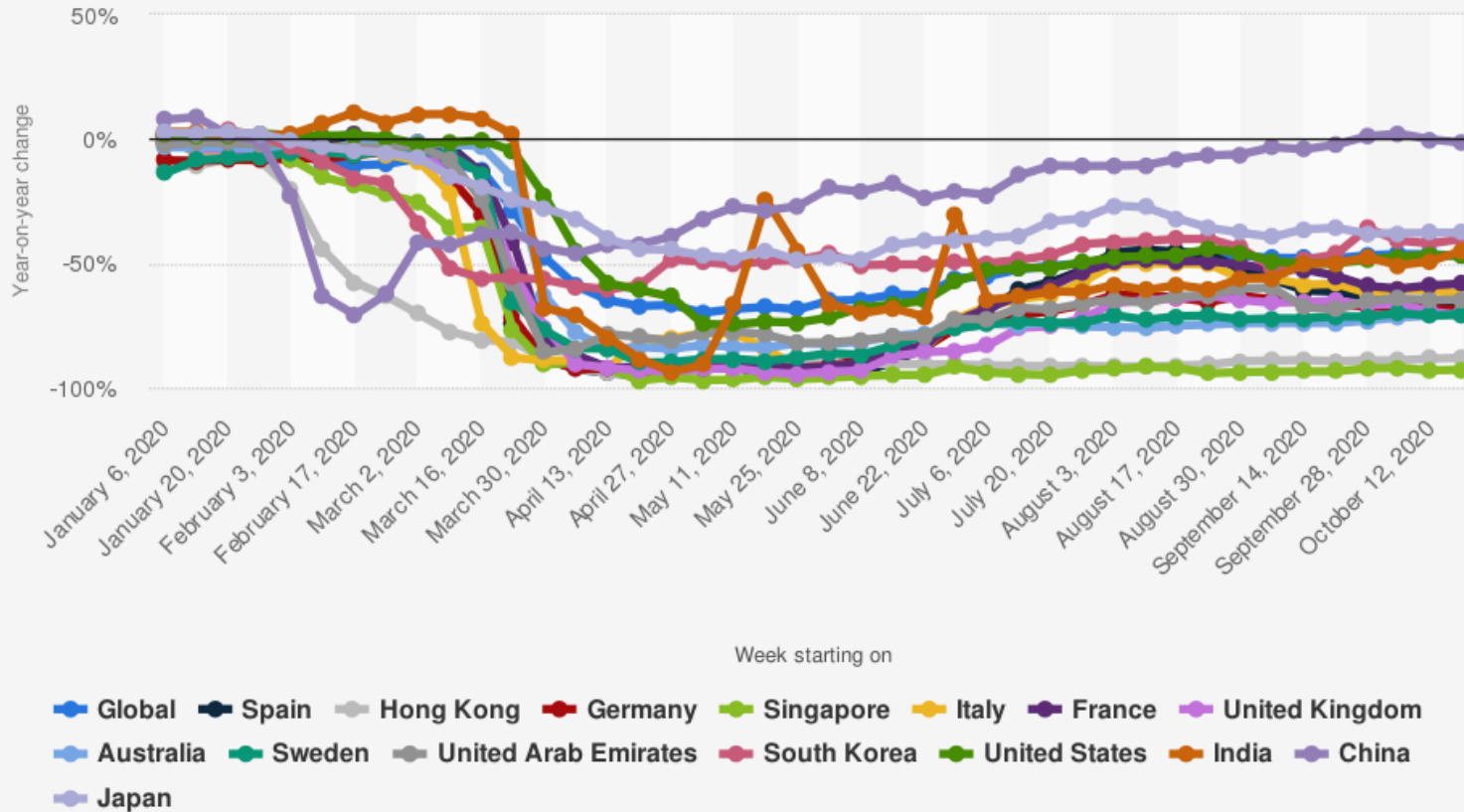
Significant Impact on the T&T Sector

- The various measures and decisions taken by the government to shut down hotels, restaurants, cruise liners, gyms, sporting facilities, cinemas, amusement, and theme parks.
- The pandemic has led to livelihoods being put in jeopardy with the cancellation of sporting events, cruises, festivals and social events, social distancing, and lockdown measures in place to contain the pandemic.

Forecasted change in revenue from the travel and tourism industry due to the coronavirus (COVID-19) pandemic worldwide from 2019 to 2020 (in million U.S. dollars)



Year-on-year change of weekly flight frequency of global airlines from January 6 to October 19, 2020, by country



Source
OAG Schedules Analyser
© Statista 2020

Additional Information:
Worldwide; week of January 6 to October 19, 2020

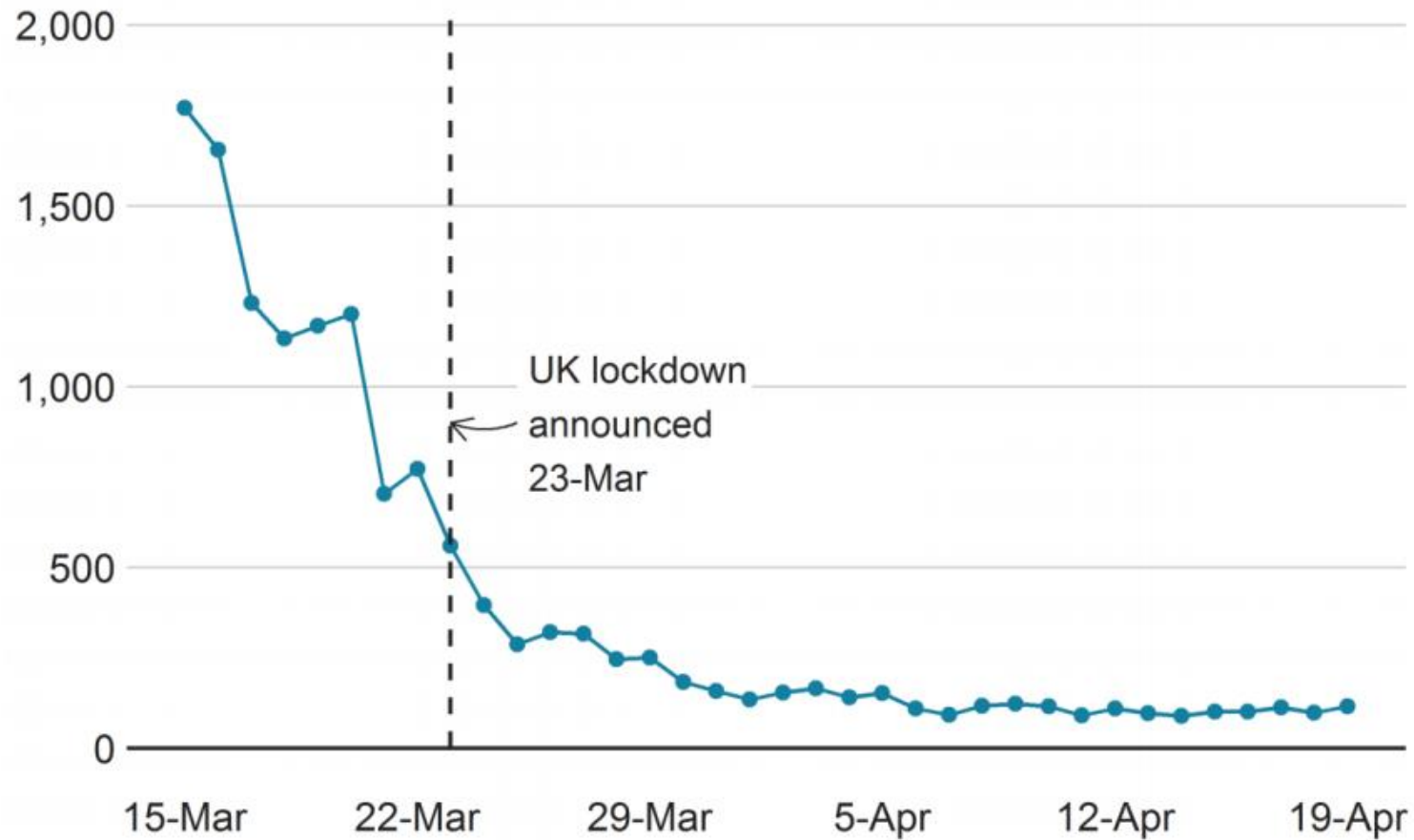
Impact on the Travel Sector (UK Evidence)

- In 2019, London Heathrow, one of the busiest airports in the world, had a record of 80.9 million passengers travel through the hub (Heathrow, 2020).
- In 2020, the UK airports report that the passenger traffic has fallen by 52%, worse than that experienced during the 1990 Gulf war, the 2008 global financial crisis and the 2010 volcanic ash airspace closure (Independent, 2020).
- The travel sector has requested for government intervention to the package travel regulation on the refunds for package tours.
- Several airlines have decided to cut jobs as a measure to contain costs.
- Airlines are contemplating to ask the government for a bailout package.
- Some other airlines (e.g. Flybe) have been declared bankrupt.

- Some airports also run the risk of closure and with some countries imposing an embargo on travel and other forms of travel restrictions, airlines are liable to fulfil their obligations on all cancellations and refunds.
- Passenger traffic has reduced radically, the air-cargo only traffic has increased significantly mainly for transportation of medical equipment.
- British Airways have increased its cargo flights in a bid to assist with bringing in vital medical supplies to the UK, including ventilators and personal protective equipment (PPE).
- One of the hangars at Birmingham airport is being used for a temporary mortuary.
- British Airways assisted in flying thousands of UK nationals who have been stranded in India as a result of the Covid-19 crisis.

Decline in flights due to coronavirus

Tracked departures from the 10 biggest UK airports



Departures tracked from Heathrow, Gatwick, Manchester, Stansted, Luton, Edinburgh, Birmingham, Glasgow, Bristol, Belfast International airports

Source: Flightradar24.com

(Bas & Sivaprasad, 2020)



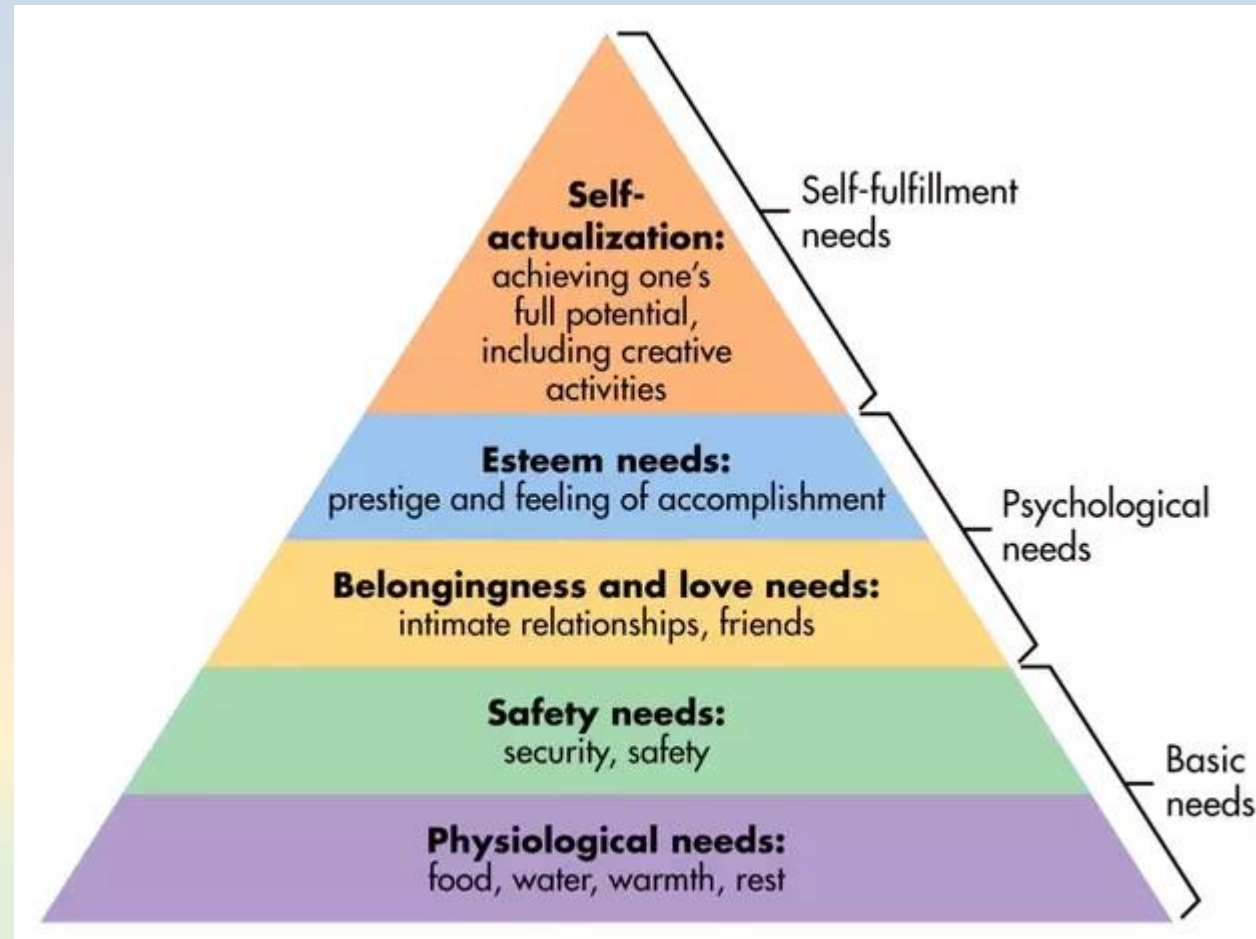
UK Governments Actions

- Tax-free for the 2020/21 tax year for all hospitality, retail and leisure businesses.
- Cash grant for businesses operating on smaller premises.
- Government backing for banks loans to small and medium-sized businesses.
- Assurance that commercial property landlords cannot evict tenants for the next period of time due to non-payment of rent.

How businesses are fighting the pandemic: Creating New Business Model & Strategy

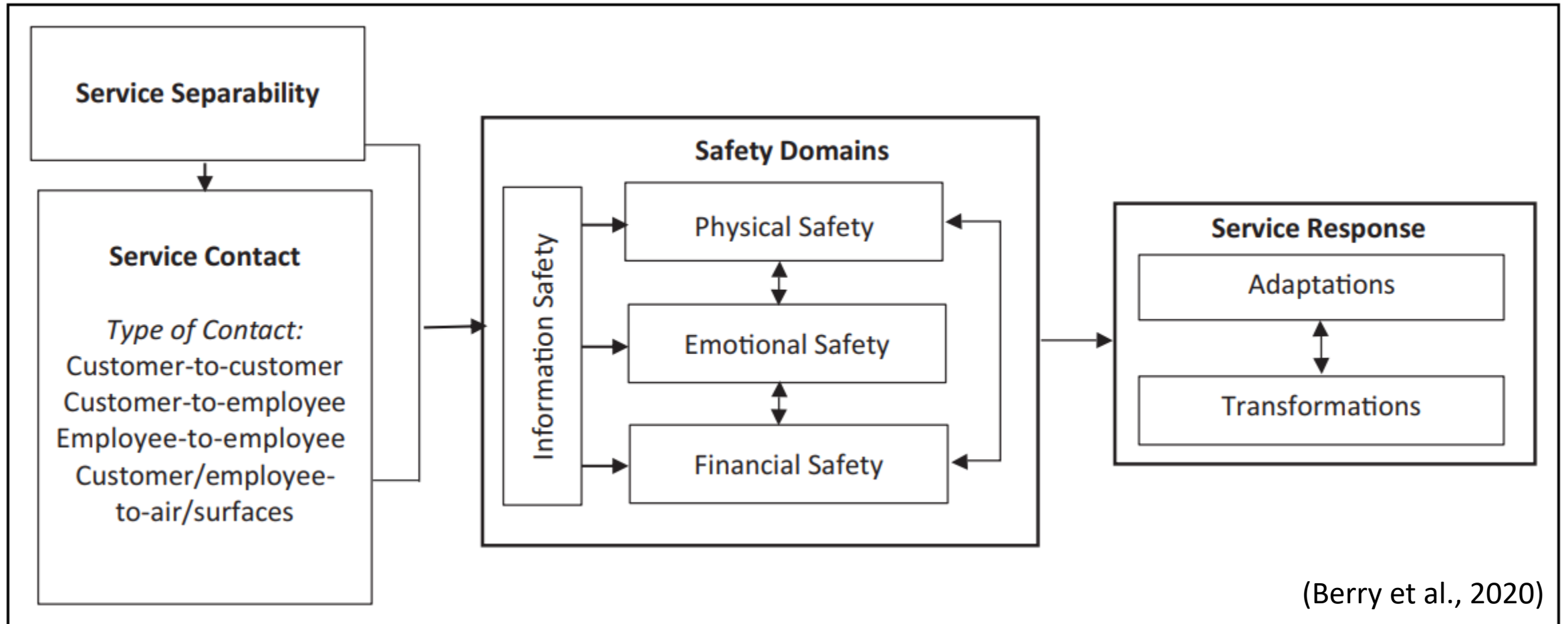
1. Employee and Customer Well-Being
2. Technology Infrastructure
3. Sustainability
4. Communication
5. Disaster Planning

Maslow's Hierarchy of Needs



Maslow's (1987)

Service safety transformations



Employee and Customer Well-Being

Social distancing and lockdown measures in place

Remote or 'online' working as an emerging and popular trend

Businesses may examine where possible and applicable to adopt remote working

Promoting efficiency and normalcy in working lives

Training for employees to cope with customer queries related to the pandemic or even IT training

1. Employee and Customer Well-Being

- Safety First
- Employee well-being should be given priority
 - communicate and highlight the hygiene measures
 - identify staff members who can continue to work remotely and allow for flexible work practices
- Well-being of customers is of paramount importance
 - Customers' feedback on how to improve services and their perception of hygiene
- Increasing service separation and reduce risky direct contacts (emptying waiting rooms/reception areas; prescreening patients and staff with questionnaires and infrared temperature scans; and using medical air filters, disinfectant sprays, paperless forms, contactless payments, and virtual consultations)
- Service firms prioritize physical safety benefit: Workers have greater confidence in coming back to work and doing their jobs, and customers feel safer patronizing these businesses again.

2. Technology Infrastructure

- IT infrastructure, to cope with handling business affairs remotely
- Cyber security, to ensure that cyber risks are reduced and data is protected
- Technology improvisation such as contactless processes such as online forms, digital payments for check in and check out.
- Automation, to contain the virus spread by limiting human contact (e.g. robots, mobile technology)
 - Hong Kong International Airport “CleanTech”
- Touchless fixtures
- Free unlimited data to all mobile customers, entertainment companies are releasing content ahead of schedule, and museums are offering virtual shows and tours.
 - Innocent Bystander have transformed the cellar door experience by offering intimate, entertaining, physically distinct virtual wine tasting.

3. Sustainability

- Forming alliances with local businesses to promote sustainability.
- New approach to tourism to generate new businesses such as artisan, local farm produce etc.
- Restaurants can explore the option of sustaining their business during the pandemic by promoting takeaways on social media or organise online competitions and/or cookery classes or even virtual wine tasting classes.
- Digitalisation, online games, e-tourism could be a viable stream of income that can be explored, where customers are able to 'visit' places without leaving the comfort of their home.
- The aviation sector could foresee significant consolidation across airlines and networks merge, privatization of national carriers.

4. Communication

- Constant communication to staff and customers alike on the challenges faced and the response to the pandemic.
- Management must create the correct balance of communication between warning and assurance
- Businesses must communicate that they are working hard to make all environments and buildings 'COVID-19 safe and secure' for phased and prioritised return to business.
- Businesses can create a communication strategy team comprising staff representatives as well to ensure that all segments of the staff are represented

- Google
 - working with the World Health Organization on a message authentication system to prevent malicious emails from getting into inboxes
 - established a 24-hour COVID-19 incident response team to remove misinformation from search results and from YouTube, while also promoting accurate information from health agencies
- Amazon is cracking down on peddlers of phony COVID-19 cures and on safety equipment price gougers.
- Facebook is taking down ads for products that deceptively refer to COVID-19 or that spread conspiracy theories about the disease.

5. Disaster Planning

- Revisiting standard operating procedures (SOP) to develop and implement their own protocols.
- Ensuring to have 'stress tests' in place to ensure that they can cope with any sudden break down of processes.
- Provision for strict sanitary and hygiene measures will need to be arranged.
- Introducing new practices to monitor and control the environment in which the business operates.
- Venturing into sustainable tourism to mitigate the risk of future pandemics occurring.
- Providing skills and training opportunities to their staff during the pandemic.
- Governments can provide short certified training courses to these individuals. For instance, all flight attendants are known to be well versed in first aid and this skill could prove useful in the health services.

PPIC's Challenges

- Safe Workplace
 - temperature checks & personal protective equipment (PPE);
 - a workplace safety app to manage workspace distancing (e.g. workspace layout and design, employee shifts, and cleaning to maintain hygiene);
 - a readiness app that gauges employees' work-related well-being;
 - a workplace PPE inventory app that allows companies to manage and monitor that inventory in real time.

PPIC's Challenges

- CEO Bill McDermott (ServiceNow 2020):
 - Organizations embrace digital workflows.
 - “Traditional office and desktop workspaces will become a pre-COVID artifact.”
 - Firms will redesign their workspaces and working arrangements to safeguard the health (physical safety) and well-being (emotional safety) of employees while transforming their workflows and commercial footprints to ensure their future financial viability.

CONCLUSIONS

CONCLUSIONS

1. The services sector plays an increasingly important role in the global economy
2. Increasing customer demands has led to increasing variety of services.
3. The increase in consumer needs has led to increasing variety of services that demand customer-centered service strategy.
4. The emergence of the concept of sustainability requires the service sector to create sustainable innovations.
5. Multi-performance demands due to the variety of services and sustainability principles provide challenges for PPIC people.
6. Services sector is the most the most severely affected by the COVID-19.
7. How the services sector combats the COVID-19 pandemic has spurred the growth of service innovations that prioritize the aspects of employee and customer well-being and sustainability, increase the awareness of disaster planning and intensive and effective communication by relying on the support of the technology infrastructure.

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