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Chapter I: Introduction, General Overview and Theoretical Knowledge (preceding contributions)

1.1. Exploring The Service Science Knowledge

Creating value by sharing skills and capabilities with others for mutual benefit is the face of the modern businesses. They rely on technology, communication, information, automation, and globalization operating in a complex web of suppliers, customers, and other stakeholders.

Service science is emerging as the study of such complex services and service systems. Is a field involving methods and theories from a range of disciplines, including operations, industrial engineering, marketing, computer science, psychology, information systems, design, and more. Understanding effectively service and service systems often requires combining multiple methods to consider interactions of people, technology, organizations, and information to create value in various conditions (Stauss, B., Engelmann, K., Kremer, A. and Luhn, A., 2008).

Service Science has been a strategic area of scientific study. Historically, the shift towards service-based economies in certain parts of the world have brought the need in guidance on to how to innovate, manage, evaluate and optimize new service businesses concerns (Hefley, B. and Murphy, W., 2008).

Defined research directions for Service Science take activities including new academic initiatives such as Service Science Management and Engineering (SSME concept by IBM). A term introduced by IBM to describe service science, a complex systems in which specific arrangements of people and technologies take actions that provide value for others. More precisely, SSME has been defined as the application of science, management, and engineering disciplines to task that one organization beneficially performs for and with another.

In the present day, SSME is a call for academia, industry, and governments to focus on becoming more systematic about innovation in the service sector. The largest sector of the economy in most industrialized nations, as well as fast becoming the largest sector in developing nations. SSME also proposed as academic discipline and research area will complement, rather than substitute, many disciplines that contribute to knowledge about service. The interdisciplinary nature of the field calls for a curriculum and competencies to advance the development and contribution of the field of SSME.

In this area the stimulation for research and cross-disciplinary collaboration supports the mission of putting up the study of theory, methods and application of service science, management, engineering and practice. Service Science Research tackles difficult problems using the following approaches (Diao, Y. and Motahari Nezhad, H. R., 2014):

- Service Analytics---Exploring the use and application of advanced analytic technologies to address the information service and business analytic challenges faced by enterprises.
- Business Architecture and Process Innovation---Designing and implementing a holistic approach to improving the foundations and practice of transforming global enterprises.
- Complex Service Systems Modelling, Engineering and Simulation---Modelling, engineering and simulating complex real-world service systems, and delivering complex IT Services.
- Service Quality and Experience---Creating and building advanced technologies intended to make workers more effective and processes more robust.

In Service Science there are also research areas like:

- Service Design and Strategy Value: proposition and measurement of the complex system modelling, optimization, simulation business models, services value modelling industrialization of service;
- Service Analytics: applying analytics and cognitive techniques applied various stages of service lifecycle;

- Service Modelling, Monitoring and Management: modelling service systems, policies, formal representations, languages;
- Service Quality: excellence compliance, effectiveness, sustainability New measures and regulations;
- Service Delivery and Operations Productivity and versatility Service operations: management service delivery models, channels;
- Business aspects of Service Components and Composition Human capability: augmentation, self-service pricing of services;
- People in Services: customer behavior in networked environment, service social network and models organizational relationship, alignment, and culture;
- Service Innovation, Marketing and Management: service management, service marketing, and service economics, competitiveness analysis.

For the background and emergence of SSME, Service science is a new discipline arising from the rapid development of services across the industrial world (Spath, D. and Fähnrich, K-P. 2007). It is rooted in the interdisciplinary study of computer science, operations research, industrial engineering, mathematics, business strategy, management sciences, decision theory, social and cognitive sciences and legal sciences. The goal including to tackle issues such as to what extent organizations can be restructured, how to manage service innovation, and others. The actual components of service science include business strategy, business processes, human resource optimization and fundamental technologies in information and technology.

SSME emerged as a response to the lack of effort in service innovation on the national levels despite the increasing importance of the service sector itself. Though currently booming sales in services, the level of R&D funding for the service sector is surprisingly trivial.

Promoting the understanding of SSME is crucial when the importance of SSME is vague for

many people. Service itself is multifaceted, and because the usual explanations of the two words “service” and “science” seem to have little connection to each other, proper understanding the concept of SSME has been reticent.

It is then compulsory to clarify the essential nature of services. At the most fundamental level, service are “economic activities offered by one party to another, most commonly employing time-based performances to bring about desired results in recipients themselves or in objects or other assets for which purchasers have responsibility; In exchange for their money, time, and effort, service customers expect to obtain value from access to goods, labor, professional skills, facilities, networks, and systems; but they do not normally take ownership of any of the physical elements involved” (Lovelock, C. and Wirtz, J. 2007). Service is the joint creation of value by providers and clients. Service business, therefore, is the exchange of cost for the value jointly created by providers and clients. And as a consequence it is natural that both providers and clients demand improved accuracy in measuring the degree of this value, in accurately forecasting the risk of actualizing this value, and other related issues.

This demand ties into the second reason as to why the word “science” is included in the definition of SSME. The essence of science lies in non-reliance on individual know-how, the creation of models through observing and measuring information, and the testing of these models. In other words, the essence of science is its reproducibility regardless of participants and its capacity for producing results with a high degree of future predictability. Thus, the role of “science” in SSME is to quantifiably forecast future value and risk.

There is a long history of academic and industrial interest in the service sector - starting with Adam Smith and continuing right up to the present day. Yet most such interest in service has focused narrowly on marketing or management or economics. With the rise of technology-enabled services, many traditionally manufacturing-based companies have begun to see more and more

revenue generated by service operations. So in industry, there was a growing recognition that service innovation is now as important – if not more important than – technology innovation. Yet, service innovation is generally unknown (save for a few economists studying the relationship between investment and innovation in service industries; e.g., GADREY, GALLOUJ, DJELLAL and others).

In summary the key to service science is interdisciplinary. The focus is not merely on one aspect of service but rather on service as a system of interacting parts that include people, technology, and business. As such, service science draws on ideas from a number of existing disciplines – again including computer science, cognitive science, economics, organizational behavior, human resources management, marketing, operations research, and others – and aims to integrate them into a coherent whole. Relabeled initiatives in this area Service Science, Management, and Engineering to highlight the interdisciplinary nature of the effort is a key area for investment by companies and governments and as a full-blown academic discipline.

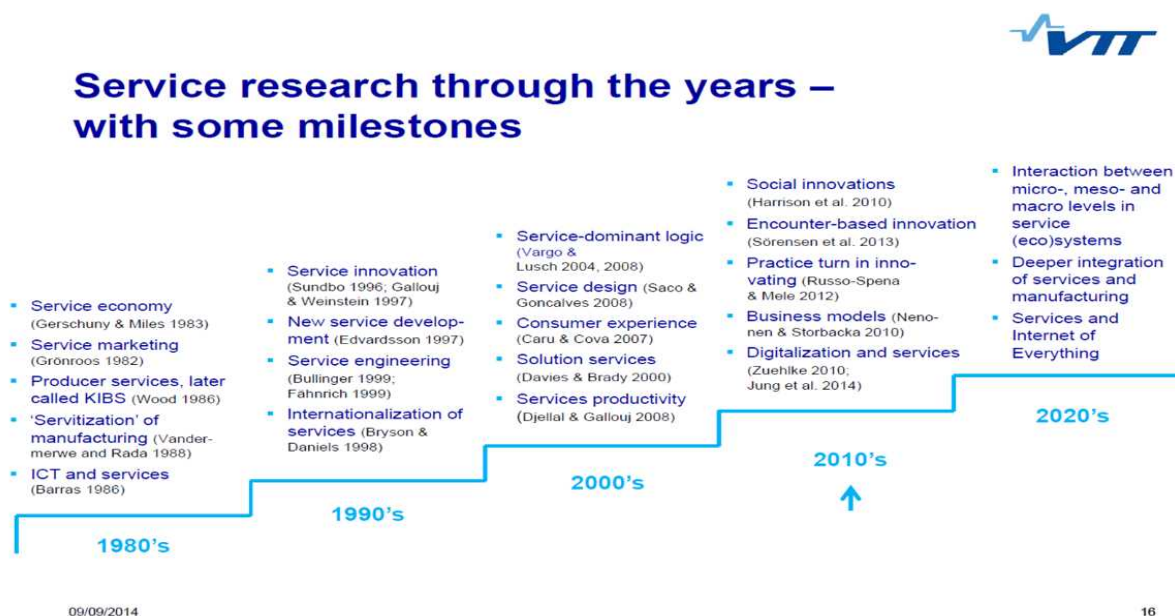


Figure 1.1. Service Research Milestones (Jouko Suokas – Executive Vice President VTT Technical Research Center of Finland)

1.2. Review of the Literature

Early definitions of services were based on technical criteria derived from classical economists, Smith (1776) and Say (1803) view service as a product that is consumed in the instant of production; Singlemann (1974) and Fuchs (1968) take the notion of co-production as the interaction between consumer and producer in producing services; Stanback (1980) describes services as non-storable and non-transferable; Hill (1977) widened the definition “a change in the condition of a person, or a good belonging to some economic unit, which is brought about as a result of the activity of some other economic unit, with the prior agreement of the former person or economic unit”.

Gadrey (2000) brings “service triangle” that defines as process or a set of processing operations that are implemented through interactions without leading to the production of a good that can circulate in the economy independently of a medium (reality owned or used by consumer). A set of characteristics and competences reflecting both the internal structure of products and external properties suggested by Gallouj and Weistein put the simultaneous mobilization of competences (provider and client) and technical characteristics (tangible or intangible). Vargo and Lusch (2004) with service-dominant logic redress the model of exchange in marketing adding service provision: “...service is exchanged for service; all firms are service firms; all markets are centred on the exchange of service, and all economies and societies are service based.” And the value co-creation is highlighted for the role of producer and consumer. Gronroos (2006) comparing service logic and good logic found service logic fits best the context of most goods-production business today (goods are resource functioning in a service-like process). Fisk et al. (1993) bring in the IHIP criteria: intangibility – impossible to be perceived physically, heterogeneity – variability of results when provided, inseparability – simultaneous provided and consumed and perishability –

“not kept, stored for later utilization, resold, or returned” (Biege et al 2013).

From approaches used to the service analysis, the integrative approach is found to be the most promising and comprehensive theoretical perspective. Last two decades the aim is to generate more achievable policy implications for how innovation in the service sector should be discussed in order to reveal the vital role that innovation in the activities of service sector might play in modern economies.

The very often taken as **The** activity of service sector, the tourism also have a comprehensive literature review on the temporal relationship between tourism and economic growth. Specifically, the role of such economic activity, as a promoter of short and long run economic growth, is investigated by assessing the so-called Tourism Led Growth Hypothesis (TLGH). To this aim, various methodological approaches have been used, such as VAR, VECM, ARDL, ARCH, GARCH¹, cross section and panel data. The co-integrating relationship of the economic variables allows one to test the short and long run Granger no-causality. Overall, the empirical findings, emerging from the existing literature, provide evidence that indeed tourism activity drives economic development in all the countries analysed. This outcome further supports the well-established contribution that international tourism has to the economic development.

On the one hand, Ahmad (2001) has found that the Export Led Growth Hypothesis (ELGH) is rather weak in most of the countries. On the other hand, the study, with only very few exceptions, confirms the TLGH in both developing and developed countries. This finding is consistent with the fact that economic agents will benefit by promoting tourism activity as one of the lever mechanisms of economic growth.

As pointed out, there are several mechanisms that enhance tourism development and at the same time tourism activity is expected to be an important drive of economic growth. However,

¹ Econometric techniques.

a long run bi-directional Granger causality between tourism and GDP has only been found for Malta, Taiwan, and, via a panel data analysis, Latin American countries. This outcome can be regarded as a very important example for those countries that want to achieve growth through the stimulus of tourism. If on the one hand, tourism is driven by many exogenous factors such as economic cycle and tourists' preferences, on the other hand national government can play a key role in enhancing opening to foreign investments and international tourism.

Besides, a unidirectional Granger causality running from economic development to tourism has been found in the case of Cyprus (Katircioglu, 2009), where an ARDL specification is employed. This finding suggests the need to employ alternative econometric tools that help assessing further the TLG hypothesis.

Notwithstanding the positive benefits deriving from tourism activity, further questions also arise. Can tourism-led growth always be thought as sustainable? Recently, a new strand of literature has in fact emphasized the negative externalities that tourism activity can produce on social equilibrium and natural resources undermining the long run sustainability (e.g. Capo et al., 2007). Much more research is yet required on these issues and this study starts from this point of the taint to sustainability by this specific service activity.

In the concern towards the richness on innovation that the service sector is crowned of, the desire to go beyond this single activity (tourism) – with undeniable strong contribution – and explore the sector as a wide field of opportunities and potential.

Services are fast overtaking manufacturing to form a dominant proportion of the world economy. Service innovation is increasingly seen as a vector of sustainable growth and competitive advantage at the firm-, industry- and economy level.

Innovation started evolving as a key discipline of research over the twentieth century. Initially, innovation research was predominantly focused on science and technology and the new product

development approach for commercializing ideas and inventions mainly in the manufacturing industry. With the increasing growth of services in today's organizations and economy, the importance of understanding service innovation concepts and practices has been on the rise. Over the last decades, researchers have hence been directing attention to innovation in the context of services. Today, service innovation has evolved into a vast field encompassing the study of intangible processes and dynamic interactions among technological and human systems that lead to managerial and organizational change in services. The literature on service innovation is expanding into a diverse and cross-disciplinary body of knowledge scattered across economics, marketing, organizational science, and management perspectives. Through this complexity and diversity in the streams of extant service innovation literature, efforts are to provide a holistic overview of the literature in this rapidly growing field. Organized across three broad themes: overview of Service Innovation, the Dynamic and Systemic Process of Service Innovation, and Management of Service Innovation; a consolidated guide to the service innovation concepts and practices can be put up.

1.3. Chosen Context

Resource endowment is one crucial determinant for economic performance. It is however to say that another crucial determinant is the capacity the economic body has to work out with the respective resource endowment. Such capacity have had in recent years find expression in the innovation capacity owned by economies. And all especially the innovative capacity on service sector sections have here talked about beforehand. After working out empirical evidences regarding such, this study will cope the affirmations with reputed theories. The basic analytical framework for an economic theory consists of five aspects or steps:

(1) Specification of economic environment: _limited resources;

- (2) Imposition of behavioral assumptions: _specialization on services;
- (3) Adoption of economic institutional arrangements: _strategy policies;
- (4) Determination of equilibria: _sustainable development;
- (5) Evaluation of outcomes resulting from an undertaken institution.

The importance of economic transformation phenomenon for small island economies² as the Cabo Verdean one finds reasons on the: a) absence of theoretical and empirical consensus concerning the effect of service/innovation on growth process for resource limited economies; b) lack of studies for them about the relationship between what kind of service/innovation effort leading its growth and transformation; and c) study reference time goes from the political opening(1990) until nowadays Cabo Verdean economic states.

² Small island economy limited resource service sector aims to identify economies that face difficulties in developing because of geographical and resource limitations; they cannot afford themselves to sustain massive transformation production sectors, having constraints related to their smallness, remoteness, geographical dispersion, lack of natural resources, fragility of the ecosystem, small domestic market, isolation from markets, do not attain or struggles to have benefits coming from scale effects and exposed to vulnerability factors such natural disasters, exogenous economic/financial shocks and dependence on imports though believed that export of services may compensate and provide important development potential to cope with the insularity.

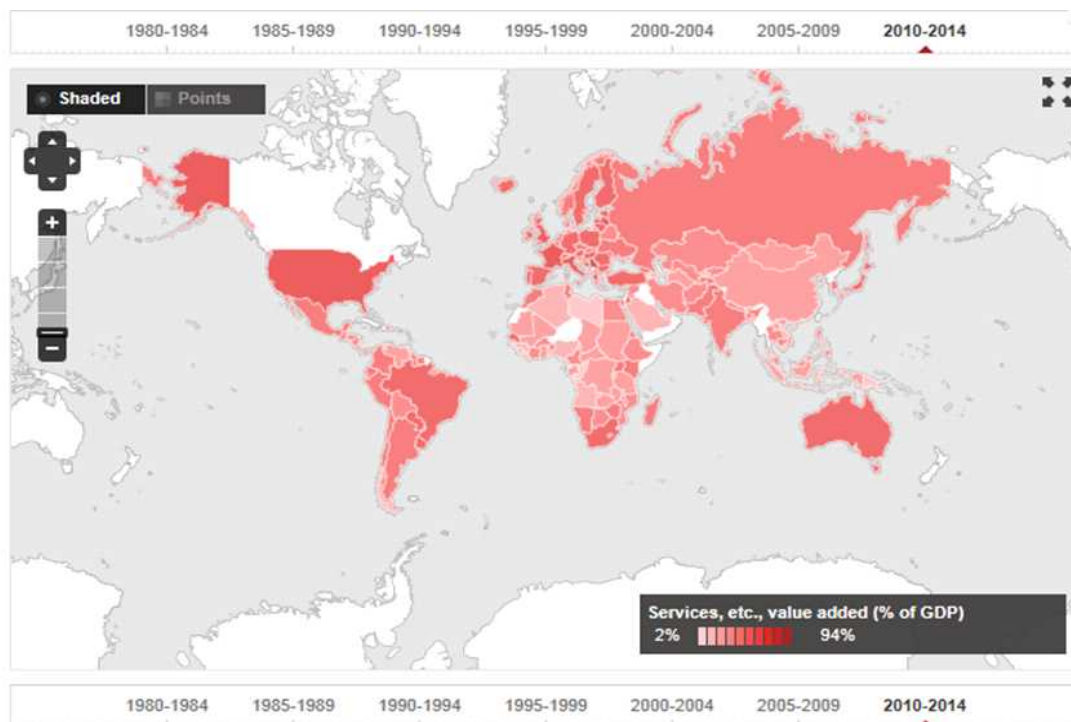


Figure 1.2. World Bank national accounts data, and OECD National Accounts data files.

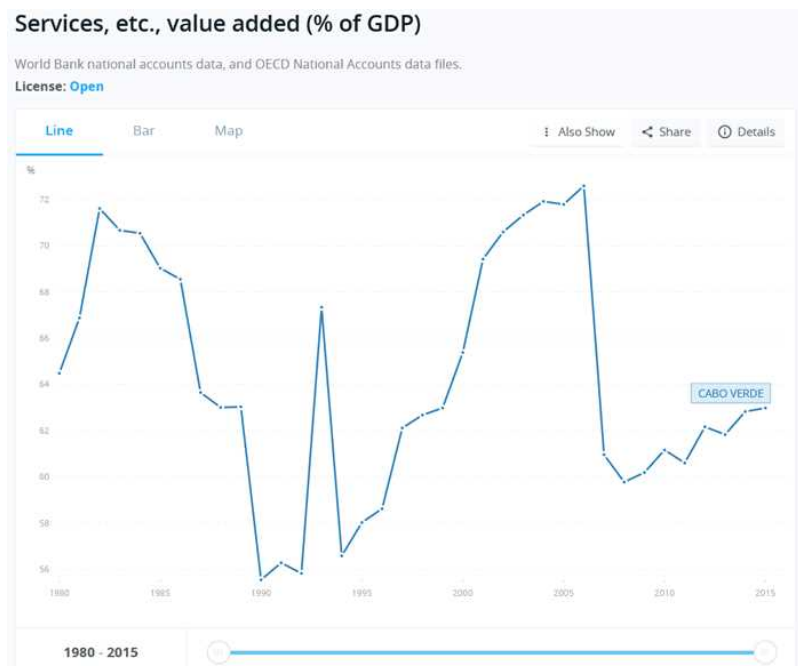


Figure 1.3. World Bank national accounts data, and OECD National Accounts data files.

1.4. Problem Statement and Outline of the thesis

In Economic Growth theory, output increase and improved productivity of production input caused by capital accumulation including social overhead capital, population and therefore labor growth, technological progress, and human capital accumulation had been focused and studied as drivers of growth. Economic growth effects caused by the factors mentioned above had been studied and confirmed both by numerous theoretical and empirical investigations (Solow, 1988).

However, accumulations of capital including social overhead capital or technological progress promoting improvement of a production process innovation need a huge amount of fund and for almost all of the under developed countries including Cape Verde, finance of such growth funds is inevitably accompanied with considerable difficulties. This is one of the main causes of the non-accomplishment of the world growth convergence and growth stagnant observed in many under-developed countries (Barro and Sala-i-Martine, 2004).

Island economies are often directly categorized as touristic based when their exotic features are under appreciation. Acknowledging the importance of tourism activity this investigation aims to explore the entire service sector richness in business opportunities stated by service sector innovation capacity.

Analyzing the effect of service/innovation on economic transformation using data methodology of estimation from growth equation for empirical approach consents the hypothesis of service ad hoc, specific specialization to be tested on a limited resource economic context. Specific specialization invites to revise the definition of R&D in the light of the specificities of services. Stating that R&D is underestimated in services, it is combining deductive and inductive approaches to formulate a new definition of R&D without fundamentally alter the structure of the

OECD definition (Djellal, F., Francoz D., Gallouj, C., Gallouj, F. and Yves Jacquin, 2003), which is only marginally amended by making explicit certain implicit or insufficiently highlighted characteristics by here used references. The emphasis goes to the importance of the social sciences and humanities, of design and development or organizational engineering, the composite nature of projects, and so on. The objective is to attain a certain 'psychological' threshold that would mark the emancipation from the inertia of the still dominant industrialist and technologist approaches for service innovation understanding.

This dissertation will make use of the chosen reference economy National Strategy (Cabo Verde) to analyze the possibilities of a structural change through policies favoring service specialization based on knowledge commodity. It is here brought on the only aim to have a real case application approach.

1.5. Objectives of the study

This investigations will claim islands to make use of their exotic features to attract permanent contributors for their long term sustainable development. And this by thriving to make knowledge the main commodity of their exchanges. This study examines service, specially based on knowledge, approach for sustainable development strategy on small islands and limited resource economies. More specifically the objectives are:

- Explore the relationship between Tertiary Economy Innovation, R&D, and sustainable development for small islands limited resource service sector context;
- Observe the genesis process of innovative service: finding out alternatives activities;
- Identifying the kind of Service Innovation Effort leading transformation on limited resource economies;
- Analysis and recognize the Era of the Knowledge Intensive Business Services (KIBS) that is

setting the new trend of economic specialization;

- Economic growth and sustainable development consideration;
- Policy application and proposal.

1.6. Study Hypotheses and Research Question

This study foundations briefly recalled in quotes of renamed authors find comfort to the undertaken investigation:

“Innovation is a skill, not a gift.” (Christiansen, B., 2013, Business & Economics)

“Innovation is a collaborative institutionalization of practices that provide shared, novel solutions for new and existing problems.” - Vargo and Lusch 2014

To promote mutations, the economy must make work their third sector innovation utilizing the knowledge material, it must be an on purpose action supported by polices and institutions structuring the entire economy.

The keywords such: Economy, Service, Innovation, Attractiveness, Location, Transformation; the objective being to examine service approach for development strategy on small and limited resource economies; hypotheses and questions are as follow:

H₀: According to services performance limited resource economies should get specialized on diversified and innovative third sector activities;

H₁: Limited resources for the other sectors motivate service strategy empowerment;

H₂: Small economies taking services as the engine for development ensure such choice by results appealing sustainable development.

- Is tertiary sector activities specialization a sure alternative of development for small economies?
- How service approach can be created for sustainable development strategy?

- How can services be taken as the engine for development of small economies?
- There is a way to ensure the choice of such specialization?
- Can limited resources for the other sectors motivate service strategy empowerment?
- Does the service sector possess growth/development-promoting characteristic despite being traditionally associated with manufacturing - can its productivity be readily increased by capital accumulation, economy of scale and improved technology? Can it improve the country's balance of payments through international trade?

1.7. Chosen Analyzing Method

The analysis will see the effect of service/innovation on economic transformation using data methodology of estimation. The results will confirm that service and service innovation has effects on growth in the chosen sample. The hypothesis will be tested on a limited resource economic context.

Once the aim is to find out alternatives the study will start with the genesis process of services call to the “re-evaluation” of the social dimension of co-creation of value as user/consumer decision “to participate” versus “not to participate” at the mentioned above process can be considered an infinity source of potential alternative solutions. Suggesting to revisit or to make a retrospective analysis of “new” or “renewed” or “reintroduced” service among existing analyses supported here aims to call attention up on service definition relying significantly on its capacity of innovation as quoted earlier. The concern lays on the how has been services defined as innovative beside the novelty determinant component identification allowing such definition. Findings reported give the degree of how it urges the need to identify novelty determinant components for economies keen to bet on service as engine for their development on the present time.

In the Era of knowledge-based economy we find Knowledge Intensive Business Services (KIBS) where firms are often highly innovative in their own right and they play a facilitating role in innovation in other economic sectors. Based on knowledge exchange/transfer/conversion dynamism for innovation process makes KIBS used for realizing country-specific patterns policy goals on all sectors research and development entities (R&D) in general and mainly in service sector.

To know or to recognize the potential that a given territory has in itself may seem easy by enumerating particular comparative advantages. Especially when the bold relationship service/innovation (with an implicit expression of an upheaval in know-how) is subject to establishment of firms considered a windfall to the economy. But how to appreciate this relationship service/innovation at its fair value and especially by what means handy when it comes to deploy the tertiary sector activities? Consequently strategies for locating service companies and attractiveness factors have become the objects of study vis-a-vis their inherent links. Service firms and their performance at the exchange at all levels are the inevitable study targets. Without neglecting their contributions for the national economy taking scope to the international visibility they may give to the referenced economy. Which allows to endorse that milieu features is up high in matter.

By using a Romer type growth model with a R&D sector and a final goods retailing sector, we point out growth effects of increasing product variety shown by the labor share in the activity on inventing new products by using the R&D sector and the service sector. From the empirical analysis on the steady state equation, a positive per-capita income contribution from service sector GDP share is put out at light as well as the number of researcher is indicated for its weight on understanding the subject. The principal component analysis on the key variables indicates a strong causality among per-capita GDP and R&D and service sector.

R&D and product variety economic growth model expands the scope of product innovation to include product increase in the tertiary sector. And its consequent growth effects with reference to supply-side factors in the tertiary sector. Investigations were addressed to growth effects of the invention of new goods and services in the model with extended supply side including tertiary sector. Investigating the balanced growth path of the theoretical model, we formulated two basic growth equations, the aggregate macro production function and the per-capita income in the steady growth path, that indicate the positive growth effects of increasing product variety.

Inevitably ease to consider a country strategy based on prioritize sustainability for the third sector activities as “clusters” . "Clusters" long identified as home of choice for innovations. This leads this working paper to take reference to the Cape Verde, despite limited on resources, the country owns a bold vision founded on building a diversified and productive economy through the development of "clusters" of competitiveness; these based on a model of sustainable growth by dynamic private sector able to allow transformations of comparative advantages into competitive advantages. A strategy that has been materialized through the Cape Verdean Strategy Document for Growth and Poverty Reduction (at its third implementation 2012-2016). A planning tool that articulates different sectorial policies and strategies for the development of Cape Verde.

Such reference and results lead towards a problematic on how to consider the transformation of economy thanks to the service sector in all categories of activities. But even more specific on activities based on knowledge to rise up as service-driven economies or service-led economies. Especially on how to state such transformation? By using what kind of barometer for?

1.8. Structure and the main results of the dissertation

Aiming to bring up evidence for the role of the tertiary economy innovation and R&D on the

path of sustainable development for small islands limited resource service sector context, this dissertation will provide information about structural changes resultant of chosen economic specialization and the extent to which respective benefits supported by policies transforms into knowledge intensive business service based economy.

To synthesize the following flowchart indicates the mutual relationship among all the chapters together composing the Thesis Paper.

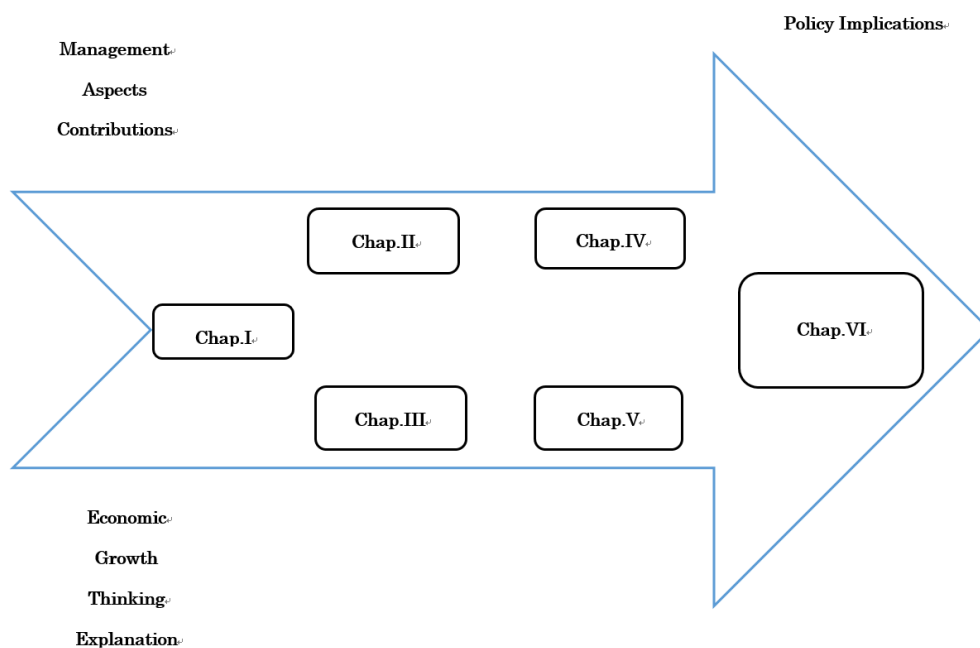


Figure 1.4. Thesis Flowchart (Own Elaboration)

It is to be noted a culmination of all elements put together from each chapter to achieve the understanding contribution such work paper allows.

The concern of finding out alternative activities pushes the starting reflection to be regarding the genesis process of innovative service. Following comes together a combination of management aspects and economic growth explanations to comfort the hypothesis. And in conclusion it is to be witnessed the convergence of all the brought knowledge into the policy implication inside the chosen economy reference which experiences mutations to become a service-led and

knowledge-based economy.

The originality of this study is to take knowledge as main commodity to nurture the structural transformation of an economy, through innovation and R&D set of service sector, supported by policy strategies for sustainable development. The most unique point of the thesis is the proposal of innovation and creation of new products in tertiary sector as an alternative of conventional growth policy to countries and economies characterized by its limited availability of resources of economic growth. Furthermore, this is the most remarkable contribution of the thesis at the same time.

The Global contribution is with ease identified regarding sustainable development. And the net contribution is here given by island context development revisited au regard of KIBS era.

In this study the innovation in tertiary sector is proposed as effective solution in order to overcome earlier mentioned problems. Investigations had been promoted to clarify effectiveness of measures from perspectives of service management and economic growth. By extending the analytical results of the precedent studies, theoretical and qualitative analysis had been at first carried out and then case study, questionnaires, and interviews to Japanese innovative corporations were conducted in order to reinforce the hypothesis obtained from above stated investigations.

In a theoretical investigation of economic growth, this study introduces an additional sector of service production into a leading growth theoretical model incorporating R&D activities. It also constructs three sector economic growth model by utilizing the model, an investigation on the growth effects of R&D and introduction of new products in tertiary sector is here commenced. In parts of empirical studies, a regression analysis on the per-capita GDP equation in a steady growth equilibrium, multi-variate analysis on main variables appears in the model; and regression analysis on the macro-production function incorporates inventions of new products that are

followed in order to certify the theoretical hypothesis obtained in the theoretical investigations.

This Chapter set the bases of which the perspective of the investigation is carried. Then Chapter 2 attempts to identify the kind of Service Innovation Effort that can lead to the transformation on limited resource economies; the focus goes on the quality concern; the identification of potential opportunities to enhance value of service; the need to measure performance; and a very important aspect is examine here: the Human resources in Service Operations essence; In a more futuristic view, this chapter advances some information about the Quaternary System, questioning the advanced level it is taking nowadays; inevitably Japanese example is introduced by the “Omotenashi”, the “Sanpoyoshi” Management Philosophy, the Nihon Service Award and Logistics Service example.

Chapter 3 evaluates the genesis process of innovative service: finding out alternatives thanks to the idea of an infinity source of « Innovative Service »; that is affected by time so cyclical momentums definitions of innovative services gives a retrospective and generating new service process under provider and user perspectives requires examination.

In Chapter 4 services, innovation and R&D on growth and sustainable development matter finds positive relations under metric treatments; in this chapter the fair value of the intertwined relationship Service / Innovation / R&D / Growth / Sustainable Development has a tentative of demonstration; Tertiary sector activities development on Public service sector and Private service sector also have some dedicated lines; the location and attractiveness factors/performance for international visibility corroborates with further explanations; and finally important bases about the Era of the Knowledge Intensive Business Services (KIBS) composes the last part of this chapter.

Chapter 5 brings the Analytical and Empirical Specific Approaches chosen about Service Economic Results; Attesting Attractiveness of Locations by Business Service Final Decision Implementation vis-à-vis to Location Factors also give inputs of metric contributions; R&D and

Innovations on Tertiary Sector's Performance and Its Contribution to the World Economic Growth constitutes one of the models here shared; and finally another model taking Increasing Product Variety and Innovation in Tertiary Sector Impacts on Economic Growth close the metric analysis of the dissertation.

The final chapter draws upon the entire thesis, connecting the research questions and empirical findings in order to give an overview of the results. In addition, the limitations of the study are presented and discussion about the implication of the findings for design and implementation of economic transformation through policy are also set in this chapter. And in last lines the chapter shares possible extension for future research.

In appendix the Reference Case Cabo Verde, where Policy Implications of the willing transformation find reasons on the Serving Culture (Morabeza) of the country; the National Strategy Document special Service traits for a Sustainable Development; the country Clusters bold vision (believed as the ideal structure to stimulate Development); the matter of Entrepreneurship and Development of Service Sector in Cape Verde (under Urban and Rural Informal Sector controversy); And finally the culmination of efforts that allows to Stepping to Become a KIBS Economy.

Chapter II: Identifying the approaches of Service Innovation leading to transformation of limited resource economies

This chapter is here taking part for the very important reason of setting the fundamentals to better understand the motives of service knowledge based specialization. As theoretical support in here we attempt to identify the kind of service innovation effort that shall lead a deliberated transformation of a limited resource economy through chosen specialization.

2.1. Quality concern

Quality is a feature perceived by the users of a product (good or service).

Different types of users see different parts of a product and have different reasons to use the product. Their differing motives for using the product imply that they have different concerns about how they should use the product and therefore what they perceive as being a quality of the product (Asher Mike, 1996).

It is potentially easy to describe quality metrics for each individual artifact but quality goes further than this. Therefor the concern for producers is about producing those artifacts for all the right users.

Two axis/concern: one axis/concern is the availability of the product; the other concern is the quality of the product. And the availability of the product as for the service product may stain its quality.

Quality of service (QoS) (Parasuraman, A., Zeithaml, V.A., Berry, L.L., 1988) is the overall performance seen by the users of the service. To quantitatively measure quality of service, several related aspects of the network service are often considered, such as error rates, throughput, transmission delay, availability, etc.

In the field of computer networking and other packet-switched telecommunication networks, quality of service refers to traffic prioritization and resource reservation control mechanisms rather than the achieved service quality. Quality of service is the ability to provide different priority to different applications, users, or data flows, or to guarantee a certain level of performance to a data flow (Parasuraman, A., Zeithaml, V.A., Berry, L.L., 1988).

Quality of service is particularly important for the transport of traffic with special requirements. In particular, developers have introduced technology to allow computer networks to become as useful as telephone networks for audio conversations, as well as supporting new applications with even stricter service demands (Parasuraman, A., Zeithaml, V.A., Berry, L.L., 1988).

Some types of users are: Data capture user; Reporting user; Administrator user; Active monitoring and control user; Developer; Integrator; Architect; Sales and Marketing.

Concerns of a data capture user are: Can effectively capture data; suited to catching and verifying capture issues before committing the capture.

Concerns of a developer are: Well-structured code / easy to find issues; fair documentation with reasonably refactored code; well tested; component isolation or separation.

Concerns of the integrator are: Good 3rd party documentation; technical notes available for tricky topics; Example usage/integration code; protocols, schemas and sequences well documented; configuration sanity tests and FAQ available.

Concerns of sales and marketing: Features and issues clearly identified; bugfree software, does what it does without crashing; access to a software expert.

Concerns of an administrator: Well defined security target; defined configuration and issue resolution; performance analysis available; easy to administer.

Etc.

To conclude service quality in all dimensions is related to the user's concern to be satisfied by the value created by the use of the service. And to identify potential opportunities to enhance value of service the communication between all parties is needed.

2.2. Identifying potential opportunities to enhance value of service product:

Communication with consumers

Communication strategies encourage consumers to make a response, either by requesting further information or purchasing a product. The effectiveness of strategies can be improved by building a greater understanding of consumers' individual needs and preferences and personalizing communications. Strategies that build dialogue with consumers create trust and provide with feedback that enables to fine-tune communications even further (Linton, 2016).

Awareness

Successful companies aim to build strong relationships with consumers so they can retain those consumers as long-term customers and maximize revenue opportunities. When consumers are buying, they make decisions based on the information they have about an available product. By communicating through advertising or other media, it make consumers aware of product so it becomes one of the alternatives they consider.

Choice

Product communication through media such as advertising promotes consumers' choice. Communication informs consumers about the differences in price, quality or sorts of competing products, enabling consumers to make informed choices.

Preference

The initial communication raises consumers' awareness of the products. By communicating regularly, it can make consumers aware of the benefits of products, differentiate

products from those of on the competition and create a preference between products. If the communication strategy is effective, it will convince consumers to choose certain product over the competition next time they make a purchase.

Accountability

Communication strategies that encourage consumers to provide feedback on the products demonstrate that the producer is accountable to its customers. Setting up an online forum, for example, allows consumers to post their comments on the products and share their views with other consumers. Interactive communication like this recognizes the changes in the way consumers respond to advertising, according to the Journal of Interactive Advertising. Consumers can now source their information on products and companies from other consumers via social networking sites, rather than just responding to marketing messages simply.

Personalization

A strategy based on personalized communication builds a one-to-one relationship between the company and individual consumers. By collecting and analyzing information on consumers' purchasing patterns and communication preferences, it can develop tailored communication via email. Personalized communications give consumers information on services that they are likely to be interested in. This indicates to consumers that there is understand of their needs and will not waste their time on irrelevant offers.

2.3. Performance measurement: understand the metric/statistical thinking and tooling

Service performances are more difficult to measure and monitor than manufacturing processes performance, but executives can restraint in variance and boost productivity if they implement rigorous metrics (Parasuraman, A., Zeithaml, V.A., Berry, L.L., 1985).

Faced with reinforcing competition, increasingly demanding customers, high labor costs, and, in some markets, slowing growth, service businesses around the world are trying to boost their productivity. But whereas manufacturing businesses can raise it by monitoring and reducing waste and variance in their relatively homogeneous production and distribution processes, service businesses find that improving performance is trickier: their customers, activities, and deals vary too widely. Moreover, services are highly customizable, and people — the basic unit of productivity in services — bring unpredictable differences in experience, skills, and motivation to the job.

Such seemingly uncontrollable factors can cause many executives to accept a high level of variance — and a great deal of waste and inefficiency — in service costs. Executives may be hiring more staff than they need to support the widest degree of variance and also previous opportunities to write and price service contracts more effectively and to deliver services more productively (Parasuraman, A., Zeithaml, V.A., Berry, L.L., 1985).

As with any task or operation, to improve the productivity of services, the must is to apply the lessons of experience. Consequently, measuring and monitoring performance (and its variance) is a fundamental prerequisite for identifying efficiencies and best practices and for spreading them throughout the organization. Although some variance in services is inescapable, much of what executives consider unmanageable can be controlled if companies properly account for differences in the size and type of customers they serve and in the service agreements they reach with those customers and then define and collect data uniformly across different service environments. To do so, it is necessary to bear in mind a few essential principles of service measurement.

- First, service companies need to compare themselves against their own performance rather than against poorly defined external measures. Using external benchmarks only compounds the difficulties that service companies face in getting comparable measurements from different parts of the organization.

- Service companies must look deeper than their financial costs in order to discover and monitor the root causes of those expenses. This point may seem self-evident, yet many companies fail to understand these causes fully.
- Finally, service companies must set up broad cost-measurement systems to report and compare all expenses across the functional silos common to service delivery organizations. The goal is to improve the service companies' grasp of the cross-functional trade-offs that must be made to rein in total costs.

None of these principles is easy to implement. Top executives are likely to face resistance from managers and frontline personnel who insist that services are inherently random and that service situations are unique. Managers who have grown used to the protection that lax measurement affords may be reluctant to view their operations through a more powerful lens. But only by adopting these principles and implementing rigorous measurement systems throughout the organization can service executives begin to identify reducible variance and take the first steps toward bringing down costs and improving the pricing and delivery of services.

2.3.1. The reason why variance is difficult to measure

Executives who launch variance-measurement programs (Harmon et al., 2006) in a service business are often surprised at the level of difference they discover among similar sites and groups within their own organization, whenever let alone they compare one company with another. In general, company metrics are different across its business units, so that, for example, one group in a call center may regard all calls on a given issue as a single case, while another logs every call separately. A top executive with a background in consumer goods (where items are similar and thus comparable) assumed control of a service business and was shocked to find that the variance of key metrics among similar sites ranged from a factor of 2 to 30. Site managers

explained this vast range by asserting that every site was different — and, according to their metrics, they were right (Harmon et al., 2006).

2.3.2. Services are different

To make meaningful comparisons, companies have to identify the sources of difference in their businesses and create metrics that compare these businesses in a more meaningful way. The considerations that show up frequently include the most obvious differences among jobs and groups, such as regional variations in labor costs, local geographies and difficulties in reaching accounts, the workload mix (for example, repairs versus installation), and differences in the use of capital (whether equipment is owned or leased by the company or owned by the customer). Several other major issues come into play as well (Harmon et al., 2006).

- Service-level agreements: The more types of services a business offers, the more variability it can expect in its agreements. The metrics for a help desk that provides customer support for 5,000 users in a 9-to-5 office are very different from those for a help desk that supports logistics in a round-the-clock in industrial environment. Even when offerings are similar, variance can be introduced locally through the way contracts are interpreted. For example, in one IT-outsourcing company, two desktop support accounts with service-level agreements that specified an eight-hour response time had very different cost metrics. When asked why, the manager of the poorly performing account said that, despite the contract's limits, "If we don't answer within the hour, our client goes flying." The written service-level agreement had been trumped by an unwritten one that was costing real money.

- Environment, equipment, and infrastructure: Each customer's environment has unique aspects that are difficult to measure. A logistics provider will see huge differences between managing a big, automated warehouse and a small, simple one. Field services that support industrial systems must

contend with many generations of equipment and upgrades at customer sites. Some clients have their own on-site staff to support service, while others may be difficult even to reach. Given the range of possibilities, it's usually not very helpful simply to measure the average cost of a service call.

- Work volume: Size is a major reason for the wide variance among accounts and business units. Interestingly, managers of both small and large accounts claim that size makes their particular metrics worse. Both have a point: large accounts should benefit from scale, but in general they are also more complex, and that drives costs back up. Volume needs to be considered, but only in tandem with other patterns (including scale benefits and the breadth of work) that help explain costs.

2.3.3. The data problem

Underlying all of these problems is an inability to identify what must be measured and how to normalize data across different environments. Even when companies know what to measure, they struggle to achieve accuracy. Data are rarely defined or collected uniformly across an organization's environments. Let us take a service call involving the installation of two elevators, for example, could be measured as a single installation in one part of a company and as two in another (Parasuraman, A., Zeithaml, V.A., Berry, L.L., 1988).

Contributing to this ambiguity is the fact that data collection is usually driven by the requirements of financial cost reporting, which often fails to shed light on ways of boosting performance. Accountants for an IT services company may need to know the cost of each server, for instance, but an executive looking to reduce variance would also need to know the number of service incidents by server type and the time spent on each incident. Variance in demand drivers is also important: did the number of calls to a help desk rise because more users bought a product,

for example, or because it changed? Financial metrics might fail to detect this important distinction.

2.3.3.1. Principles of measurement in service

Many executives don't understand how to measure and manage what appear to be unique activities, and they confuse correctable performance variance with irreducible environmental variance. Embracing three principles that identify variance and allow for meaningful comparisons can help executives overcome these difficulties (Hays, J.M., Hill, A.V., 2001).

.1. Use internal benchmarks. While a company must know what its peers are achieving, it's a mistake to measure its performance against the competition: these benchmarks are typically just samples of data with little explanation behind them. Companies that use external benchmarks are often frustrated to find themselves qualified positively or negatively by specific factors.

Using external benchmarks compounds the internal difficulties that service companies face in normalizing activities and the data that define them. Consider a measure such as costs per unit of information processed: some companies include allocated costs, such as corporate overhead and salaries while others don't.

Internal benchmarks deliver more detailed metrics, allowing a company to find its own best practices and to see where and how they are achieved. It can then have access to all relevant information to assess differences among business units and accounts. In defining internal benchmarks, for example, a company can determine which costs are included or how asset costs are allocated—details that get lost in external benchmarking. A company can see what's really possible within the organization by using its own benchmarks (Hays, J.M., Hill, A.V., 2001).

A cost tree with detailed metrics is an important tool to help companies define internal benchmarks. External metrics might deliver numbers on the top level of the tree, but only by developing internal trees for each service line can a company begin to understand its true cost drivers. A tree allows a manager to compare the performance of different accounts against similar metrics and also to calculate which improvements will have the most impact on the top-level figure. Once a team has gathered cost data throughout the tree, for example, it could target opportunities to cut costs and calculate which efforts would have the most impact on the bottom line. Creating cost trees can also help companies write better service agreements that exclude unprofitable activities or generate more revenue where service costs warrant it.

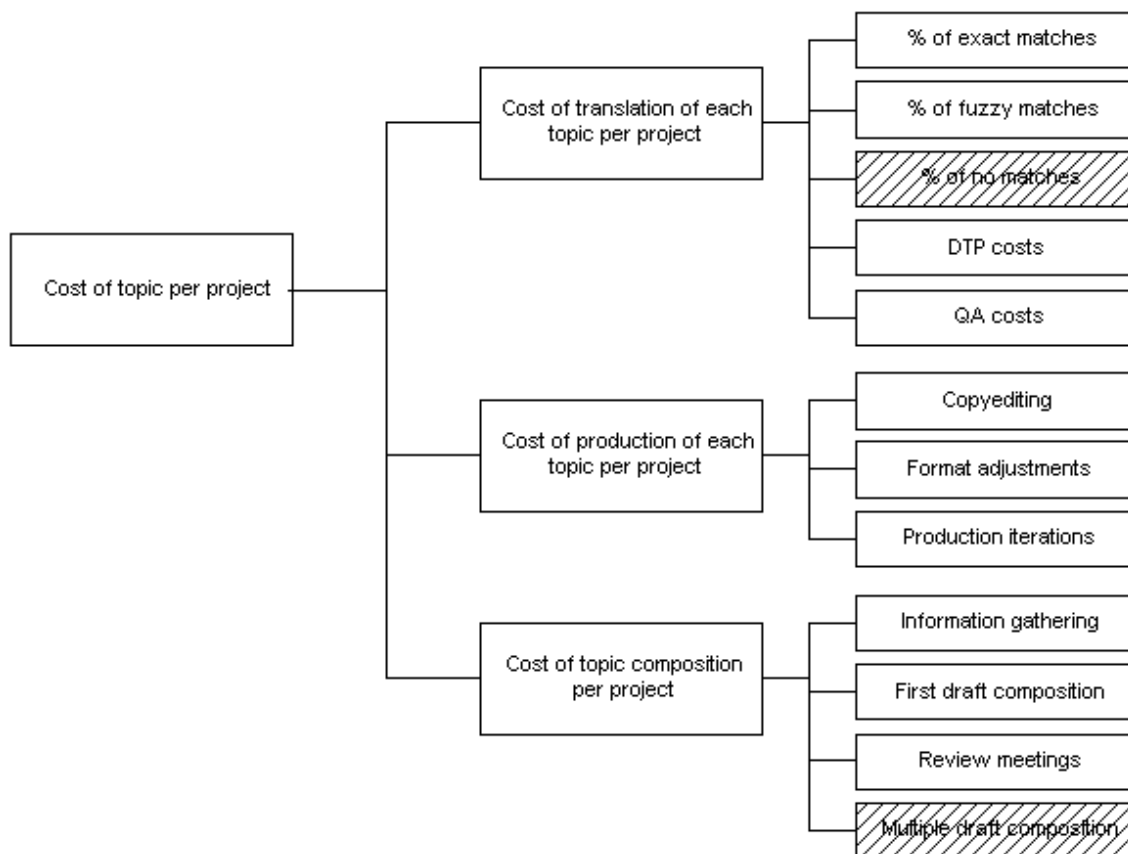


Figure 2.1. An internal cost tree (Hackos, 2006)

.2. Measure cost drivers. Even after service companies begin to define and capture the detail that lies beneath the top level of the cost tree, they still need to discover the underlying cause of each expense. Measuring only the cost of repair calls, for instance, probably wouldn't reveal whether they all stem from a single poorly built product, which could be improved or sourced differently for less than the cost of the repairs, or from factors such as variability in the performance of repair teams. Better measurements look at cost drivers, such as cost per employee (a resource metric), incidents per employee per day (a productivity metric), or — in a product-based service business — the number of incidents per product (a volume metric) (Hackos, 2006).

Clearly, companies must also omit allocated costs, which can confuse the issue. A business unit's support infrastructure, for example, could include human resources, physical plant, and product engineering, all of which must be considered from a financial point of view. But such costs do little to determine productivity and are something of an obstruction when companies try to spot variance and waste. Once these obstacles are removed, managers can stop trying to cut costs that may be beyond their control and instead address the drivers they can improve. Before measuring the financial costs, it's often helpful to measure the items and events that drive costs, such as people, machines, incidents, service calls, and change orders.

.3. Measure deep and broad. When service companies try to measure only their selected costs — rather than taking a comprehensive approach — they are often surprised to see that their teams hit every budget target while still losing money. That's because services are fungible (of such a nature that can be replaced or exchanged by another), and it's easy to measure the wrong things or to shift costs, intentionally or not, to unmeasured areas.

Consider the case of a cable company that was trying to reduce the resolution times of its help desk and service calls. After setting goals, managers saw resolution times shrink, but total service costs were rising. In this case, help desk representatives, eager to meet their goals, spent

less time trying to resolve problems remotely. After asking only a few questions, these employees referred cases to field service agents, who were happy to have a series of fast and easy calls to boost their own metrics. Unfortunately, the number of field service calls, which are far more expensive than help desk calls, rose dramatically.

To resolve this problem, management combined call centers and field services into a single cost tree and monitored the percentage of calls passed from the one to the other, as well as the time spent on each type of call. Managers then encouraged the call center agents to spend more time trying to resolve difficult calls before passing them along to field services, thereby increasing the average call time but helping to reduce total costs. Thus a critical purpose of any cost tree is to yield insights about how better (or worse) performance in one area of the tree might affect another.

2.3.3.2. Setting up measurement systems

With these principles in mind, executives can begin to define their metrics, collect data, and implement processes that will drive their efforts forward.

Build the tree and choose the metrics: Cost trees should be detailed enough to spot efficiency problems and broad enough to be comparable across operating units. Once companies have identified the allocated costs and cost drivers, they can begin to build the cost tree. Broad input from the field (line managers, engineers, field and service agents) is vital, along with input from senior executives, who are generally better able to focus on the total costs required to deliver a service to customers. In this way, the tree captures all the costs of (and details on) the most important cost drivers. The tree should also be constructed to compare key metrics across a range of environments — for example, all call centers, whether they operate 24 hours a day or 9. And as

the data arrive, management will want to monitor the top level of the tree as well as the key metrics below.

Collect with care: Without clearly defined metrics and knowledgeable people to support the gathering of data throughout the organization, companies can spend too much time cleaning up messy data. Training and improved processes can alleviate this problem. Managers should review the data collection rules and templates with the people who develop them. Even with new procedures in place, however, there will be much room for interpretation. It's therefore helpful to show not only how data should be collected and entered but also how users occasionally misinterpreted these processes in the past. Guidelines to identify problems early on time can help to save time later. It's also important to establish boundaries beyond which suspect metrics should be investigated. Reviewing data collection in the early stages of implementation can help to ensure that procedures are followed. Equally, sharing reports gives them an early view of their standing and can help identify unusual patterns in the data.

Institutionalize measurement: Managers accustomed to tracking costs in accordance with accounting needs will have to understand these new metrics and make them consistent throughout all levels of the organization. Periodic reviews, whose frequency should be based on the availability and shelf life of data, are essential for individuals and work groups. Example: visible interest from senior management — such as to promote a strong message to everyone that a company is intent on identifying variance and improving service performance. Compensation should be tied to these metrics.

2.3.3.3. What it is measured, it can be managed

Once executives have learned to measure the variance inherent in service companies, they can begin to manage processes to eliminate waste, to improve the delivery of services, to

price services more accurately, and to write better contracts. Although a company can do many things to control the variance of its service delivery, most of them fall into three main areas: managing demand, standardizing environments, and applying appropriate resources to tasks (Grossman G.N. and Helpman E., 1991).

Managing demand offers the biggest potential for improvement. Cost trees help managers identify the sources of demand for services — sources that might include faulty products, poorly performing service units, or any number of other causes. Some fixes must be made within the organization (better training, better products, automated-response systems); others depend on shaping the behavior of customers (for instance, by offering tools and guidance to help them resolve problems themselves).

Standardizing operating environments requires the most discipline, since salespeople are strongly tempted to sell as much customization as a client wants. Standardization can yield enormous results: in addition to raising productivity, it helps the workforce become more flexible because people can transfer with less retraining. Where possible, companies should standardize not only service product lines and tasks but also the work environments of employees and the equipment they use to deliver services. Scripted routines help eliminate errors and allow employees to emulate high performers. Furthermore, clearly defined programs limit overdelivery, a common problem in service companies.

Allocate their human resources more effectively by identifying cost variances can help companies. In general, it's more productive to handle problems with the least expensive resources that can resolve them: calling in experts or sending out field technicians increases costs and slows response times—and therefore makes customers less satisfied. Metrics on costs per call or device demonstrate the benefits of using less expensive labor, thus encouraging companies to keep

requests upstream and to place first responders (often a call center) in less costly regions to further increase savings and productivity.

Finally, companies that have a better picture of where costs are incurred can price services more accurately to avoid losing revenue on unprofitable activities. They can write better contracts that take into account cost drivers hitherto written off as inescapable variance.

As services become an ever larger part of the global economy, managers are rightly looking for ways to improve productivity and efficiency. Services may be more difficult to measure and standardize than the manufacture of products, but executives should not abandon hope. Adopting the principles set companies will strongly improve the delivery, pricing, sales and marketing of services.

Since this section ended putting light on the human resources, shall next section give more elements of their essence to the operation of services.

2.4. Human resources in Service Operations Essence

Applying behavioral science to service encounters is based on the premise of the fundamental behavioral science principles that underlie human interactions. Indeed to approach service encounter design in depth can be specifically engineered in such a way that enhance the customer's experience during the process as well as his or her remembrance of the process after it is completed (Bateson, J., (1985).

2.4.1. Frameworks for applying behavioral science to service encounters

A service encounter may be defined as the interaction process between the server and the served. Selected concepts dealing with customer behavior to explore: the flow of the service experience (what's happening), the flow of time (how long it seems to take), and counterfactual

reasoning in judging the encounter performance (what you thought about it later). While there are numerous other topics that pertain to behavior in services (e.g. social cognition, power and control, emotional labor) it is believed, though, that these three are essential to understanding the encounter phenomenon (Bateson, 1985).

The service encounter may be viewed as a triad (Fig. 2.2.), with the customer and the contact personnel both exercising control over the service process in an environment that is defined by the service organization (L.S. Cook et al, 2002). It is mutually beneficial for the three parties to work together to create a positive service encounter. The customer, by working with the contact personnel within the framework imposed by the service organization, expects to obtain service satisfaction. The contact personnel by serving the customer in the way specified by the service organization, expects to obtain job satisfaction and customer satisfaction. The service organization must satisfy the contact personnel and the customer in a manner that is economically viable from an operations perspective.

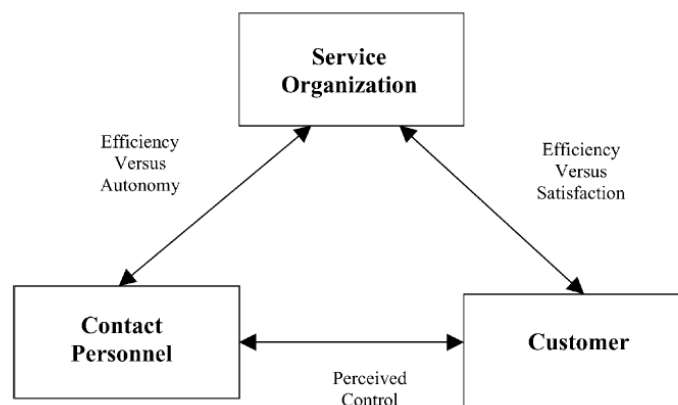


Figure 2.2. The Service Encounter Triad (L.S. Cook et al, 2002)

2.4.2. A needs-based framework

A needs-based framework for viewing customer delight and outrage was introduced by Schneider and Bowen (1999). They thought that the “to meet expectations model” suffered some limitations in explaining the more extreme emotional responses.

The “to meet expectations model” seems too cognitively oriented and rational to explain emotions such as delight and outrage. Additionally, it would also seem that exceeded expectations would soon become habituated, and subsequently become the base of customer expectations.

An underlying premises of the needs-based framework is that customers are people first, and consumers second. Additionally, people are driven to satisfy some core needs in life at a level more fundamental and compelling than meeting their expectations as consumers.

The core needs we consider are as follows:

- Security: The need to feel free from physical and economic harm.
- Fairness: The need to believe that just treatment is deserved.
- Esteem: The need to protect, even, enhance one’s self-concept.

The needs for security and esteem are derived from the need hierarchy theories of Maslow (1943) and Alderfer (1972). The need for fairness has its origins as far back as Aristotle, who said that we all want to believe that we live in a just world. Refer to Lerner (1980) for a more complete discussion. Needs exist at a deeper, more subconscious, more diffuse level than do expectations. Schneider and Bowen (1999) proposed for security and fairness, violation causes outrage. Respecting these two needs is more likely to lead to satisfaction than to delight. For esteem, violation can cause outrage. Enhancing customer’s esteem is likely to create delight.

With all the above said regarding the user, it is important to prepare the employees offering the service solution once they deal directly with these complex clients.

2.4.2.1. Frameworks for the employee role

Is in the study of Heskett et al. (1994) that is introduced the concept of the service–profit chain (Fig. 2.3.). They examined the critical interaction of the front-line service employee and the customer and demonstrated that profitability, and customer loyalty is closely related to employee productivity and motivation. The fundamental propositions of the service–profit chain are as follows: customer loyalty drives profitability, customer satisfaction drives customer loyalty, external service value drives customer satisfaction, employee productivity drives external service value, employee’s loyalty drives productivity, employee satisfaction drives loyalty and internal service quality drives employee satisfaction (Heskett et al., 1994). They propose that organizations that understand the service profit chain develop and maintain a corporate culture centered on service to both their customers and employees.

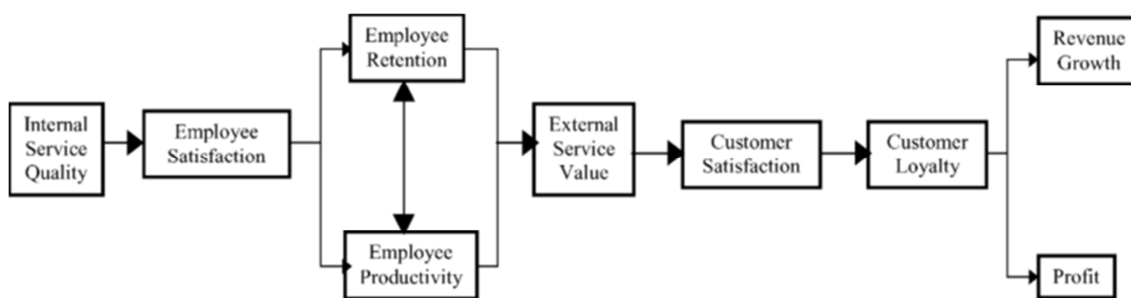


Figure 2.3. The service profit chain. (L.S. Cook et al, 2002)

Employees’ values and beliefs (part of culture) influence their interpretations of organizational policies, practices and procedures (climate). Schneider et al. (1996) propose that culture can be changed through a focus on climate. They assert that sustainable organizational change is most likely to occur when both the climate and the culture change. Effective organization change occurs when new climates and cultures are created and maintained. No single climate or culture is best for achieving sustained change.

Schneider and Bowen (1993) have shown that both a climate for service and a climate for employees' wellbeing are highly correlated with overall customer perceptions of service quality. They conclude that both the service climate and human resource management experiences that employees have within their organization are reflected in how customers experience the service. Bowen and Lawler (1992) contend that motivated, empowered employees who have a clear vision of the importance of service quality to the firm will provide superior service. The result of superior service should be an increase in customer satisfaction.

Hays and Hill (1999, 2001) investigated the effects of employee's motivation and vision and organizational learning on customer perceived service quality in a service organization. The results of their research indicated that employee's motivation, vision and organizational learning positively affect customer perceived service quality. They also found that employee motivation and vision mediate the relationship between organizational learning and customer perceived service quality. Researchers and practitioners have initiated the use of employee surveys to assess more than employee morale, attitudes toward the company, and job satisfaction (Higgs and Ashworth, 1996). These new surveys have been designed to focus on strategic imperatives of the corporation. Schneider and Bowen (1985) demonstrated that employee descriptions of the policies and practices of their organization with regard to creating a service quality climate were significantly related to customer perceptions of the service quality they received.

Schneider et al. (1996) describe the development, implementation, validation and use of a strategically focused employee attitude survey to assess a variety of issues related to a quality management initiatives.

The survey focused on the initiative rather than on employees' personal feelings or satisfaction. The validity of employee reports is demonstrated by establishing the relationship between those reports and customer satisfaction in dealing with the organization.

Bowen et al. (1999) suggests that in service firms, if employees are treated fairly, they will treat their customers more fairly. Research conducted in a variety of service settings has shown that employee satisfaction correlates significantly with customer satisfaction.

Fairness issues are an expression of different types of justice: distributive, procedural and interactional.

They offer four basic general managerial guidelines in which to enact the more specific justice principles.

First, examine the “psychological contract” with its employees and customers. Second, train managers and customer contact employees in how to honor the “justice principles”. Third, balance flexibility and consistency in the design and implementation of procedures. Finally, share justice-relevant information with employees and customers.

The perception of service quality results from a comparison of customer expectations with actual service performance. Service employees impact the perception primarily due to their influence on, as cited up above, all dimensions of service quality: reliability, responsiveness, assurance, empathy and tangibles (Parasuraman et al., 1985, 1988, 1991). Reliability corresponds directly to the service outcome and is often cited as the most important dimension for assessing service. The service process dimensions are responsiveness, assurance, empathy and tangibles. Reliability is essential for meeting expectations but the process dimensions are more important for exceeding expectations. Reliability is the fundamental requirement to compete in the marketplace but for the service organization to gain competitive advantage their service employees must leverage the process dimensions.

Thanks to all the enriched analysis presented throughout preceding sections we are allowed to question about an advanced level of products composing a brand new sector in the

classification of activities in economy. This questioning is already finding resonance in studies and the brand new sector is named as the Quaternary Sector or System.

2.5. Quaternary System: questioning the advanced level

The quaternary sector of the economy is a way to describe a knowledge-based part of the economy - which typically includes services such as information technology, information-generation, sharing, media, and research and development, as well as knowledge-based services like consultation, education, financial planning, blogging, and designing (Selstad, 1990).

The quaternary sector is based on knowledge and skill. It consists of intellectual industries providing information services, such as computing and ICT (information and communication technologies - our reference case, Cabo Verde embodied an ICT cluster for the strategic development), consultancy (offering advice to businesses) and R&D (research, particularly in scientific fields). According to some definitions, the quaternary sector includes other pure services, such as the entertainment industry, and the term has been used to describe media, culture, and government.

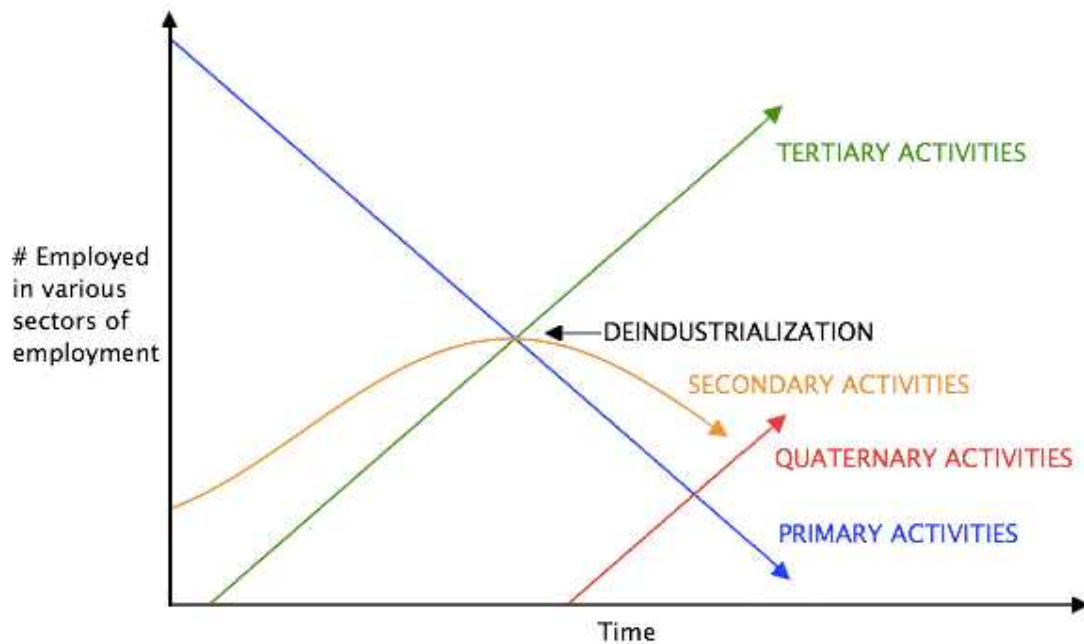


Figure 2.4. Sector model of an economy undergoing technological change.

In later stages, the quaternary sector of the economy grows – shown in red (Clark, 1940).

"Quaternary sector" is a further delineation of the three-sector hypothesis of industry in the sense that the quaternary sector refers to a part of the third or tertiary sector along with the "quinary economic sector". It has been argued that intellectual services is distinct enough to warrant a separate sector and not be considered merely as a part of the tertiary sector (Selstad, 1990). This sector evolves in well-developed countries and requires a highly educated workforce.

Between them, the tertiary and quaternary sectors form the largest part of the UK economy, employing 76% of the workforce, for example (Selstad, 1990). The number of people who earn their living in these activities is still increasing. Companies invest in the quaternary sector to promote further expansion. It is seen as a way to generate higher margins or returns on investment. Research will be directed into cutting costs, tapping into markets, producing innovative ideas, new production methods and methods of manufacture, amongst others. To many

industries, such as the pharmaceutical industry, the sector is the most valuable because it creates future secondary-sector branded products from which companies may profit.

In the mood of futuristic mutations, is time to introduce an example that made this work surrender to learn from historical aptitude to progress in varied economic context all keeping up with culture rooted and authentic, aspects.

2.6. Japanese example

2.6.1. “Omotenashi”

Translated simply, Omotenashi means the Japanese way of treating a guest. It blends a welcoming spirit with warmth, understanding, and above all respect. The concept is all encompassing.

Etymologically, Omotenashi is a hybrid of “omote” (surface) and “nashi” (less), concepts that translate together into “single-hearted.” From the perspective of a host, this is the rendering of service without expectation of favor or reward (Tanimoto, K., 2013).

Interestingly, the Japanese language makes no distinction between ‘guest’ and ‘customer.’ In English, the concept of ‘service’ suggests a hierarchy between the ‘server’ and the ‘customer.’ The Japanese Omotenashi, however, is based on a non-dominant relationship between equals – between the person offering the service (the host) and the person receiving it (the guest or customer).

To practice Omotenashi, the host pays close attention to detail and is committed to anticipating the needs of the guest, smiling sincerely and setting a happy, relaxed mood. Authentic Japanese hospitality and service exceed the expectations of the guests. At its most exquisite, Omotenashi offers a guest a once-in-a-life-time experience. The idea resonates with Ichigo-ichie,

the belief that every encounter is single and unique (Tanimoto, K., 2013).

In form, Omotenashi may be governed by precise written rules describing how the host should compose herself or himself in front of the customer. Yet true Omotenashi can never be attained with a manual alone. It is a one-to-one relationship that changes from customer to customer, from moment to moment. Gratitude towards the customer is a key part of Omotenashi, the part that warms the encounter and makes the host smile (Tanimoto, K., 2013).

This from far on time perspective carried by Omotenashi matches the contemporary ideals of service product with ease. That is way for this study it sounded relevant to bring these lines here. And the next section continues the match in an entrepreneur framework with Sanpoyoshi.

2.6.2. "Sanpoyoshi" Management Philosophy - "three-way satisfaction"

During the Edo and Meiji periods of Japanese history, merchants known as Omi shonin were successful and active in every part of the country. Their success stemmed from their adherence to a spirit known as sanpo-yoshi, literally "three-way satisfaction", which advocated benefits to the seller, to the buyer and to the local community. So merchants understood that they owed their business success to their communities and they gave something back (Tanimoto, K., 2013).

The idea is that business must benefit all people, not merely the seller and the client. This can easily be transferred to modern-day management philosophies.

The Omi merchants enjoyed thriving businesses through their famously good relations with customers and the local communities they worked in. They generously put their profits back into philanthropic activities that benefited the whole community, such as building bridges and schools.

Sanpo-yoshi is a valuable idea even in the context of modern society. The "three-way satisfaction" refers to means that what benefits you, should ultimately also benefit your partners and society at large. In hopes more and more people will embrace the sanpo-yoshi spirit (Tanimoto, K., 2013).

“Sanpoyoshi”, the old management philosophy, has been carried out by Japanese merchants, especially in Shiga Prefecture, Central Japan. The continuously try to exercise the philosophy in now everyday as Corporate Social Responsibility (CSR) proves the relevance to follow such example. CSR as international label today shows that philanthropic working philosophy must compose firms’ behavior all sectors together. And service sector walks the first line of such movement that in full evidence composes well with sustainability concerns of nowadays. And advocating success, next lines introduce Japanese Awards on the regard that work out the importance to broadcast it all.

2.6.3. Nihon Service Award

“Raising the Curtain on the Service Productivity Revolution” was the leading theme for the Winners of the Nihon Service Award Announced for this year (2016).

The Nihon Service Award is a scheme that evaluates all service providers in Japan using a common yardstick across a diverse array of services, recognizing services that stand out as a beacon of excellence³.

The service industry accounts for about 70% of both GDP and employment in Japan and is an important sector that holds the key to the future growth of the Japanese economy. This scheme awards prizes to outstanding services that is likably to other companies in this industry – which will play such a crucial role – to emulate.

The scheme attracted around 900 applications from across the country. Following rigorous

³ <http://service-award.jp/>

screening by a committee established by the organizer, Service Productivity & Innovation for Growth (SPRING), 31 entrants were awarded prizes, including the Prime Minister's Prize (1 entrant), the Minister of Economy, Trade and Industry's Prize (1 entrant), and prizes awarded by other relevant ministers⁴.

This contemporary gear for entities composing Japanese economy shows how keen they are to recognize the third sector contributions. And it is an example to be followed. It is the stimulator feature that matters here. The important number of followers gathered in the awarding process is proof of the achievement of the essence carried by Omotenashi and Sanpoyoshi.

2.6.4. Chosen activity example: Logistics Service

Japanese companies in this field are unique Masters. They operate like "magic" and the Japanese Supply chain management (SCM) is constantly taken on studies.

SCM is the oversight of materials, information, and finances as they move in a process from supplier to manufacturer to wholesaler to retailer to consumer. Supply chain management involves coordinating and integrating these flows both within and among companies. It is said that the ultimate goal of any effective supply chain management system is to reduce inventory (with the assumption that products are available when needed). As a solution for successful supply chain management, sophisticated software systems with Web interfaces are competing with Web-based application service providers (ASP) who promise to provide part or all of the SCM service for companies who rent their service (Heskett, J.L., Jones, T.O., Loveman, G.W., Sasser, W.E., Jr., 1994).

Supply chain management flows can be divided into three main flows:

- The product flow;

⁴ <http://service-award.jp/>

- The information flow;
- The finances flow.

The product flow includes the movement of goods from a supplier to a customer, as well as any customer returns or service needs. The information flow involves transmitting orders and updating the status of delivery. The financial flow consists of credit terms, payment schedules, and consignment and title ownership arrangements.

There are two main types of SCM software: planning applications and execution applications. Planning applications use advanced algorithms to determine the best way to fill an order. Execution applications track the physical status of goods, the management of materials, and financial information involving all parties.

Some SCM applications are based on open data models that support the sharing of data both inside and outside the enterprise (this is called the extended enterprise, and includes key suppliers, manufacturers, and end customers of a specific company). This shared data may reside in diverse database systems, or data warehouses, at several different sites and companies.

The concept of Supply Chain Management is based on two core ideas. The first is that practically every product that reaches an end user represents the cumulative effort of multiple organizations. These organizations are referred to collectively as the supply chain (Heskett, J.L., Jones, T.O., Loveman, G.W., Sasser, W.E., Jr., 1994).

The second idea is that while supply chains have existed for a long time, most organizations have only paid attention to what was happening within their “four walls.” Few businesses understood, much less managed, the entire chain of activities that ultimately delivered products to the final customer. The result was disjointed and often ineffective supply chains.

Supply chain management, then, is the active management of supply chain activities to maximize customer value and achieve a sustainable competitive advantage. It represents a

conscious effort by the supply chain firms to develop and run supply chains in the most effective and efficient ways possible. Supply chain activities cover everything from product development, sourcing, production, and logistics, as well as the information systems needed to coordinate these activities.

The organizations that make up the supply chain are “linked” together through physical flows and information flows. Physical flows involve the transformation, movement, and storage of goods and materials. They are the most visible piece of the supply chain. But just as important are information flows. Information flows allow the various supply chain partners to coordinate their long-term plans, and to control the day-to-day flow of goods and material up and down the supply chain.

The Value Chain concept was developed and popularized in 1985 by Michael Porter, in “Competitive Advantage.” Porter defined value as the amount buyers are willing to pay for what a firm provides, and he conceived the “value chain” as the combination of nine generic value added activities operating within a firm – activities that work together to provide value to customers (Heskett, J.L., Jones, T.O., Loveman, G.W., Sasser, W.E., Jr., 1994).

The value chain and the supply chain are so closely related that it is essentially looking at the same flow from two different perspectives. The supply chain describes the flow of resources from the supplier to the customer. The value chain is the flow of value (as perceived by the customer) from the customer to the buyer. If the customer perceives no value in what the supply chain provides, there will be no demand. If the supply chain cannot deliver resources that the customer values (at the price the customer is willing to pay) there will be no flow.



Figure 2.5. Porter's Generic Value Chain

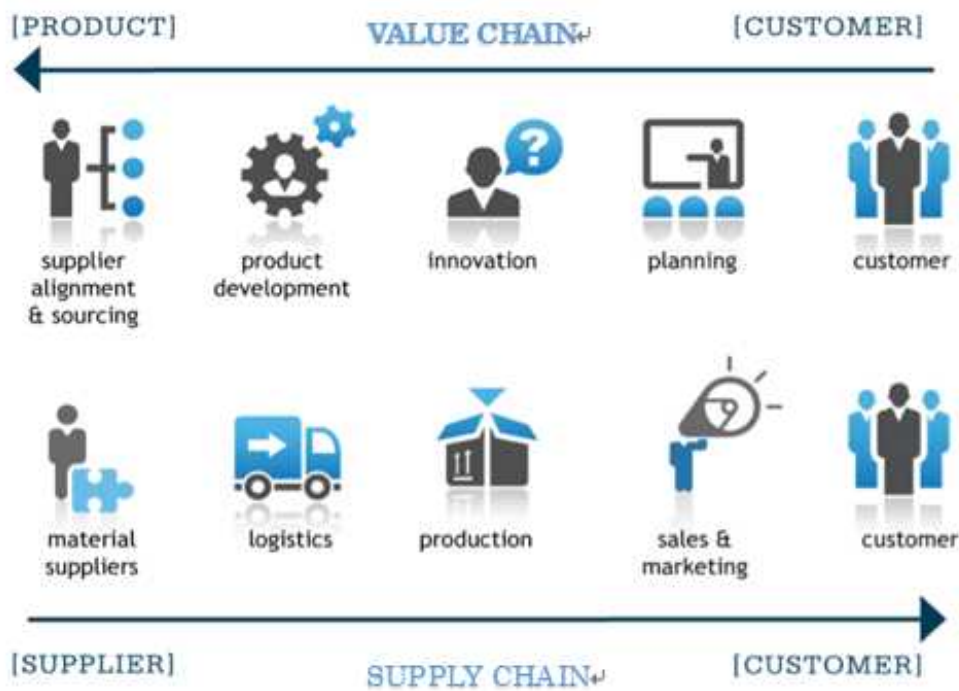


Figure 2.6. Terry Weiner - California Manufacturing Technology Consulting (CMTC) 2006.

Japanese Supply chain management (SCM) and Logistics (all products together: service, good, information, etc.) materialize at 100% the intentions of each section composing this chapter that is to take example. Japan is an excellent example for the way it always used its constraints,

especially those related to insularity, to thrive and step out in today as major economy.

This chapter is here as mind-setting for the examination of the chosen economy specialization. Thanks to theoretical, empirical and founding inputs assembled up in the thesis analysis, the feeling of culmination of information to knowledge economic transformation seems clear. The following chapter will treat all the inputs to make obvious the economic transformation into a KIBS economy. Where the effort leading to the aimed transformation shall take bases on the quality.

Chapter III: Genesis process of innovative service: finding out alternatives

This chapter works to tackle down the concern regarding the process to find alternative ways that can be used by the third sector to offer results when handling new activities. Starting at the point of believing on an infinity source of « Innovative Service » when observing the daily life and taking in account that the result of this observation may vary in time line (promoting cyclical momentums of definitions of Innovative Services), the chapter goes through provider and user perspectives inside the generating new service process to give bases to understand the possibilities of finding out alternatives in the service sector.

3.1. Infinity source of « Innovative Service »

Here we adopted research methods as systematic literature review regarding to innovative services perception; and survey about providers of innovative services to demonstrate the need to identify the source from which services have their genesis process and then are provided as original idea. The analysis focuses on targeted organizations to which submitted questionnaire bring empirical data to the chapter. The choice of the companies were made under the advice of Kyoto Chamber of Commerce and Industry (KCCI). The findings here after reported call to the “re-evaluation” of the social dimension of co-creation of value as user/consumer’s decision “to participate” versus “not to participate” at the genesis of services be considered an infinity source of potential service.

3.1.1. Introduction

Every and any process is considered as a sequence of actions or steps taken in order to achieve a particular end in general. Here we take under consideration how to generate service that is brand new, original and that introduces changes with special focus on their respective source and origin.

Re-evaluating user/consumer's decision on "participating" versus "non-participating" at the Genesis of innovative services – social dimension of co-creation of value – makes us inevitably questioning the follow: can we consider daily life activities an infinity source of potential service creation? In other words: is that as soon as the future service user decide to no longer do by himself the act and waits for a service provider to take hand and do it for him the mark and step stone for a service to be created and then be labelled as innovative in the economic activity it takes part?

Undeniable alternative perspectives shall then be taken when facing brand new services. Especially when using existing tools for identification, definition, classification, evaluation and so on in the service research field.

The principle idea here is to look at the innovative service generating process as obeying the context and conjuncture from which the need must be satisfied. And in simple way to approach this process by the angle of value co-creation by users' deliberation on self-doing (or not) versus service provider make of users decision a business opportunity.

Market creation in service research under subjective definitions, well-being and value (co)creation faces here the think of non-predictive strategies origin. In the now-a-day complex and interconnected world it becomes progressively vibrant that actors rely on the exchange of applied skills and competences for their mutual value co-creation (Spohrer, J., & Maglio, P. P., 2008),.

The networked and systemic nature of value co-creation has been widely recognized

and investigated. However, less is known on how actors co-create individual and collective values, benefits and well-being. The new conceptualization of value needs to capture its multi-faceted dimensions and this chapter goes on the belief to widening the knowledge from and through the source of service creation.

The motivation of the study is to go to the beginning of everything. The originality here is the belief of the existence on an infinite source of new services thanks to all daily activities users have satisfaction from. The contribution here is this additional element of infinity yet to be more explored.

3.1.2. Research Methods: Design and Settings

After analyzing the concept supported by “Innovative Service” we can explore what could be questions nurturing a “multidimensional approach combining the dynamism as well as the aspects of quality, reputation, social innovation and social value” (Hays, J.M., Hill, A.V., 1999) of an innovative service.

Participatory design impacts allow to develop means for active participation of stakeholders to realize meaningful service (how they choose to answer one need and not another one). Also to analyze ethical and societal impacts of new applications in service system allows to analyze and clarify an effective adaptation of new processes in the service systems (Leoni L., 2015).

Thanks to Kyoto Chamber of Commerce and Industry (KCCI) was established contact with some targeted organizations. Submitted questionnaire as source of empirical data is presented for information in the field and the type of innovation.

3.1.2.1. Data collection for literature review

Based on traditional systematic review process a brand new and pragmatic, the following

set criteria have been established:

- EBSCOhost as the research database;
- All chosen articles were published in English;
- All articles were from 2000;
- Keywords used were: service, innovative, source;
- Abstracts helped on final selection;
- Full reading of articles.

A total of 10 papers suggested by the database composed the dataset regarding to identify how has been services identified as new adjacent to the novelty determinant and their original source.

Dataset analysis for literature review

There are some considerations to take in account when analyzing the dataset: fully dedicated papers to innovative service definition are “inexistent”; topics were of a multidisciplinary nature but management predominance is easily noticed.

Results for literature review

The generating process of new services suffers some scarcity. And when deepening the analysis it is possible to identify a lack of studies examining explicitly innovative services source matter. Focus was about innovations *in* service often entitled as “innovation service”.

However a simple dual categorization allows ranging the read articles as follows:

- Innovation basis: all the literature measuring how innovative the service is.

AND

- Management basis: all the organizational structure support allowing the service to be

innovative.

3.1.2.2. Data collection for/from survey

The objective is to find out the source of genesis process of the provided service as original idea.

Defining innovative service as coming from business opportunity depicted from users' decision to allow third persons to "serve" them through the shape of economic activities.

Innovative service entities was identified by Kyoto Chamber of Commerce and Industry (KCCI) thanks to the magazine "Kyoto Creative Industry 2011-2014".

Composant elements:

- Dependant variable: innovative service;
- Independent variable: kind of need; operational means;
- Analysis: decomposition and measurement;
- Outcomes: point out skills, qualifications, organization, labor conditions

Dataset analysis for/from survey

Trajectories of learning in practice-based shows that the organizational roles at play in sustainable innovation and innovation management motivates the seek for sustained (radically) new services in all sectors;

Sustaining the innovation as collaborative learning capability is still a "black box". Therefor new theorizing and managerial frameworks are needed (e.g. Grossman & Apaydin 2010).

What and with whom are the practitioners learning when are they co-creating and

sustaining co-created value?

Results for/from survey

Basic learning trajectory of innovation (derived from data, inspired by theory of expansive learning – Engestrom 1987) can be categorized in three phasis:

Phase1: recognizing problem/opportunity: practice-based emergence and recognition of motive, relations and capabilities related to available opportunity for innovative solution;

Phase2: expanding: practical integration and configuration of innovation-related opportunities, relations and actions from multiple actors in local context;

Phase3: sustaining: adoption or transformation of successful solutions, models and practices/relations for sustaining, re-innovating and diffusing the new use value (innovation).

And the survey in this sutdy will line up its analysis to the above.

Following graphs syntetise collected informations and allowed insights of Kyoto innovative leading companies chosen for this survey.

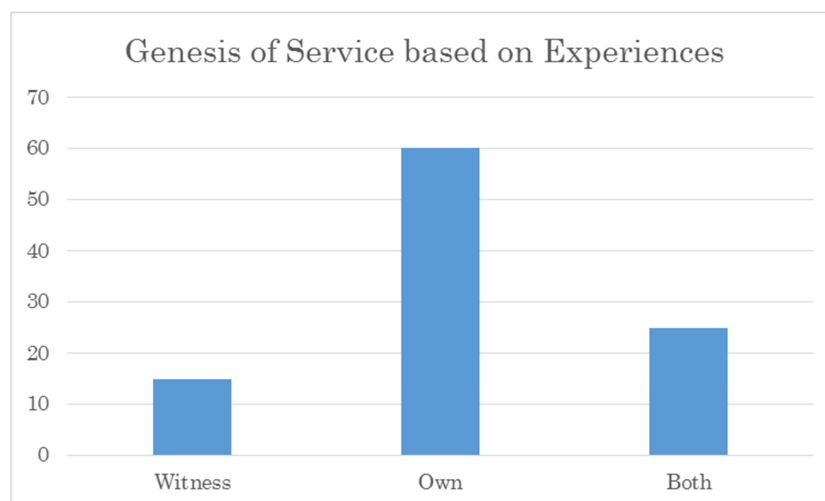


Figure 3.1. Genesis of Service based on Experiences (Survey production results)

This graph found source in the how the creative idea came to the service provider. They took bases on observed experiences and lived on their own experiences to transform the satisfaction of a need into a business activity. The results show a higer number of source into own experience; the witnessed experiences count in less than the mix of both kind of experiences to depict the oportunity of business trthrough satisfying the needs.

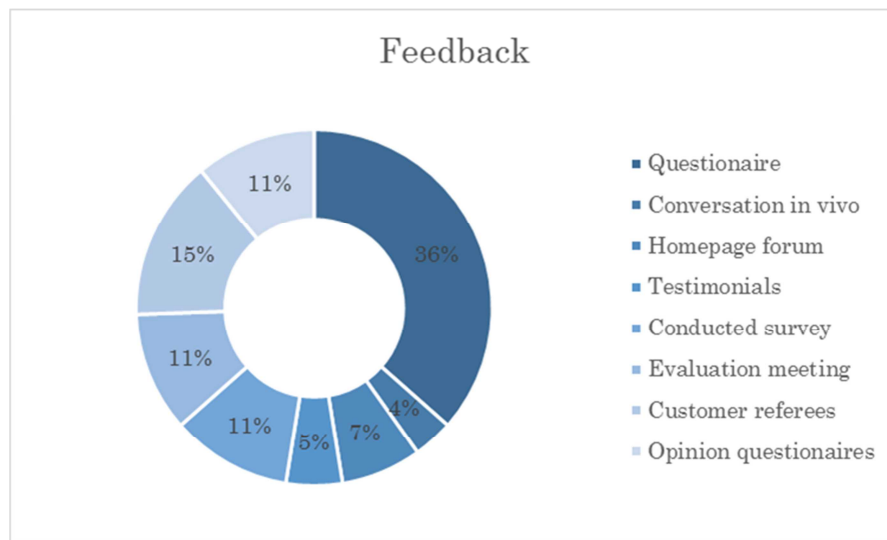


Figure 3.2. Service Users Feedback Source to Innovate (Survey production results)

Thanks to this graph results were put together about how service providers reach their respective service users feedback on current provided services and consequently have a source to inspire to improve provided services in brand new configurations and eve create completly new ones. The top sources are submitted Questionnaires to users with 36%, than follows Evaluation meetings counting for 15%; Customes referees and Opinion questionnaires share same 11% ranging on third position.

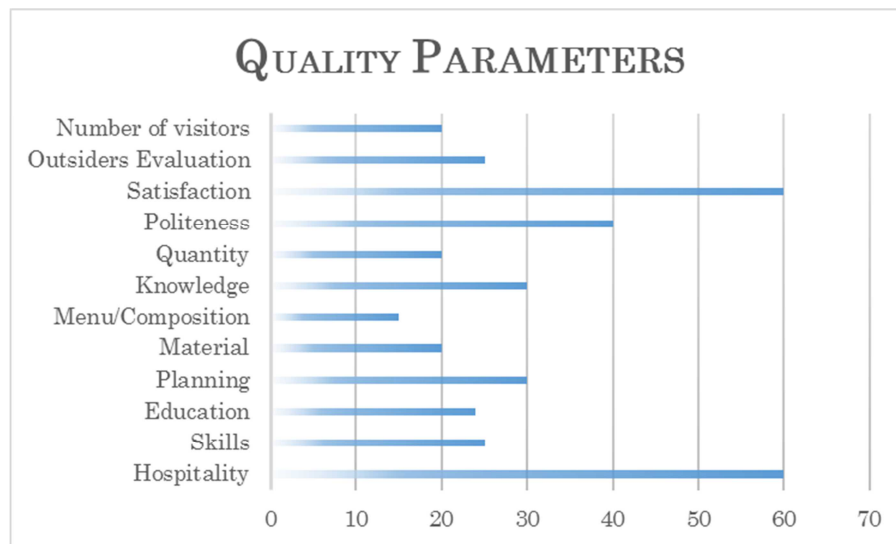


Figure 3.3. Quality Parameters Valued by Innovative Companies (Survey production results)

These bars enlight the Quality Parameters all the innovative companies put first while providing their innovative services. Knowing the Kyoto strong trait to tradition it is with no surprise that first parameters are Satisfaction and Hospitality to make Omotenashi and Sampouyoshi be validated. Follows Politeness in the same cultural considerations. Then Knowledge and Planning comforts this paper motivational proposal to take knowledge as commodity resource for creation of new services.

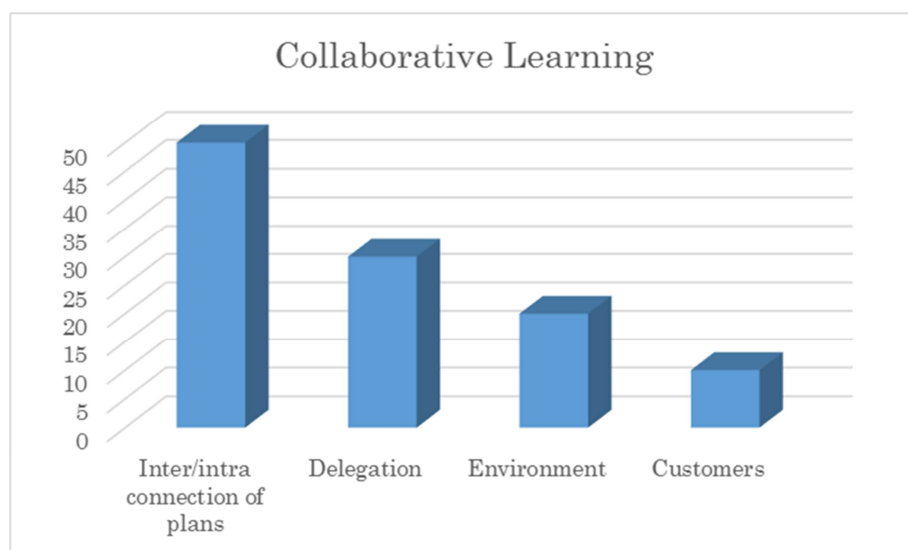


Figure 3.4. Collaborative Learning process inside Innovative Companies (Survey production results)

Since knowledge nurtures the entire innovative process the above graph brought together information regarding how the learning process is taken by the companies. And they do it especially in a collaborative structure type. Throughout collaborative learning process they put up their new ideas by connecting plans inside and between departments with more frequency. In other words they favor the learning process through exchanging what is happening in every parts of the organization. Follows Delegation, which the respective range placement is understandable when the cultural aspects are taking in account. Then the creation of creative Environments vowed for creating new ideas underlines the intentional behavior to auto-identify as innovative company. Last and certainly not least, Customers collaborating for the creative process appears and comfort the idea carried in this study of value co-creation.

3.1.3. Systematic Literature Review

Conceptual framework for innovative services analyses can take approaches based on indicators of performance: productivity and employment.

Service innovation as an engine for the economic growth has the risk of bias to not be fully captured by the traditional indicators of innovation. For the main characteristics of service product are the intangibility and the co-production. However things changed once Service sector was seen as shifting with the rise of the service economy itself.

Models of innovation process in services unresolved issues relative to the definition of service output have contributed to the underestimation of the performance of service innovation in terms of productivity and employment. Theoretical inferences and pertinent applications.

Service production is an action, or a treatment protocol, that leads to change of state,

not the creation of a tangible good (Gallouj, 1998).

Product and process innovation have blurred (Bitran & Pedrosa, 1998) lines between them once the important role of clients in service innovation based on feedback is source of incremental or bigger innovation. Thanks to these criteria information technology allows low levels of capital equipment used and considering services firms highly dependent on competences embedded in human capital as a key competitive factor and strategic element in the organization and delivery of service products (Sirilli & Evangelista, 1998).

3.1.4. Survey

In the survey here displayed the questionnaire had inspiration in the innovation process with must be taken in account the following guidelines:

- Innovation capability (what do organisations do to structure and promote their innovation activities – and how able and ready they are)
- Linkages (by type of partner; more than just cooperation)
- Drivers and barriers to innovation (actors and factors)

Let's explore Innovation capability through related 'questions' to the:

- Innovation strategy
- Specific goals, targets for innovation activities
- Development department
- Activities organized in innovation projects
- Individuals charged with supporting the development and implementation of innovative ideas
- Procedures for reviewing/assessing innovative ideas for further development and implementation

- Regular evaluation of innovation strategy, innovation processes
- Systematic procedure for gathering external knowledge
- Part of staff work time explicitly devoted to innovation
- Innovation-related training/courses for management, staff
- Staff incentives for generating innovative ideas

3.1.4.1. Descriptive analysis

In the Kyoto Chamber of Commerce and Industry (KCCI) Creative Industry universe of 95 companies we took focus on “Brand New Services” group.

Questionnaires were sent after direct phone calls introducing the study.

Positive reactions of entire “Brand New Services” group allowed interpretations as following:

a) Moment of realization

Without exception all innovative provided service on the study found their genesis moment on to the business person own in-need experience.

After deepening interest regarding to solution and identification of niche possibility creation stepping stone were taken and the business launched. Here is the aim of this study: business entities come to life by putting their attention to an ordinary experience generating a need calling out for a solution.

b) Quality parameters

Client satisfaction as top priority finds support on organizational, operational, material and immaterial resources at their best requirements. All enquired organizations showed the Japanese Omotenashi⁵ Culture (the art of hosting brought earlier in the introduction of this

⁵ www.japantoday.com/category/.../view/the-business-of-omotenashi

dissertation) aspect up to date in the exercise of the innovative service.

c) Feedback

The direct contact with users of the provided service is fully used to know how the need has been fulfilled. In regular basis or in more spread way all the organizations touch the subject of communication with all the taking parts to the activity and make use of the fruits to generate improvements or maybe find possibilities for brand new other services.

d) Collaborative Learning

Inwards and outwards options are simultaneously used by the service providers. Sharing, delegating, learning in an ad hoc created environments the innovation fever keep working for solutions.

3.1.5. Findings

To depict the source of “Innovative Services” with an empowered insight here the support was given by qualitative and multidimensional approach enhancing the importance of the value co-creation. We here attempted to clarify users’ deliberation on self-doing (or not) versus service provider making of users decision a business opportunity. It seemed necessary to put services under new approaches for such proof of identity.

Findings here are an additional step on experimenting multidimensional approach on supporting analyses of innovation process in (for) diverse services. As the respective knowledge advances by factor combinations between inputs and corresponding outputs at multiple stages of various service delivery process.

Four requirements (Biege, 2013) for productivity measurement concept can bring help

“Omotenashi” is hard to define, but Japanese use it to describe what they believe is their unique approach to hospitality. “Omotenashi” involves the subjugation of self in service to a guest, without being “servile”.

here: Innovativeness – services new to the company differentiated from services new to the market; Internal output of a service process; Including interactive inputs that are not expressed by provider's and customer's inputs (time and cost); and Knowledge, competencies, and skills.

This set of requirements corroborates with the main goal of all the innovative organizations her enquired: Experiences (different, new) for their service users.

Approaching the genesis process by the capacity organizations develop in catching up with users (un)revealed need takes us back to long reflections regarding to created needs.

This study comes in the need of always keep an eye on the source of innovation in service. The back to the origin movement shall also put its light on service universe. Efforts on understanding impacts and results from services shall be equalized towards understanding from where they're coming. Users will always have needs that could perfectly be satisfied by their own means and certainly limitations exist in the sense of individuality and privacy matters. However, motivation to continuously bring service alternatives is vivid on providers' side. And users can deliberately in contrary allow service providers to take chance and make from such decision a business opportunity.

3.1.6. Discussion and conclusions

Specific characteristics of the nature and modes of organization of innovation in services (Gallouj & Savona, 2009) emphasizes the importance of service trajectories as the service output (immateriality, interactivity, and co-production). The focus goes here on the non-technological and invisible innovation output (service-based: service customization, problem solving, new solutions, new methods, and new organizational structures). New typologies for innovation in services permitting indicators dedicated to services find room to

be created: ad-hoc innovation, new-expertise fields of innovation, and formalization innovation (Gadrey & Gallouj, 1998). Modes of organization like multi-unit, new combinations of services, and customers as co-producers are examples of organizational innovation identifiable as taxonomies.

From this point evolutionary taxonomies emphasizes trajectories like supplier-dominated, scale-intensive, science-based, information intensive, and specialized suppliers. Here innovation systems and networks are important concepts when addressing service innovation often underestimated.

The “wellbeing” contribution and “solving problem” offered by the provided service has more than primer social effect. We also have economic effects as: the more the number of clients grows, the more employees will be needed to respond with service quality.

The novelty here is the focus on the source that inspire service providers to engage in an economic activity after observe the need to be satisfied.

More analyzing study cases adopting “multi-criteria and system dynamic perspectives” evaluation empower the evaluation of the evolution through the “Innovative Services” universe. Details can be revealed and handled by accurate tools as they’re caught by their mutating shapes in the ongoing generating new service process.

Revealed sources of innovative services lead back to understand definition of innovative service locked on the moment it is stated. Shall next section bring relevance to the observation of timed up definitions of innovative service.

3.2. Cyclical Momentums Definitions of Innovative Services: a retrospective

The research method of traditional systematic literature review regarding to services perception is here employed; demonstrating the need to identify the source from which

services have their genesis process and then are provided as original idea. Suggesting to revisit or to make a retrospective analysis of “new” or “renewed” or “reintroduced” service among existing analyses supported by this chapter aims to call attention up on service definition relying significantly on its capacity of innovation can be ranged as revisiting concepts or notions category.

3.2.1. Introduction

Timing for questioning over changes seems discarding any order or regent law. Suggesting to revisit or to make a retrospective analysis of “new” or “renewed” or “reintroduced” service among existing analyses supported by this section aims to call attention up on innovative service distinct from service innovation.

Cyclical momentums definitions get its “inspiration” by the time line simple observation: In a moment at high demand and supply response is followed by dropping aside for alternative solutions; and contextual reconfigurations re-bring on vogue former solution.

To bringing back from past a service instead of suggesting fully brand new creation of service type suggests new insights regarding innovative service identification, definition, classification, evaluation and so on. This makes questions the use of fashion cyclical returns as analogy for this specific case.

Acknowledging the believe that “Innovative Services” are those awaking the attention of the user (actual ones as well as potential ones) by a “difference” caused by an element not recognized by the user up until the moment the refereed service is available.

The idea is that a given innovative service can be considered as such by the moment it is seen as such by users and then become reproduced for the potential other users.

Shall then be allowed a review as follows: How do the findings reported in here bring us

new insights about service definition on time and innovation on service or about the measurement of such innovations? Why do we need such measures?

3.2.2. Research method

Adopting conceptual perspectives for service allows to embrace peculiarities of service activities in terms of its own definition. Studies have tried to go beyond the manufacturing-based approach (Gallouj, 2002; Gallouj & Weinstein, 1997). Service-based approach (Gallouj, 1994) and integrative approach (Gallouj & Weinstein, 1997) are prominent conceptualization frameworks. Summarizing the conceptual approaches to innovation in services we have: Assimilation – same as the manufacturing sectors and products; Demarcation – specific to service innovation highlighting specificities in service product and production processes; and Integration – enlarged view accounting innovation applicable to any tangible or intangible product proposing new taxonomy of innovation in services based on a new definition of product (Rabeh Morrar, 2014).

All these approaches aim to respond to the underestimated innovation in services by assimilation approach that is contrasted by the reverse product lifecycle model (Barras, 1986) introducing the incremental process innovations. From this point evolutionary taxonomies emphasizes trajectories like supplier-dominated, scale-intensive, science-based, information intensive, and specialized suppliers. Here innovation systems and networks are important concepts when addressing service innovation.

Specific characteristics of the nature and modes of organization of innovation in services (Gallouj & Savona, 2009) emphasizes the importance of service trajectories au regard of service output (immateriality, interactivity, and co-production). It is then important a focus on the non-technological and invisible innovation output (service-based: service customization,

problem solving, new solutions, new methods, and new organizational structures). Thanks to new typologies for innovation in services, indicators dedicated to services are permitted: ad-hoc innovation, new-expertise fields of innovation, and formalization innovation (Gadrey & Gallouj, 1998). Examples of organizational innovation identifiable as taxonomies are modes of organization like multi-unit, new combinations of services, and customers as co-producers are.

Because boundaries between goods and services have become blurred. “Servitization” of the manufacturing industry shows higher portions of turnovers are becoming achieved through selling services (Howells, 2006). Services become more manufacturing-like in innovation. “Innovation can be defined accordingly as the changes affecting one or more elements of one or more vectors of characteristics (both technical and service) or of competences (Gallouj & Savonna, 2009).

Finally synthesis framework is required to “redefine the product in such a way that it offers a relatively solid framework to generalize a theory of innovation for material and immaterial product” (Gallouj & Savonna, 2009). Especially when “the increasing bundling of services and manufacturing into solutions” (Salter & Tether, 2006) keep strengthening vowed works with integrative approach sharing comprehensive theoretical perspective.

3.2.3. Findings & Discussion

Too many meanings and associations make the word service a very problematic concept for simple assimilation.

As a noun a “service” is the action or process of serving and as a verb it describes the performance of routine maintenance or repair work on the provision of a service.

Producers of services as creators of value and wealth in their own right and also as activities that contributed to overall national economic competitiveness and productivity is on

a significance level leading to the development of a new science of service engineering or service science (Chesbourg, 2005; Ganz, 2006; Spohrer & Maglio, 2008). Understanding that “research needs to be organized around the object of research and not within the bounds of established academic traditions” (Ganz, 2006) allows to recognise Service Science as part of the emergence of a trans-disciplinary research agenda and in the context of integration, optimisation and sustainability. This science aims to provide a clear and common understanding of service system complexity. New paradigm challenges existing disciplinary boundaries and ways of conceptualising economic activity. To demonstrate that is possible to engineer service processes and experiences to enhance productivity requires development of comprehensive approaches improving the definition itself of service. New ways to think about service move beyond stylised facts heading to measurement of visible and invisible realities once goods have been transformed through the provision of embedded services (Bryson, 2012).

The nature of the knowledge supplied on what and for what matters on how the related exploratory exercise evolves on time. The traditional definition of services as result of a process of co-production (Hill, 1997) have been upgraded to an outcome of complex interactions. Thanks to these up above lines it is with ease that the service definitions showed to obey a cyclical momentum of establishment through the knowledge. Conceptual frameworks from critical analysis and evaluations in academic research got shaped thanks to contexts on time line rolling for service perception. As introduced in this section beginnings: in a moment of high demand and the supply response elects alternative solutions; and contextual reconfigurations to bring new or to “re-bring” on vogue former solution.

3.2.4. Conclusion

Defining service as an outcome of a complex interactions between agents, capabilities and preferences obeying the constant innovation rule is way more sounding nowadays.

Underestimated innovation in services by assimilation approach is contrasted by the reverse product lifecycle model (Barras, 1986) introducing the incremental process innovations. From this point evolutionary taxonomies emphasizes trajectories like supplier-dominated, scale-intensive, science-based, information intensive, and specialized suppliers. Here innovation systems and networks are important concepts when addressing service innovation and consequently the definition of service.

Robust conceptual framework working on combination of theory and method inform debates regarding the definition, classification and performance measurement of services. In special attention to cover gaps involving the measurement of visible and invisible realities related to service understanding.

This review through time consideration of service understanding as per se and the effort to put a light on the vital role innovation in service has on the proper definition of service through its evolving process in time on a recurrent and cyclical moment allowed considerable insights. The novelty here is the focus on how the time in which the service is considered as new.

Having in one hand the knowledge about the source and in the other hand the knowledge about the definition of Innovative Service follows the knowledge about how works the process to generate new services. And in the next section the latter process will be analysed through provider and user perspectives.

3.3. Innovative Service on Generating New Service Process: Provider and User perspectives

Two research methods were here used: systematic literature review to identify how has been services defined as innovative beside the novelty determinant component identification allowing such definition; and single-case study that demonstrates the need of such clarification for services which indeed belong to the past and were re-introduced in present time. The analysis focuses on the MEIJI Company “new” delivery service and explores how the provider and users are able to identify the service as innovative. The findings here after reported give the degree of how it urges the need to identify novelty determinant components on the present time for similar cases.

3.3.1. Introduction

What is an innovative service?

Shall it be understood as service that “innovates” verb predominance approaching sense or innovation on/in or for the service? For non-native English speakers like different Latin based language: “service qui innove ou service (re)innovée ou service innovant”; “serviço que inova ou serviço (re)inovado ou serviço inovador”; once again in English: “Innovative service”, service that have been innovated or that innovates. It is easy to lead comprehension focus to newly generated services. But reflection towards novelty in and for (insisting on the difference language leading understanding matter) services available in this century. Appearing now a days or coming from the past?! In a simple analogy we can take reference of “fashion cycles”: inspirations of past (re-)introducing renewed and improved version.

“Innovative”: verb or adjective (action, attitude, behavior or characteristics)?!

Meaning “New” or “Renewed” Service?!

Shall in here all notions, definitions and specificities of service be taking in importance: as process as product as well as set of characteristics in a product (Gallouj 1984).

Service: comes from to serve, letting others do it to you, for you. So is that any “personal gesture” turn out in to an economic activity synonymous of innovating in service’s sector?!

Is it convenient then to talk about innovative services because services providers decided to do it for the user/client instead of letting it to be done by the client or only because it never was done before?

Same thing when taking in account details in a service as process and enlighten it as new when one of innovation types (radical, improvement and incremental) operates over specific detail?

Again, re-evaluating user/consumer’s decision on “participating” versus “non-participating” at the **Genesis** of innovative services (social dimension of co-creation of value) allow us to ask if we can consider to be in front of an infinity source of potential service business activity? For that as soon as de future user decide to no longer do it on his own and waits for a service provider to take hand and do it for him we are allowed to state an innovative service.

How to measure the degree of novelty under such considerations?

Service engineering and R&D in services shall be the main way/place to identify innovative characteristic of such generative process conditions.

But R&D in services is not adequately reflected in the productivity statistics and so underestimated. Here is an interesting concern to put at light researches on what to qualify as innovative service (Djellal et al 2003). And this said, it is also impossible to do not take on pair the productivity matter related to services.

User/client/market-oriented services instead of traditional sense administrative public services got its word on innovative services: it extends the insight into complementing or not

complementing service activities.

Food industry does not stay behind on the world Servitization adaptation process. The new type of value creation is based on the offering product-service system (PSS). In an economy such as the Japanese one focused on the changing order we find the proof when MEIJI a very well-known and owner of an honourable reputation brings back to the light of the day an old fashioned service: Fresh Milk Delivery Service.

This subject pushes a review through all concerns around defining innovative service. This is the novelty carried by this work: the re-introduction of old fashioned services creating a sort of illusion of new for users which lead to re-approach the meaning of “Innovative Service” on the process of generating new services. Do we have here then a brand new category of services to be studied and introduced to services innovation taxonomy?

Let’s then apply evaluation modes suggested by previous reflections on this matter.

3.3.2. Research Methods

For the common sense believe: “Innovative Services” are those awaking the attention of the user (actual ones as well as potential ones) by a “difference” caused by an element not recognized by the user up until the moment the refereed service is available.

The essential idea is: a given innovative service can be considered as such by the moment it is seen by users alike and then become reproduced for the potential and future users.

Two methods have been used:

- Systematic Literature Review: based on rigorous and reproducible steps that allow the linking of future research to questions and concerns posed by the past research (Thorpe et al. 2005):

- Case Study Research: producing first-hand understanding (Yin, 2004), and its ability to examine in-depth a case within real-life context (Tavoletti, 2007).

3.3.3. Systematic Literature Review

Data collection

Based on traditional systematic review process, the following set of criteria have been established⁶:

- EBSCOhost as the research database;
- All chosen articles were published in English;
- All articles were from 2000;
- Keywords used were: service, innovative, definition;
- Abstracts helped on final selection;
- Full reading of articles;

A total of 15 papers composed the dataset regarding to identify how has been services defined as innovative adjacent to the novelty determinant component identification allowing such definition.

Dataset analysis

Analysing the dataset there are some considerations to take in account: fully dedicated papers to innovative service definition are “inexistent”; the number of papers ranged by the database related to the keywords increased after 2010; topics were of a multidisciplinary nature but management predominance is easily noticed.

Results

Deepening the analysis it is possible to identify a lack of studies examining explicitly

⁶ New method for literature review.

innovative services definition. Furthermore the generating process of new services also suffers same scarcity.

Focus was about innovations in service often entitled as “innovation service”. And this takes us back to preliminary distinction made for semantic matters.

However a simplistic, brief and dual categorization allows ranging the read articles as follow:

- Innovation basis: all the literature measuring the degree of novelty.

AND

- Management basis: all the organizational structure support.

3.3.4. Case study

“Single-case studies can richly describe the existence of a phenomenon” (Siggelkow, 2007).

Through the diversified, performing and crowned by novelty Japanese service universe tow cases were picked to embody this paper.

Adopting a prime descriptive introducing method the case is presented. Then follows an analyse that evolves through questions ruled by a multidimensional approach. In order to follow an ideal evaluation of respective “Innovative” characteristic/adjective/behaviour of services.

In this single-case study simple interview were conducted with the chosen service provider and respective users. It allowed to gather from each side: general information and activity description (provider); general information concerning the identification and the choice of new service (user); identification and description of a new service generating process (provider); measuring and appreciating novelty of service (user). There was opened and closed

question as well as multi-choice level scaled questions.

Data collection

In order to respond to the study aim the Case Study Research method was used to produce a “first-hand” understanding (Yin, 2004) due to the ability it provides on examine in-depth a case with real-life context (Tavoletti, 2007; Yin, 2004).

Interviewing service provider and service users (the “how”) by the belief only the lived experience by both side shall reveal the novelty degree (the “why”) contained by the chosen service.

All the interviews (to providers and to users) were guided by a pre-elaborated questionnaire which the targets could have in hand along interview moment.

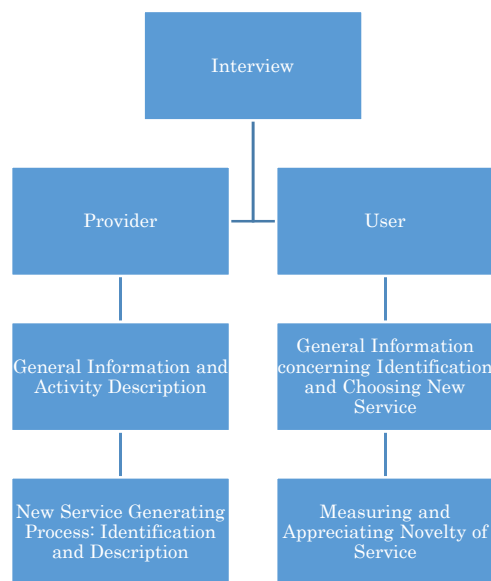


Figure 3.5. Interview key points (Own elaboration)

Data analysis

A cross-interview analysis allowed insights from each interview compared to one and another.

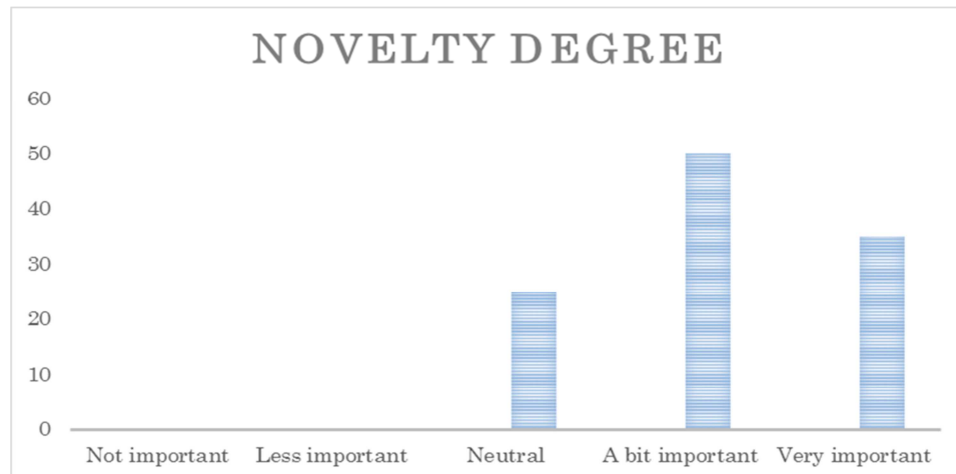


Figure 3.6. Novelty Degree (Survey production results)

Thanks to the information gathered during the interviews on the service users' side concomitant to providers' side we could state how important the novelty degree can determine the appreciation and adoption of a "new" service. This very particular kind of service receives a multidimensional reception by the users: the social dimension that is very specific once is an elderly society in question; the economic dimension of rationalization in various type to focus on delivery operation; the environmental dimension for the impacts of displacement of deliverers (one at time) instead of clients (bigger number) to selling points; and other dimensions could fairly find their place here for the broadly embrace services engage whenever studies alike starts, although for concise reasons we let it to future studies. The "A bit important" wins in figures for the reason of mitigated appreciation of the "illusion" of new; as advanced, the chosen service is in fact an old fashioned one reintroduced. It allows us to believe that innovation classification in services might be in front of a work to do in the matter.

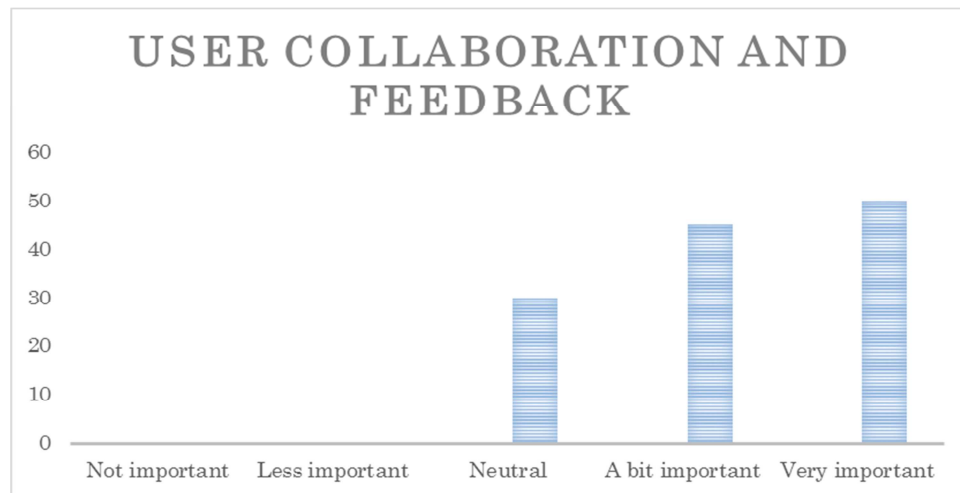


Figure 3.7. User Collaboration and Feedback (Survey production results)

Again from both sides the collaboration and feedback comes to comfort the idea here advance related to the decision from users of participating in the co-creation of added value in service sector. And the convergence is in accordance with the idea we advocate: it is “Very important” the collaboration and the feedback for the innovative generating process even if the service under analyse is “ambiguous” regarding its novelty. This result is per se enough in the support searched through this study case.

3.3.5. Findings

Up-and-coming findings from the data analysis are here reported.

The universe of service research although strong empowerment through time still have room for expansions regarding the novelty degree measurements alongside with the continuous hard work on service productivity measurements.

The chapter insights aim to contribute on future brain storming(s) dedicated to improve construction of solid tools for innovative service identification, definition, classification, evaluation and so on.

a) Innovative service generating process

Every and any process is considered as a series of actions or steps taken in order to achieve

a particular end in general. Here in particular to generate services that is new, original and introduces changes taking in consideration respective creative origin. Undeniable additional perspective shall be taken when facing brand new services; especially when using existing tools for identification, definition, classification, evaluation and so on.

Despite the semantic distinction concern launching the essence idea here, data indicated in the case for MEIJI Corporation that the decision to introduce such service is to answer the market demand of servitization.

The innovative service generating process appears here like obeying to context and conjuncture exigencies.

b) Cyclical Momentums definitions of innovative services

Suggesting to revisit or to make a retrospective analysis of “new” or “renewed” or “reintroduced” service among existing analyses supported here aims to call attention up on innovative service distinct from service innovation. It can be ranged as revisiting a concept.

The inspirations here is found on the time line simple observation: In a moment of specific demand, the supply side responds selecting between solutions; in other words is a contextual reconfiguration of the responses the supply side brings solutions; And we can witness former solutions being back in vogue through the selection game in time.

What to say for the milk delivery service staging and solid comeback?

Looking at the choice made by MEIJI Corporation to bringing back from past a service instead of suggesting fully brand new creation of service type suggests new insights regarding innovative service identification, definition, classification, evaluation and so on. This makes questions the use of fashion cyclical returns as analogy for this specific case.

c) Become a servitization strategy applied successful company on Food Industry

Moving into service universe is usually made facing difficulties. Innovating and integrating

successfully requires mutations on management that must be done. Service businesses come into the long living different kind of organization.

MEIJI Corporation (re)introducing the delivery service made use of its market needs knowledge following business strategy and niche opportunities on Food Industry. A whole management section of Meiji Dairies Corp.'s home delivery was created. Moreover a social dimension is to be taking in account: aging population matter. Therefore the market could and still can expect further growth in sales and profits as the population still ages.

We here assist to an adoption of the servitization strategy making full use of knowledge acquired by MEIJI Corporation. Being a hard core food industry organization, the company could by adding a service add knowledge of its own market: servitization strategy adoption requires the acquisition of new knowledge (Leoni 2015).

It would be very interesting to make a comparative analysis between types of delivery services on food industry available for users

d) Users and costumers perspective

The success of any novelty is related to the market reaction and more precisely to the market adoption and pragmatically utilization on daily basis.

After “discovering” the novelty, the major concern for suppliers is the market taking in the suggested alternative between multi solutions already available.

Following MEIJI Philosophy extreme importance is attached to clients’ feedback. A direct appreciation of the value co-creation as well as an improvement of knowledge concerning this specific service is cherished. At same time it allows the Corporate a boost on delivery outlets’ promotional activities as it is easier to pitch new products.

Another plus for this service is the client advising the potential ones to become actual clients. Positive experiences benefits from the neighbors “bouche-à-oreille” information

divulgar current.

Users taking part in this study allowed to analyse how the re-introduction of this particular old fashioned delivery service was positively adopted in a context of a very specific good. The “New” as identification for the choice of solution gained a “to be considerate” aspect. Being take as “new” by the user when is it “old” touch in about category of innovation for service research in a humble point of view.

3.3.6. Discussion and conclusions

There is always room for growth in producer services activity, particularly in the information field and chiefly for those related to R&D functions: innovative services just come from it tricking mind feature as for the question what comes first, “the egg or the thicken”.

Further and deeper multidisciplinary analyses in this revisiting proposal can reveal policy implications, for example. And this can be of different nature: social (aging population), environmental (“milk man” dislocation versus all service users’ dislocation to purchase the item), etc.

The chosen case also have a prime individual “wellbeing” contribution and “solving problem” visage. The system offered by the delivery service has more than primer social effect. As MEIJI have shops centralizing the departure point of fresh product environmental issue has also its dimension taken in account. Same for the economic dimension (employment): the more the number of clients grows, the more employees will be needed to respond with service quality.

To bring the focus over stakeholders’ perspectives is crucial. The co-creation process needs the information on how they will behave.

The hope is to see more and more analysing study cases adopting “multi-criteria and

system dynamic perspectives” evaluation. The empowered evaluation’s evolution through the “Innovative Services” universe that we now live in has yet details that can be caught by their mutating shapes in the ongoing innovation service process.

The chapter brought together elements in response to the concern of finding out alternatives for the third sector to produce economic results through diverse activities.

Thanks to the identification of sources and consequently to define the innovative service, it is with ease that stepping into the process of generating new services gives bases to advance analysis putting together Services, Innovation and R&D on Growth and Sustainable Development matter.

This three sections came up like three questions in order: Where (Infinity source), When (Cyclical momentum) and How (Generating Process). They have undeniable touching points and together they allow to attempt the answer regarding the matter of bringing up new service solutions. These questions are those of bases for insights building up knowledge needed to be foundations for service specialization and sustainable development based on qualitative studies crowned by: literature reviews, study cases and questionnaire information production bases.

Chapter IV: Services, Innovation and R&D on Growth and Sustainable Development matter

Growth and Sustainable Development matter occupies this chapter concerns and introductory lines on regard to economic entities find here place. Starting with interpretation of the fair value of the intertwined relationship Service / Innovation / R&D / Growth / Sustainable Development; follows the reading of tertiary sector activities development under public service sector and private service sector hands; location and attractiveness factors/performance for international visibility interest the analysis and recognizing the Era of the Knowledge Intensive Business Services (KIBS) the chapter sets the new trend leading economic specialization of nowadays.

4.1. Fair value of the intertwined relationship Service / Innovation / R&D / Growth / Sustainable Development

Sustainable development walked from its earlier status as a militant, utopian demand to become a controversial but fundamental theoretical category concern, a socio-economic goal of vital importance globally and society-wide movement, a defending purpose and ambition for society at large.

Innovation *in* and *by* services and innovation-based entrepreneurship in services in the context of sustainable development in essence both evolved with the primary concern being to establish academic and institutional recognition for both of them.

Non-technological forms of innovation are particularly important in a service economy and can play an essential role in economic growth and sustainable development. Services (and

innovation in service) play a major role in guiding economies towards sustainable development. Too frequently underestimated though. Service sector “environmental footprint”⁷ for the moment lower than that of manufacturing and agricultural activities (Djellal F. and Gallouj F., 2009). Excluding transport, service activities (public, private or non-profit) aimed at reducing unemployment or promoting human development and social cohesion. More generally since services are the main suppliers of jobs in contemporary developed economies, automatically, the hope is that services will be the main factors in reducing inequalities.

Non-technological innovation (i.e. organizational, methodological, social and strategic innovation) and the corresponding forms of entrepreneurship (particularly social entrepreneurship) play an essential role in economies dominated by services and in view of these activities (passive or active). In sustainability, the industrialist, technologist, environmentalist and curative connotations, which have historical origins, should gradually become blurred.

Politics of services as framework was recently used to address public policy for service innovation (Rubalcaba and Den Hertotg, 2009) and productivity strategies within services firms (Djellal and Gallouj, 2008) providing valuable heuristic approach. Innovation *in* services analytically distinct from innovation *by* services confirm the innovation beyond their own behalf promoting the *induced* innovation: we witness the sustainable innovation (induced) by services.

4.1.1. Analogies and conceptual convergences

Comparison of the definitions reveals a number of interesting relationships between the nature of services and sustainability. A number of analogies at the technical characteristics of

⁷ A population's environmental footprint is a simple indicator based on the area of the planet on which that population depends in order to sustain its economic activities.

services can be closely linked to certain aspects of sustainability. Their research agendas show to be overlapping and mutually enriching with regard to the question of performance (both its definition and measurement).

In a pluralistic evaluation system (complementary or competing), not only environment, but also economic and social dimension is concerned with the transformation of a collective entity's (support medium - in this case humanity's) (Djellal F. and Gallouj F., 2009). At the heart of the definition of services we find its material medium (i.e. physical environment at both local and global level), its economic medium (i.e. the way it conceives of or creates wealth) and its social and symbolic medium (equity in the redistribution of wealth) completing the coproduction and interaction dimension.

Services categories of processing materials, information, knowledge or persons are under a number of hypothesis formulating the nature of relationships between them. Through such analysis limitations can be found. All services activities affect a number of different mediums: they are combinations that vary in both time and space; they are combinations of functions associated with different mediums (material, informational, cognitive and relational functions). Sustainability is also a composite category that has economic, environmental and social dimensions. As a trade-off between these dimensions it is hard to imaging one-to-one relationship between type of service and overall sustainability.

Hypotheses can be formulated about the relations (positive or negative) that exist presumptively between the various types of services and the problems of sustainable development:

- Material processing services reoriented towards co-modality for a most effective combination possible;
- Information processing services from socio-economic point of view and not generally

associated with environmental damage it is perceived as significant;

- Knowledge and organizational processing services influence social or socio-economic sustainability by contributing to the development of the knowledge (intangible) economy replacing the material (tangible) economy;

The more close a service is linked to a tangible mediums, the more it appears to pose direct environmental problems.

Considered from the social perspective, sustainability seems to be positively linked to the intangible and relational aspect of services. The more intangible a service is (this is the case with informational and cognitive services for example) and/or the more relational it is (applying to services for individuals – elderly support service), the more the social aspect of sustainability seems to occupy an important position.

Measuring and evaluating the “output” of services provides a fertile ground for the dialogue between the problems posed by services and those posed by sustainable development.

Multi-criteria, pluralist and flexible approach to wealth and performance push the abandonment of the absolutism of GDP and productivity (Gadrey, 1996, 2002, Djellal and Gallouj, 2008) for evaluation purposes based on volumes or qualities of outputs (the drive for growth and productivity produces negative externalities which are not included in the respective measurements). Service economy is characterized by cognitive content of economic activities and proliferation of service-based social relations between providers and customers (long-term utility effects: outcomes and mechanisms that create trust) (Gadrey, 1996, 2002, Djellal and Gallouj, 2008).

4.1.2. Innovation *in* services and sustainable development

Ambivalent status of technologies, as source and solution of problem, makes other forms of innovation in services linked in some way to sustainable development. Innovation in services, as sustainable innovation, is usually given the intangible and relational nature of the output,.

By assimilation of innovation in service comes as “supplier-dominated” (Pavitt, 1984). They are in the end just users of innovation. Such approach brings emphasis to pervasiveness of ICTs in services. ICTs here regarded as low-MIPS⁸ technologies and the information society is consistent with sustainable development. From a strategic point of view the attempt to eliminate the specificities of services so that they differ as little as possible from goods, less fuzzy or intangible, to reduce or eliminate the periods of interactivity and make them less immediate by establishing certain forms of stockability. Is same to reduce the diversity of possibilities services carry and create a product or “quasi-product” that can be embodied in an explicit contract. This is referred as the industrialization of services (Levitt 1976, Shostack 1984).

By differentiation there is attempts to cope with the inability to give full account of innovation in service. The so called “innovation gap” (NESTA, 2006) face the many forms of non-technological innovations that are not captured by the traditional indicators: the “hidden” or “invisible” innovations. As far as material processing services are concerned all of which are pursuing socio-economic goals (NESTA, 2006). Individuals constitute the medium to be processed or changed as well in examples of non-technological innovations (care of elder or young children). Other cases of example are the financial innovations as microloans in response of the problem of exclusion from banking services and loans at preferential rates in order to encourage firms to install environmentally-friendly machinery. The development by local

⁸ MIPS indicator (material intensity per service unit) measures the amount of non-renewable natural resources used to produce a good or service.

authorities of facilities providing services for people in hardship (information, mediation, advice and public service points) goes also in the same sense. “Environmentally friendly”, the provision of cognitive solutions does not have any particular direct adverse impact⁹ on sustainability, particularly on its environmental dimension. Typology of innovation that can be readily applied to sustainable development are those in consultancy activities (Gallouj 1994, Gadrey and Gallouj, 1998): *ad hoc innovation* (joint development with the client of an original solution to a problem); *new expertise field innovation* (i.e. the identification of an emerging field of knowledge and the provision of advice in that field) and *formalization innovations* (the implementation of methods with a view to making a service less ill-defined). Solutions provided by consultants in sustainability development itself is a major example.

A number of observations is to be taken in account:

- The mistake of linking technological innovation too closely with environmental and ecological objectives;
- The differentiating point of view makes innovation in services and its relationship with sustainability concerns overlap and merge with the vast and prolific field of social innovation. A “top-down” approach to technological innovation from assimilative perspective versus “bottom-up” from differentiating perspective will thrive to respond to problems and keep with the interests and values of the concerned at local or broader level.
- Innovation-producing rationalization or cognitive rationalization (Gadrey, 1996) leads to a sort of standardization of cases and the formalization of problem-solving procedures (methods) as the use of individual or organizational routines seem not to have any

⁹ Some cognitive solutions provided by consultants can have negative impact on social sustainability, particularly when they involve plan closures or redundancies.

negative effect to the sustainable development notion contrasting to the industrial rationalization.

By integration the production and consumption of hybrid solutions or packages is a factor in sustainability. By adding services to their product or by increasing the service content of their goods, firms are reducing the relative share of material processing activities, which are causes of environmental damage. Boundary blurred (Bressand and Nicolaidis 1998, Furrer 1997, Bryson 2009 and others) it makes less likely to sell and consume goods and services separately and they come together as solutions, systems or functions. The informational or service value of goods makes increase the prominence of the service dimension in goods. Synthetic or integrative approach to innovation comes as conjunction of vectors of characteristics and of competences.

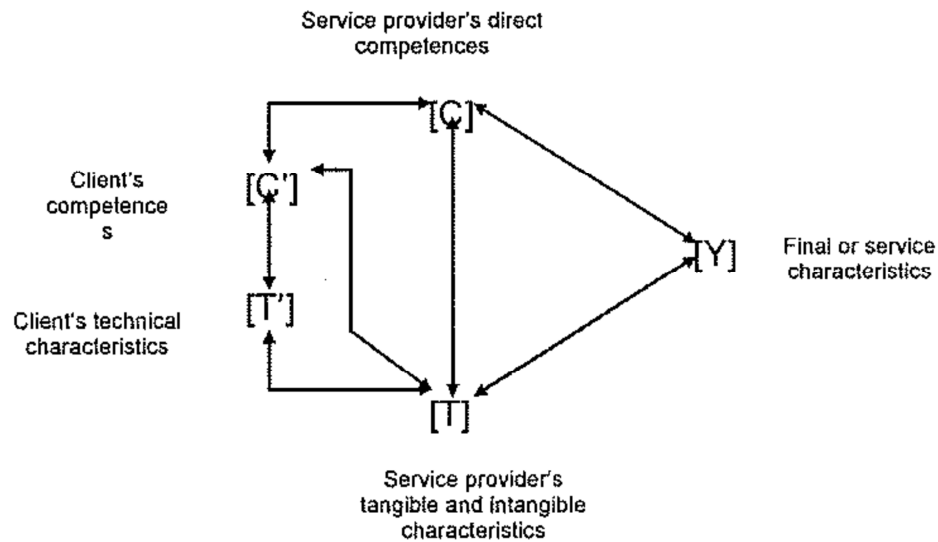


Figure 4.1. The Product as the conjunction of characteristics and competences (Gallouj and Weinstein, 1997)

In a very flexible way this representation can be used making possible to include in the analysis both tangible artifacts (cars, computers) and intangible products (insurance contracts, financial products or consultancy services) (Gallouj and Weinstein, 1997). It can be used to include pure services ($[C']-[C]-[Y]$ - the most respectful one regarding sustainability concern), as well as less pure services ($[C']-[T]-[Y]$) or even self-service arrangements ($[C']-[T]-[Y]$). And it is also capable of illustrating the provision of hybrid solutions (good or services: car and

various associated services, both upstream and downstream – insurance, maintenance, finance, guarantees, etc.).

Sustainable service characteristics on the socio-economic and environmental level can be incorporated.

Innovation emerges as a change in the characteristics through mechanisms as addition, subtraction, association, dissociation or formatting all of which allow to identify models of innovation like radical, ameliorative, incremental, recombinative and formalizing ones (Gallouj and Weinstein, 1997; Gallouj, 2002). The radical innovation denotes the creation of new characteristics and competences. The ameliorative innovation reflects an increase in the prominence (or quality) for certain characteristics and competences without change in the structure of the system of competences and characteristics. The incremental innovation designates the addition (possibly the elimination or replacement) of characteristics – “add-on” technologies or addition of services to existing products as contribution to “dematerialization” of firm’s activities and directly enhance environmental sustainability. The recombinative innovation relies on the basic principles of dissociation and association (splitting or combining) of final and technical characteristics. Finally, the formalization innovation is based on the formatting and standardization of characteristics.

4.1.3. Innovation *by* services and sustainable development

Service firms or organizations induce innovation in other firms or sectors (innovation *by* as opposed to *in* services) mainly thanks to KIBS and public services. These two sectors share the particular characteristic of innovating for themselves while at the same time contributing to innovation in other sectors in different ways.

KIBS induced innovation is due to their particular characteristic of which is that knowledge is their main input as well as their main output (Miles et al., 1994; Gallouj, 2002; Toivonen, 2004). It includes activities like consultancy, R&D, engineering, financial and insurance services (according to Community Innovation Surveys – CIS – these are among most innovative in their own right activities). Example of forms they can take are the introduction of eco-label standards or eco-label standards (example: organic farming standard giving rise to organizational learning process for firms based on the use of external knowledge-intensive services – training services – so these innovations can be based on material sciences and technologies or on humanities and social sciences and organizational engineering through the co-production way; Nicolas, 2004).

With the vision to foster sustainability, public authorities induce innovation thanks to their power to facilitate the use of knowledge-intensive services. “Incentive programs” in order to encourage upgrading, compliance with standards and innovations in the sphere of sustainability through regional consultancy demanded by regional authorities.

After introducing some economic entities the following section will take focused look in public service sector and private service sector participating side by side in the tertiary sector activities development.

4.2. Tertiary sector activities development: Public service sector and Private service sector side by side

Public services as suppliers, in a variety of ways, of products like water, energy, transport, are likely to pose sustainability problems that can be tackle by innovations.

In the point of view of local, national or supranational public authority as producers of laws, regulations and norms put organizations and users to comply with. Via legislation it is possible to

enact, act as drivers of change and innovation in the sphere of sustainability (Djellal, F., Francoz D., Gallouj, C., Gallouj, F. and Yves Jacquin, 2003).

Finally, public policies intent to promote and support sustainable innovation by various forms as the “assimilation, differentiation and integration - ADI” framework for satisfactory basis for analysis. Many public policies of assimilation type approach aim to support sustainable technological innovations on the production and consumption sides. In differentiation policies the emphasis is taken to the specificities of sustainable innovation in services – social innovations by support for business incubators nurturing firms specializing in environmental or social problems. Finally the integration approach, since it transcends sectoral boundaries, it promotes the innovation culture with actions like public strategies intended to encourage the development of certain forms of sustainable governance (corporate social responsibility).

Innovative-based entrepreneurship in services and sustainable development recalls the Schumpeterian entrepreneurship in four new types of sustainable entrepreneur/innovator in services that can be identified as follow (Djellal, F., Francoz D., Gallouj, C., Gallouj, F. and Yves Jacquin, 2003):

- “Cognitive” entrepreneur: experts who establish companies on the basis of new field of knowledge that they themselves helped to develop (researcher-entrepreneur) or which they make good use without actually having contributed to it (consultant-entrepreneur). The cognitive sphere of sustainable development is fertile ground for this form of entrepreneurship.
- “Social” entrepreneur actions is in the social and solidarity economy. The establishment of new organizations in order to take responsibility, in innovative ways, for disadvantaged or vulnerable groups in the population.

- “Environmental” entrepreneur acts in the preservation of the environment and in the quest of sustainable development thanks to niches in the market by steering in directions linked to social fabrics or by introducing new forms of exploitation – “green technologies”, i.e. tangible or intangible (methods, protocols) technologies that contribute to preservation of the environment.
- “Entrepreneurial” entrepreneur perceived as business incubators, programs designed to encourage and support, in multiple ways, the gestation, birth and first steps of firms and thereby to improve their visibility. These organizations provide complex service aiming to create entrepreneurs (entrepreneurs in entrepreneurship – local, regional development, redevelopment and restructuring, etc.

Sustainable development can be characterized by four interdependent biases: it is industrialist, technologist, environmentalist and defensive. As major theoretical category it grew up in an environment dominated by an all-powerful manufacturing industry reliant on continuous technological innovation. The notion became “defensive” concerned with the repair of damage (essentially to the environment).

Services alter the terms of sustainability development problematic. An important role in sustainable development, both statically and dynamically, that is through the innovations they produce or induce. A service-based approach to sustainable development involves a loosening of the various biases in question cited before (Hyytinen K., Ruutu S., Niemien M, Gallouj F. and Toivonen M., 2014).

Services activities have a fairly small environmental footprint producing essential socio-economic effects: it is services that generate most jobs in contemporary economies. They are also the main users of information and communication technologies with a low MIPS. Although none of these characteristics is irreversible over the long term, the future of the

service society (the nature of its constituent sectors and their size) is closely correlated with the environmental variable.

In sustainable service society the non-technological innovation (particularly social) occupies an essential place. As source of economic solutions (jobs) they are also source of solidarity (services to individuals in hardship) in new forms of entrepreneurship recognized by public policy.

Services play an active role in the production of innovations. Whether the innovation is technological or non-technological, environmental or socio-economic in a preventive or proactive approach (education of populations, training related to environmental norms or labels, etc.) they come to cure or repair damage inflicted on the environment or on individuals' socio-economic well-being. This latter action takes place in specific point of space. It is what leads next section about location.

4.3. Location and attractiveness factors/performance for international visibility

Professional business service (PBS) firms under integrated theoretical approach aim to generate understanding of the possible factors that have affected the development and internationalization of business services.

Contributions like the theory cross-pooling (Lorenz, 1986) consists of service management (Lehtinen and Valikangas, 1994; McLaughlin and Fitzsimmons, 1996), general business economics and economic geography (Porter, 1990; O'Farrell et al., 1993; Lindahl and Beyers, 1999) accompanied by internationalization with both economic and behavioural aspects (Dunning, 1988, 1998; Markusen, 1989; Aharoni and Nachum, 2000; Lambe et al., 2001).

The attempt to approach internationalization from the perspectives where, how and what through theoretical aspects of economic geography deals with the issue of where the investment end up (Patrik Strom and Jan Mattsson, 2006) and how internationalization is achieved is comforted by respective theories. To complement the understanding service management explores the matter of what the firms can do to enhance their competitive situation. All the above together generates a broader perspective of the forces shaping the internationalization of business services.



Figure 4.2. Theory Cross-Pooling (Internationalization of PBS firms Lorenz, 1986)

The forms of internationalization capture also the business structure of companies and describe how firms tend to use services supplied by companies with which relations are established (Strom P. and Mattsson J., 2006). Some example of internationalization forms like: in-house service departments; supplied services from the headquarters; using service providers of local origin; presence with or without connections to a larger number of services provider, etc. are mostly under intentions of keeping services at arm's length after crossing the borders. And

consequently relational variables such as trust, commitment, cooperation, relational norms and satisfaction are found in international marketing and network theory.

The cause for such concern is the fact that most of the now-a-days economies became service economies. Employment rose strongly as “tertiary” one and services got increase involved in trade at all levels, i.e. from domestic to international, spreading to the field of global economy.

This is then a particularly selective concentration process. The dynamics induces a “reorganization” of the structure (different sizes and natures). Thus distinctions between technological territories, including the productive base highly internationalized and specialized, "interfaces" territories, which are more diversified regional territories, including a higher proportion of business services, and finally regulation territories, rare and very large, characterized by specific and exceptional position at the international political and financial systems find explanations.

At this identification of externalities are added such as those of: "location advantages" type - close to natural resources, transport infrastructure with extra-national character (ports and airports), national or international public authority; variables type as size of the market - be located at the centre (vs. periphery), that is to say where the market size is the most important; skilled labour force and wage levels - the massive service sector of the economy, especially for the engine sectors where technological advances are vital to their growth and wage level is seen as a pecuniary externality playing in principle to the detriment of "core" areas and for "peripheral" areas; Dispersion forces - centrifugal movements due to the level of house prices, the level of local taxation and scarcities of zones dedicated to economic activity; Characteristics of local economy conducive to growth and further on a

metric session will treat locations' attractiveness (theories of dynamic externalities or knowledge spill overs).

4.4. Era of the Knowledge Intensive Business Services (KIBS)

Knowledge Intensive Business Services (commonly known as KIBS) are services and business operations heavily reliant on professional knowledge (Gallouj F., 2002). Mainly concerned with providing knowledge-intensive support for the business processes of other organizations. Their employment structures are heavily weighted towards scientists, engineers, and other kind of experts. It is common to distinguish between T-KIBS, (those with high use of scientific and technological knowledge - R&D services, engineering services, computer services, etc.), and P-KIBS, who are more traditional professional services - legal, accountancy, and many management consultancy and marketing services. These services either supply products which are themselves primary sources of information and knowledge, or use their specialist knowledge to produce services which facilitate their clients own activities (Gallouj F., 2002).

A bit of taste was given by the section treating the forth sector which business activities are exactly those embodied by KIBS.

KIBS usually have other businesses as their main clients, though the public sector and sometimes voluntary organisations can be important customers, and to some extent households will feature as consumers of, for instance, legal and accountancy services come in first line.

Discussion about KIBS and the term use as such have been started in a report to the European Commission "Knowledge-Intensive Business Services: Users, Carriers and Sources of

Innovation"¹⁰. Since this, it has appeared these sectors of the economy have continued to outperform most other sectors, and have accordingly attracted research and policy attention. Care should be taken in reading literature on the topic, since a number of related terms are in wide use. The European Union has recently been referring to a much broader concept of "knowledge-intensive services" recently (extending well beyond the business services) and to "business-related services" (including many services which have large markets among final consumers) (Martinez-Fernandez C., Miles I., Weyman T., 2011).

An extract from a description found in Harvard Business Online tells us: "A common characteristic of knowledge-intensive business service (KIBS) firms is that clients routinely play a critical role in co-producing the service solution along with the service provider. This can have a profound effect on both the quality of the service delivered as well as the client's ultimate satisfaction with the knowledge-based service solution. With a strategical management of client intervention in the co-production, service providers can improve operational efficiency, develop more optimal solutions, and generate a sustainable competitive advantage."

KIBS firms are often highly innovative in their own right. They also have a facilitating role in innovation in various economic sectors on the innovation process of co-production of knowledge as lines above mentioned (Martinez-Fernandez C., Miles I., Weyman T., 2011).

Some major examples are: Health/medical services, Postal services and Transport and Distribution (some specialised logistics services may be seen as KIBS), Consumer Financial and Real Estate services, Education services (other than specialised training for industry), Broadcast and other mass media (again with possible exceptions, such as when these media are also used for specialised delivery of business services as in data broadcast or encoded

¹⁰ <http://www.mbs.ac.uk/research/engineering-policy/publications/documents/KIBSEIMS1995shortreport.pdf>

business video transmissions), public administration (again with some possible exceptions in industry support schemes), Repair/maintenance (with the exception of IT-related activities), retail and wholesale, Social welfare services, Hospitality, Catering, Leisure/tourism, Personal consumer services, Entertainment. Some telecommunications and specialised financial services are borderline cases.

KIBS have attracted a good deal of attention from innovation researchers. They are both highly innovative - among the most innovative service sectors if we can go on the results of Community Innovation Surveys (CISs) - and many of them play important roles in diffusing innovations and helping their clients innovate more generally (Martinez-Fernandez C., Miles I., Weyman T., 2011).

Quality of the resulting service product largely depends on the nature of the interaction between the KIBS-firms and the client-firm as well as on the quality of the communication process that is involved.

Services function as promoters of the fusion of generic and quasi-generic knowledge, as well as the more tacit knowledge, located within the daily practices of the firms and sectors (Gadrey J. and Gallouj F., 2002).

IT support services, management consultancy, and technical engineering, for example, are solutions to problems and challenges. Thus enabled to refine and differentiate their services offered and methods used, to learn about new business opportunities, upgrade track record and so on.

KIBS link capability to understand and prioritize their client problems into strategic framework for action. They identify and focus in “good practices” (Gadrey J. and Gallouj F., 2002).

KIBS roles are:

- Facilitator of innovations if it supports a client firm in its innovation process;
- Carrier in transferring existing innovations;
- Source in initiating and developing innovations in client firm.

In the relationship between KIBS and their clients we find discrete and tangible forms of knowledge exchange, process-oriented and intangible forms of knowledge flows.

More fuzzy outcomes or process-oriented forms of knowledge exchange can be important by-products of the more concrete resources just mentioned, since explicit knowledge is often accompanied by tacit knowledge. Example of fuzzy outcomes are improved negotiating capabilities, improved internal communication (objectives, vision, etc.), better understanding of potential markets, and improved reputation or introduction to policy-makers.

A model of organizational knowledge creation and knowledge conversion modes give relevant insights as:

- Knowledge exchange in codified forms when tacit forms of knowledge flows are as important as the explicit forms.
- Knowledge new created thanks to the interaction maintaining and enriching the dialogue in the firm.
- Knowledge conversion through dynamic nature of the process various forms of tacit and explicit knowledge are constantly mixed, redefined, linked, exchanged, reshaped and enriched in the course of interaction (socialization, externalization and combination).

Content and quality of the service as provided have important degree defined: how well and how effective is the provided service.

Structured view of the ways in which the above interaction goes through four (4) dimensions:

- Discrete/Tangible versus oriented/intangible knowledge resource flows – often co-produced through established working relationship contributing to references and reputation.
- Human Embodied Knowledge versus Non-human (Capital, Written information) Knowledge Resources – discrimination between embodied and disembodied knowledge requiring face-to-face interaction or not.
- Explicit/Codified Knowledge versus Tacit/Non-Codified Knowledge – conversion process in which tacit knowledge becomes explicit, recombined and internalized.
- Contractual versus Non-contractual Forms of Knowledge – mediation by contract or not, forms of knowledge exchange coincide with informal types when steady relationship with clients.

KIBS are considered as “clearing house of knowledge” where various types of knowledges are confronted, enriched and translated into practical solutions. They also function as dissemination agents of best practices among their clients. Carrying their professional knowledge and experience from client to client, at the same time, feeding back problems encountered in their day-to-day practice to academic research or fellow KIBS.

KIBS employees combined positions at universities and industries or those with high mobility rates are typically perceived as intermediaries or “translators” involved in various kind of tangible and intangible knowledge flows that are so important in the knowledge-based economy (Gertler, M., (2003).

Increasingly urged to actively share their knowledge - especially by policymakers – and to be more sensitive to needs of all users, KIBS are accompanied by research and technology organizations (RTOs) and higher education institutions (HEIs) (Gertler, M., (2003). An

important role they play in diffusing knowledge to the various firms and organizations they work with through contract research, educating, providing training, etc.

Given the co-production of knowledge and innovation with the client, it is recognized that KIBS develop into an informal (private) “second knowledge infrastructure” or knowledge base partially complementing and partially taking over the intermediary role traditionally played by parts of the more institutionalized, formal (public) “first knowledge infrastructure” (Gertler, M., (2003). Which contrast the traditional view of service firms as innovation followers.

A dynamic perspective allows to take it as transitory/temporary phase in a development where eventually the traditional distinction between public and private knowledge-based services will disappear or is obsolete altogether. Equally a more flexible capacity of external KIBS professionals co-operating with internal KIBS professionals in providing knowledge intensive business services embodies a networked service professionals acting as facilitators, carriers and sources of knowledge flows. An increasing mobility of personnel between various organizations define the new knowledge infrastructures.

Table 4.1. Characteristics of KIBS' Phases (Hertog, 2008)

<i>Some characteristics of the individual phases in the three tiered model</i>	
Phase 1: 'Embryonic' stage of KIBS development	
▪ Limited interaction between the public and private knowledge base ▪ Limited number of intermediary knowledge institutions (mainly public) and firms ▪ Emphasis in innovation processes on generating new knowledge ▪ Predecessors of KIBS functions mainly coupled to well-established categories of professional staff (R&D, accounting, marketing, legal affairs and so on) and to a substantial degree provided within the firm ▪ Knowledge mainly interpreted as formal technical expertise (R&D) ▪ Sectoral knowledge orientation dominates ▪ Innovation policies mainly focused on supporting R&D/increasing knowledge bases	
Phase 2: 'KIBS as second knowledge infrastructure'	
▪ Interaction between public and private knowledge bases increasingly considered essential ('economies of scope in S&T') ▪ Increasing number of intermediary knowledge institutions and firms ▪ Emphasis in (interactive) innovation processes on generating new knowledge and diffusion ▪ KIBS increasingly identified as a separate category of knowledge generators/diffusers, although a clear separation between public and private KIBS remains ▪ Explicit 'make or buy' decision concerning provision of KIBS functions ▪ Broadened definition of knowledge, various kinds of formal knowledge and tacit knowledge (intangibles) ▪ Knowledge orientation crosses sectoral boundaries. Network and cluster perspective starts to develop. ▪ Broadening of innovation policies (more aspects, more actors)	
Phase 3: 'Networked "KIBS" service professionals'	
▪ Increasingly non-separable and overlapping public and private knowledge bases ▪ KIBS recognized as significant intermediate actors in innovation processes in public and private sectors ▪ Increasing combination of innovative service functions in new products and services. Normalisation of innovation in service functions ▪ Public and private organizations and firms develop knowledge management systems and seek actively the help of KIBS ▪ Well developed user-producer linkages between internal and external KIBS professionals ▪ KIBS professionals increasingly combine various roles (entrepreneur, scientist, consultant, staff member) and function in a network of service professionals ▪ Tasks traditionally performed by public policy-makers increasingly performed by semi-public (at arms length) or private KIBS professionals	

Source: den Hertog & Bilderbeek, 1997; den Hertog, 2000, p. 522).

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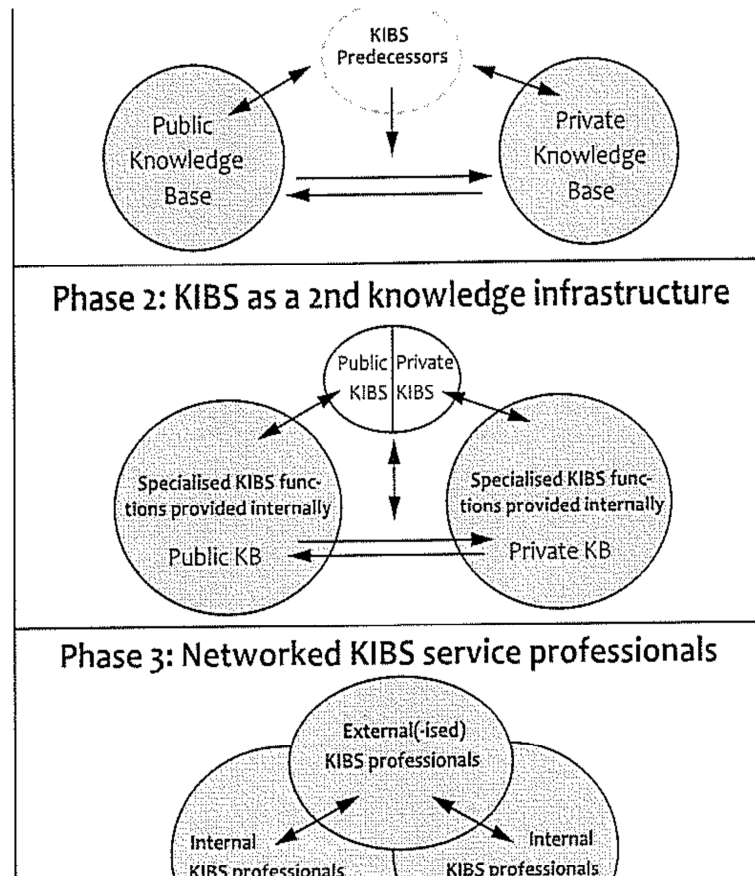


Figure 4.. The role of KIBS in innovation processes (Hertog, 2008)

The institutional connotation of knowledge infrastructure indicates that a specific category of business services in an innovation systems perspective serve as facilitators, carriers and source of innovation: universities, R&D intensive firms and public sector have limited relations while KIBS firms have relations in much broader spectrum (Hertog, 2008).

Particular attention shall be taken to differences in terms of institutional set up. In other words, a cross-country or cross innovation system regarding the degree to which KIBS and their client firms are integrated. Which reminds whereas SMEs effective use of KIBS is feasible regarding their capabilities. Shall then an ad-hoc sort of KIBS be put up for each country/innovation system?

In policy-related research KIBS play a role in transferring knowledge in innovation systems and this might have consequences for the way in which innovation policy is shaped as

well. Policy-makers using KIBS for realizing their policy goals sounds in norm as shaping innovation policies only through traditional institutions public knowledge infrastructure seem less able to function in the service economy. KIBS offers better suitability than traditional research organizations to co-produce innovation in services.

How accessible are the services offered by KIBS for SMEs and how country-specific are their patterns? To what extent can KIBS be used to perform knowledge transfer and innovation support programmes for governments and how can this be done? These are few of questions to be answered in the case by case.

This chapter could put together Growth and Sustainable Development matter and introduced economic entities involved. With the interpretation of the fair value of the intertwined relationship Service / Innovation / R&D / Growth / Sustainable Development; followed the reading of tertiary sector activities development under public service sector and private service sector hands; location and attractiveness factors/performance for international visibility interested the analysis and recognition of the Era of the Knowledge Intensive Business Services (KIBS) setting the new trend leading economic specialization nowadays. For an analytical and empirical understanding, selected approaches of service economic results follows in the next chapter.

Chapter V: Analytical and Empirical Specific Approaches of Service Economic Results

Aiming to tool econometric approaches over service economic figures, this chapter develops the analysis where attractiveness of locations by business service final decision implementation vis-à-vis to location factors comfort related hypothesis; the R&D and innovations on tertiary sector's performance face the explanation of its contribution to the world economic growth; and to conclude the approach taken is regarding how increasing product variety and innovation in tertiary sector impact economic growth.

5.1. Attractiveness and Location: Attesting Attractiveness of Locations by Business Service Final Decision Implementation vis-à-vis to Location Factors

5.1.1. Introduction

The attractiveness of locations is a major concern for any market player looking for a location that ensures its own economic sustainability. Attractiveness, according to many sayings, influences and depends strongly at same time on the supplying services disposed at the location in question. Such statement enlightens which factors of location can be pointed out to take final decisions implementation of business service as location attractiveness “attestment”. That is the issue we will address in this study.

Crossing research economics themes dealing with urban dynamics and business services helps providing answers to the attractiveness and location matter. It seems to be there an

increasing vital interest for any location seeking for or doing the best to maintain economic attractiveness. For restricting matter we will take metropolis like location reference.

“Metropolization” process incurs profound changing in the polarization of men and activities as well as in spreading of locations. But the progressive spread of locations is doubled by a bursting process of structures in different poles, which attracts a number of activities while others remain outside of this dynamism (Guerin-Pace and Pumain, 1990). Finding balance is no easy task. For this study we’ll let these concerning aside and focus on polarized activities.

The growth of services, especially business services, and urban dynamics confirm links influencing towards each other. Services development movement, especially business services, is actively involved in the urban hierarchy (Jayet, 1991). An example is the monocentric pattern being questioned: the center constituted historically dominant and its periphery versus appearance of poles which may or may not be articulated to that center or between themselves (Garreau, 1991). And services location reasoning way can be considered as fundamental element of the process of concentration in cities (Jouvaud, 1996).

Broadly: “metropolization” is a concentration that modifies and transforms the structure of intra-urban locations. The growth of business services and “metropolization” are nothing but the result of the “tertiallization” of the economy and the development of business services by the privileged concentration of business services in the cities. However knowledge about the “intra-urban” location of business services seems to be still insufficient.

Work papers dedicated to the relations between the behaviour of these service firms and the evolution of how to attest the attractiveness of cities are rarer and it is the questioning about this reflection that support this document.

According to reflections oriented by these topics the objective of this study is to contribute to the understanding of the need for cities to determine their level of attractiveness. The

original idea here is to use business services performance as barometers of attractiveness: when a company making use of a service as a way to test a market at its first arrival on it, and then after taking final decision to implement on their own means there, do they attest the attractiveness of this market?

To confirm this hypothesis of the attractiveness of a city revealed thanks to the success of service providers this section begins with the subject of questioning about the relationship between the location of the business services sector and the structuring process of a metropolis. This section begins with some theoretical contributions of the business location, and is interested in the location of activities in favour of the metropolitan structure itself.

Then follows an exposition in how can “metropolization” and service sector be handled by an approach of spatial establishments strategies. The logic of location will be presented and the integration of relocation action, here taken as part of the ultimate test result of a market on the final implementation of a company that has used a domiciliation.

5.1.2. The business location

Relying on a simplistic analysis, pointing out location factors of enterprises, anchored within any territory, would make objective the assessment of the level of attractiveness¹¹.

Especially if the population of firms selected for the analysis is the services’ one.

The cause for such concern is the fact that most of the now-a-days economies became service economies. Employment rose strongly as “tertiary” one and services got increase involved in trade at all levels, i.e. from domestic to international, spreading the “metropolized” field within the global economy.

¹¹ "The attractiveness is the ability to create, attract and retain businesses and jobs." Cf. "Economic Attractiveness of the Paris Basin - Creation of establishments and jobs," Insee Ile-de-France 2009

This mutation reveals a demand for new contributions by the geography of services (Bénard R. and Jayet H., 1997) when the focus is on theoretical issues and theories of localization. This request is renewed about the motivations of the pioneer and the phenomenon of agglomeration. As a result, agglomeration externalities and limits of the same phenomenon are required. But also the relationship between economic activities location and the space structuring process.

Business services at the heart of regional and metropolitan dynamics (Coffey W. and Polese J., 1984) gain importance in the entry point for any analysis of location factors and attractiveness. And to know the influence of the location of business services within territories can meet the problematic carried by this section.

5.1.2.1.

Theoretical Issues and Theories of Location

Agglomeration is a constraint exerted on the location of firms. But it can also be a pull factor: companies attract companies and so business too. Explanation tracks of the location of activities can be defined on the basis of theoretical relevance.

Theories of regrouping and theories of positive externalities (Barbe D., 2007) arise in this context, as first theoretical approaches to research about services localization factors.

The term "business cluster" is frequently used to describe such a business combination process "clustering" or the formation of clusters.

These groups are explained by several factors:

- First, there is the theory of the origin of regrouping: what makes the first company (first mover) being located there and not elsewhere?

- Then there are theories to explain the phenomenon of agglomeration itself: What makes other companies get to agglomerate next to the first one? One of the major responses is that they wished to benefit from “agglomeration economies” related to the presence of other firms belonging to the same sector.

- And finally there are factors that come into play to prevent agglomerations to grow to infinity.

Of course, each country has natural and immutable characteristics that attract or repel businesses: natural resources, opening to the sea, climate, etc. These factors play an important role in the agglomeration of firms in one place. But however they do not explain the development of regions that nothing predisposed them to become major centers of economic attraction. To explain the new economic geography goes successively answering three relevant questions in this debate:

- What explains the choice of the pioneer company to elect a territory?
- Why the following companies do agglomerate where pioneering company moved to?
- What are the limits of agglomeration?

Historically, cities are the result of the preference of people and economic activities for specific locations. These places are generally preferred initially for specific benefits. When dynamics of concentration of activities chooses a region it sees in the growth of the city, for example, the following of specific mechanisms that maintain this concentration. These are ripple effects (in the presence of increasing performance/ efficiency). These considerations are accompanied by a number of specific benefits of agglomeration and designated by the economic literature under the name of externalities.

MAR theory (MARSHALL -ARROW - ROMER) based on the weak competition (monopoly) and sector specialization, says the broadcasts of knowledge and externalities are more easily

when a territory is in the presence of a monopoly. Indeed, the presence of a monopoly restricts the dissemination of information outside of the company and therefore internalizes the various externalities, increasing the speed of innovation and thereby enhances the growth of the territory and jobs. Contrary to the theory MAR, PORTER's theory is based on the strong competition and sector specialization to assert that it is the intra-industry local competition (that is to say within the same industry) which ensures the innovation and economic growth, with a positive effect on employment. Indeed, it is more likely to be in this situation (as opposed to monopoly) where companies are willing to take risks in order to remain in the lead. MAR and PORTER theories are successful when considering situations like Silicon Valley, where, in general, the geographic concentration of activities and specialization have resulted in an internalization of knowledge could occur (in the firm of MAR, and within the same industry of PORTER).

As a bonus, assertion from these theories, JACOBS says that growth in jobs of a territory or region will only be achieved if competition between firms in different industries arises. Indeed, the most important externalities comes from outside of the industry in question. JACOBS therefore advocates sectoral diversification of the industrial fabric of a region. JACOBS' position is more similar to that of PORTER: both promote local competition rather than monopoly to increase the growth potential of the local economy.

The mechanisms of concentration can from what is advanced by these theories be different depending on the nature of activities and more generally of the production system in place.

For more details let's make a throwback on the pioneer's motivations.

5.1.2.2. Pioneer Motivations and Agglomeration Phenomena

For Pioneer's motivations, two types of theories have been advanced : the one of historical accident introduced by Paul KRUGMAN (a benignant initial fact triggers a cascade of events that sometimes cause no major consequence but for no necessary reason when threshold triggering to be specified is exceeded, it becomes a major phenomenon) and the one of territorial amenity, Jean-Louis MUCCHIELLI [The concept of amenity evokes pleasant aspects of the environment or the social environment which are neither appropriated nor quantifiable in monetary terms"; the term "amenity" is here slightly diverted from its meaning connecting the initial implementation of one type of activity to the initial assets of the territory in terms of geographical advantages as the existence of mines, rivers, plains, etc. because in this case, it is rather the "flair" of entrepreneur who, from there, finally finds that that is a good place to implement the new activity or components of].

The choice of a metropolitan location (Biacabe J-L., 2003) does not appear therefore to be the most effective, but ultimately as less risky. Because even if the locations are generally more expensive than others, cities allow businesses that set up there to gain a better competitiveness.

For the agglomeration phenomena once first enterprise installed (the "first mover"), others follow (called for this reason "follower"). When this is the case, there are two steps:

- First, some companies will actually come follow the first, by imitation or by necessity, but not en masse, rather sporadic and uncertainly.
- Secondly , if the agglomeration exceeds a certain threshold (" tipping point", or threshold theory failover, developed by Malcolm GLADWELL), small causes generate, contingently, big differences; in the case of business location in an area rather than another, and then the possible agglomeration phenomena that follows, it is the "little thing" that will make a "big difference": is the economy performed by each follower by the fact that the company initially established, and the small group began to organize around, will disseminate information

that can be schematically summarized as follows: the territory is good place to locate because we thrive. The "first mover", that is to say first that installs, supports initial costs, while the "followers" wait to see, saving such energy and expenditure by trusting the establishment of the "first mover" that will disseminate information by the simple fact of his success), we really witness a process of attraction that can consolidate important agglomeration which will then result in to the phenomenon of agglomeration externalities.

This is then a particularly selective concentration process. The dynamics induces a "reorganization" of the structure (different sizes and natures). Thus distinctions between technological territories, including the productive base highly internationalized and specialized, "interfaces" territories, which are more diversified regional territories, including a higher proportion of business services, and finally regulation territories, rare and very large, characterized by specific and exceptional position at the international political and financial systems (Chatmi A. and Elasri K., 2015).

The conclusion is that there is a trend to strengthen and maintain the initial specializations and roles of territories, rather than homogenize urban profiles by "metropolization" dynamic.

The relative differentiation between territories makes assessment of the attractiveness more and more difficult. How to settle becomes a problem. But recourse made to various externalities generated by the agglomeration may explain the choice of a territory to another. And that once the context influences the production of each kind of externality. Similarly the limits of agglomeration can assist in evaluating the attractiveness of a territory. It is these two points, externalities and limits of agglomeration will be studied topics in the following paragraph.

5.1.2.3. Agglomeration Externalities and Limits

These agglomeration externalities are defined as follows: if positive, these are benefits enjoyed freely by companies that are in the agglomeration. These benefits can be considerable ones. There are also negative agglomeration externalities. These externalities incur unwanted costs for businesses. These costs can increase gradually and eventually become equal to the benefits of agglomeration. What leads to achieve the optimal size?

Positive externalities are of several types:

- Technological externalities related to scattering effects caused by the immediate impact of research and development conducted by firms that are in the cluster.
- Externalities related to the presence of a network of suitable suppliers.
- Informational externalities circulating in informal meetings (restaurants, hotels, meetings, conferences, symposia, local press, etc.) or between individuals sometimes referred as relational externalities.
- Externalities related to the presence of a labor market adapted to the needs of the group of companies gathered in the agglomeration.
- Network externalities, that is to say related to the fact that as the number of users of a product increases, this becomes useful, effective and cheaper for all those users.

For clarity, the externality of agglomeration explains the benefits that companies will find agglomerating, there are profits generated by the agglomeration phenomenon itself and not by any particular firm.

At this identification externalities variables (Leglise D. and Vacher T., 2008) are added such as those of: "location advantages" type - close to natural resources, transport infrastructure with extra-national character (ports and airports), national or international public authority; variables type as size of the market - be located at the center (vs. periphery), that is to say where the market size is the most important; skilled labor force and wage levels - the massive

service sector of the economy, especially for the engine sectors where technological advances are vital to their growth and wage level is seen as a pecuniary externality playing in principle to the detriment of "core" areas and for "peripheral" areas; Dispersion forces - centrifugal movements due to the level of house prices, the level of local taxation and scarcities of zones dedicated to economic activity; Characteristics of local economy conducive to growth (theories of dynamic externalities or knowledge spillovers).

This latter group of variables relates to externalities with limited spatial extent and appears when the activities agglomerate in some special places (territories or business parks). Dynamic externalities, that is to say those that promote economic growth, have been the subject of particular attention in the literature. Externalities that are specifically targeted are the information externalities (spillovers information, knowledge spillovers) with a spatial extent particularly limited. They result from the transfer of knowledge between firms agglomerated through informal contact networks, but also a turn-over of skilled labor and management between firms. These externalities thus constitute important sources of dissemination of "best practice" techniques and tacit knowledge.

But the existence of such externalities depends largely on the characteristics of the local economy tissue. In this respect, two features have been further investigations in the literature: sector specialization (vs. diversity) of the local economy tissue, and the degree of local competition between firms.

Finally, the limits of the phenomenon of agglomeration (Leroy F., 2007), disadvantages such as congestion explains at some point agglomerations are saturated and that, rather than continuing to agglomerate in one place, some companies, sometimes even pioneering companies, decided to "take off." This is the case of the process of "disintegration" is seen where multiple poles develop. Exogenous relocation decisions can stop an agglomeration

process in a place and start it elsewhere. The balance is based on the equilibrium that is established both between the centrifugal forces (which tend to bring businesses) and centripetal forces (which tend to keep them away).

These outcomes aspire to find the sources of attractiveness via theoretical explanations that continually push the consideration of the context of an empirical choice of location. And this under the influence of location factors without neglecting opportunities of business behavior conducting in the structuring of a metropolis. It is the subject of next lines.

5.1.2.4. Economic activities location and structure of areas

The consequences of dynamic movements on a given space, in terms of nature and organization locations results in significant morphological changes. So much that urban sets are increasingly complex (peripheral territories, "Edge cities" J. GARREAU 1991). This complexity shows a gradual removal of territories traditional center/periphery pattern. It is a "multipolarity" that installs by the poles' development.

5.1.2.4.1. Business Services in the Heart of Spatial Dynamics

Business services belong to the productive sphere, and more specifically intermediary activities. Knowing the strong heterogeneity of the sector, it is not easy to give an absolute definition. And this because the level of value added varies from one activity to another (from consulting to cleaning, for example).

The nature of business services companies is to benefit and facilitate other kind of companies (Marty F., 2005). It is more likely to let be the tools (domiciliation, rental, etc.). This vision feeds the central issue of the document, if taking into account the success of implantations of claimant companies on the same city as the service supplier, we can assume

that the supplier has given a level of attractiveness to the location; in other words the clients and providers have opted for a localization strategy depending on the nature of the service provided in that location. Shall we put a light on such influences.

5.1.2.4.2. Influence of the Location of Business Services within Space

Concentration of service activities has been considered in theory as induced (service industry auxiliary function). Which is unsuitable to business services cases because they are investing increasingly in markets outside of their implementation metropolis. A response to the call of the attractiveness of these new destinations or affirmation of the site that has charmed applicants from other territories (Quere M., 2005). The concentration of business services in the many territories responds the seeking of agglomeration economies allowing to multiply the opportunities to access various networks by chosen location (an answer to the search for economies of agglomeration directly related to market).

Six groups of business services have been identified by JOUVAUD (1997) according to their logical location highlighting the importance of two elements: access to the internal market, but also to the external one. The first group search the nearby headquarters and large companies, the second enhances market size and proximity, the third is sensitive to the proximity to customers, the fourth requires a skilled workforce, the fifth values means rapid transportation (highway, train stations, airports and teleports) and finally the sixth focuses on customer proximity as well as a good service environment.

Service activities upset the induced activity diagram, as mentioned above, for the case of inadequate services to companies that invest greatly markets outside their implementation metropolis (Gallouj C., Leloup F., Merenne-Schoumker B. and Moyart L., 2006).

The lack of knowledge about “interurban” location of business services is under reflections concerning the impact the development of these activities have on the “intraurban” plan. In other words, is to say the impact they have on the cities structure. These reflections should lead to a better recognition of this sector in location models. The limitations of the models are that they reduce the territory to a juxtaposition of elementary areas on which are distributed exogenously basic activities and whose location determines the induced activities. However, the business services cannot be considered induced. In addition specific “intraurban” space models, although providing some understanding of spatial strategies suffer from several limitations. For example, they rarely introduce differentiation between sectors of the economy and the application to the case of business services often prove difficult: it leads to their concentration in the center it is not possible to explain the dynamics of “peripheralization”.

Despite this concern the location of business services remains generally characterized by a very strong presence in the metropolis centers. Services are an essential component and appear as an element of domination of the center over the periphery. However, the trend of “peripheralization” is highlighted by work papers and the phenomena of “reconcentrations” for the poles also. Centrifugal dynamics do not correspond further to “deconcentration” of trivial activities’ segments strategies which may prevail for certain categories of services, such as banking and insurance.

The changing characteristics of the location of business services (Strom P. and Wahlqvist E., 2010) are observed, even if the center is not necessarily abandoned or threatened by the reorganization.

Finally, as JOUVAUD (1997) shows business services and their location are directly involved in the growth of territories because they generate multiplier effects that connect to the

industrial sector, but also because they promote improved productivity and competitiveness of local businesses.

5.1.2.5. Location strategies differentiated by type of business services

The central question of the document is: if we take into account the success the benefits of implementations in a given territory, can we assume that the action has given a level up to the territory attractiveness; and that applicants and providers have opted for a strategy of localization depending on the nature of the service at same time?

5.1.2.5.1. Logic Location for Business Services

The choice of location may be indicative but is also actor to the structure of the territory in question.

An important consequence of the choice concerns intraurban displacement. New configurations, recently often multipolar, are indeed likely to have a significant impact. These are processes that feed it such as extended access by car, for example, or the development of transport networks which promotes choice for peripheral access.

But a new thought comes to the question of choosing between the hubs and centers. In the multipolar structures the question of the nature of the poles, or the centers is often asked. So either the analyzes validate the existence of a main center, with no real explanation of its purpose, or the authors note the emergence of such center, which is still in a first period more important than all others that are likely to develop in the future.

Then let's see the influence of the nature of the activity on the choice of location.

5.1.2.5.2. Nature of the Activity Influence on the Location Choice

To take a look at the nature of the activity can be reduced to the observation of the nature of the service relationship or the extent of the market area. The selection of location criteria can operate from reflections on costs, transportation and access to customers, other services and labor, as well as local amenities.

The change of location can be identified by various parameters likely to illuminate the motivation for it. These are parameters such as the evolution of the size and turnover, or the evolution of activity and modes of organization (Degorre A., 2010).

The influence of technical and organizational characteristics on the choice of location is often exploited to test the influence of determinants whose importance is emphasized in empirical work. This is the case of determinants such as establishment size, and correspondingly the price of local element which explains, for example, the differences between a central location and device implantation (Lavenseau D., Antonov P. and Heyser L., 2000). The importance of using products from service providers like: banking, insurance, accounting, computer maintenance, photocopying, etc. Specifies outsourcing which in this case shows that the services purchase other services (Heyser L., and Lavenseau D., 2002).

The relationship of service and market area (Gilbert B., Bavagnoli C., and Nicolas J-B., 2004) under the requirement of face to face meetings and the possibility of use of telecommunications to negotiate and achieve service influences the choice of locations as well. Especially in cases where the delivery of customer participation in process control is important because the information exchanged are mostly tacit. Thus get to the customers is generally as important in the negotiation phase as in the realization phase of the service. And the level of importance of the use of telecommunications in the two phases mentioned above, depends on whether the need to replace the face to face contact by phone, fax, e-mail (side telematics) or send a quick

email (the exchange of important documents side) is sufficient as a solution (Greseque F. and Roy J., 2009).

Intersectoral heterogeneity extent of market areas resulting in a turnover achieved by the export level. That contrary to the results of Mr. Jouvaud (1997), the relationship between size of establishment and export level is not confirmed and the synthesis of some work about confirms that the proportion of sales outside the country varies size of the town site (Lavenseau D. and Lorenski É., 2008). Moreover, the literature review conducted by C. Gallouj (1996) shows that small numbers of certain facilities services companies do not constitute an obstacle to their positioning on non-metropolitan markets (Cunat F., Burdese A-M., Louguet P. and Tiry C., 2000).

Customer type is heterogeneous for business services from the industrial sector, through the public sector to households without neglecting them within service sector too. The influence of the latter can show, for example, that the use of ICT as a substitute for face to face seems limited.

Taking into account various factors proposed location seems to help alleviate the shortcomings of the comparative advantages of different spaces. These factors also seem to play an important role in the influence of factors such as local amenities (Gaffard J-L., 2005): the role of transport infrastructure, the availability of a skilled workforce - one of the prime factors highlighted when it must choose a location depending on the nature of the activity.

The nature of the activity is important in the choice of location (Trimouille F. and Perrin E., 2001), but this choice would be incomprehensible if only factors are taken into account, or only the comparative advantages of different spaces. Thus the next section assembles to draw a conclusion it is a coalition of all the above said aspects that must be taken into account before making a final choice of location.

5.1.2.5.3. Conceptualization, hypothesis and statistical testing

Her the hypothesis claims: performance of business service after final decision of implementation in certain location attests respective location attractiveness; we then laid our choice in certain data of the third sector (different categories all together) through an analysis over location considered as attractive.

Main statement: location attractiveness can be attested by location choice and furthermore by the good performance achieved thanks to the decision of implementation location.

According to the academic background summarized on the above sections this statement is comforted affirmatively. Considering the conceptual framework of attractiveness and location the casual/effect relation between them can be on both direction (one to another and vice-versa on multiple levels within the feedback cycles easily shaped between them). But for this study we are taking Attractiveness as the output and this thanks to the combination of location choice and performance achieved.

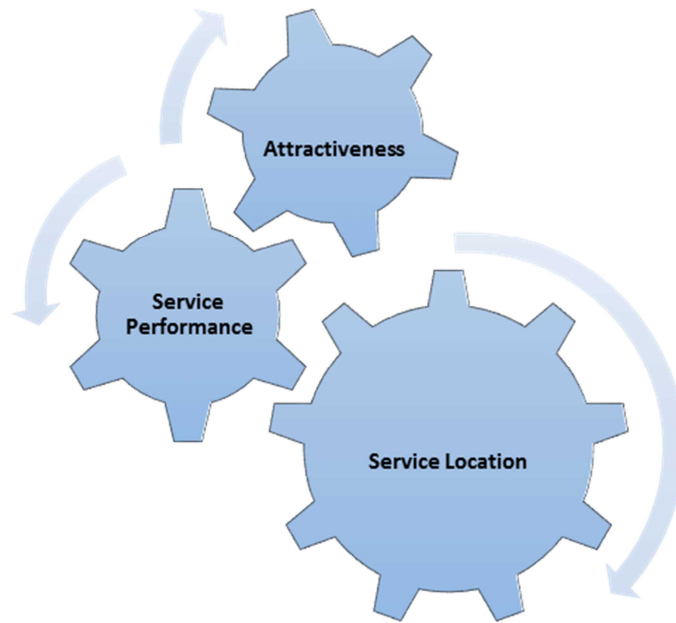


Figure 5.1. Circle of cause/effect relationship framework Source: Own elaboration; **Attractiveness**
= Service Location + Service Performance

For easy working this model the following lines present each explaining variables as the data availability made possible to comfort the hypothesis and problematic nurturing this work.

Service Location: in this study will be taken figures relating how many Service companies established their activity within the location chosen for this study;

Service Performance: in this study will be the figures related to results third sector attained on time referenced by research institutes conducted survey.

Listing up variables finally used:

- Number of third sector activity firms existing in the chosen location;
- Sold Service (SS): this variable allows to capture figures with more accuracy once we here have service production sales ;
- Turnover (TO): contributes to performance illustration;
- Value added (VA): very often relied to service performance could not be let behind in this

kind of analysis;

- Salaried workforce (SW): pictures out employment this sector generates.

Using an econometrical vocabulary, this study aimed to put at light the “attractiveness” as a dependent variable. And according to data availability, this dependent variable will face independent variables that would depict reasons of Service Location and Service Performance. We are going to use figures from well-known French statistic institute INSEE¹² relating to year 2013 activity.

Thanks to direct mailing service offered by this institute and possibility to “tailor make” answers by this same service the data analyse could use the up above mentioned variables only at the macro level. Instead of a comparative “metropolis versus metropolis”, as inspirational beginnings for this work, we’ll take France as a whole to attest the respective attractiveness.

Estimation equations are shown as,

$$\text{Equation 1: } y_i = \alpha + \beta_1 x_i^1 + \beta_2 x_i^2 + \beta_3 x_i^3 + u_i$$

where, y_i is the dependent variable (Turnover), x_i^j is vector of explanatory variables (Value Added, Sold service and Work force respectively) , and u_i is the error term. For the second equation,

$$\text{Equation 2: } \bar{y}_i = \bar{\alpha} + \bar{\beta}_1 \bar{x}_i^1 + \bar{\beta}_2 \bar{x}_i^2 + \bar{\beta}_3 \bar{x}_i^3 + \bar{u}_i$$

where, $\bar{y}_i$ is the dependent variable (Sold service), $\bar{x}_i^j$ is vector of explanatory variables (Turnover, Value added, and Workforce respectively), and $\bar{u}_i$ is the error term.

Always taking final results (outputs) as main image of attractiveness two equations were estimated using Eviews tool.

¹² INSEE is the National Institute for Statistic and Economics Studies. It collects and publishes information on the [French economy](#) and society, carrying out the periodic national census. Located in Paris, it is the French branch of [Eurostat](#), European Statistical System. The INSEE was created in 1946.

Here after we have Variables and equations designation¹³:

Table 5.1. Equation 1. Turnover c value added soldservice workforce + u

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10412.33	1966.329	5.295315	0.0000
VALUEADDED	0.796747	0.322087	2.473699	0.0136
SOLDSERVICE	-0.015740	0.060497	-0.260173	0.7948
WORKFORCE	0.016677	0.019343	0.862187	0.3889
R-squared	0.090391	Mean dependent var		15728.09
Adjusted R-squared	0.086205	S.D. dependent var		46640.63
S.E. of regression	44584.99			
Sum squared resid	1.30E+12			
Log likelihood	-7951.398			
F-statistic	21.59711			
Prob(F-statistic)	0.000000			
Dependent Variable: TURNOVER				
Method: Least Squares				
Date: 01/31/15 Time: 12:45				
Sample (adjusted): 1 937				
Included observations: 656 after adjustments				

Table 5.2. Equation 2. Sold service c turnover value added workforce + u

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9992.873	1239.632	8.061164	0.0000
TURNOVER	-0.006595	0.025350	-0.260173	0.7948
VALUEADDED	0.283205	0.209178	1.353895	0.1762
WORKFORCE	-0.001719	0.012528	-0.137229	0.8909
R-squared	0.013348	Mean dependent var		11246.08
Adjusted R-squared	0.008809	S.D. dependent var		28989.00
S.E. of regression	28861.04			
Sum squared resid	5.43E+11			
Log likelihood	-7666.100			
F-statistic	2.940283			
Prob(F-statistic)	0.032534			
Dependent Variable: SOLDSERVICE				
Method: Least Squares				
Date: 01/31/15 Time: 12:43				
Sample (adjusted): 1 937				
Included observations: 656 after adjustments				

5.1.2.6. Results and Discussion

¹³ The up above listed and abbreviated variables were originally named in French due to the availability of data base.
TO=Chiffre d'Affaires ; Valeur Ajoutée=VA ; Production Vendue Service=SS and Effectifs=SW.

The data allowed to see how the regression model explains the predicted variable. Thanks to R-squared (or the adjusted one) which is very low we strongly suggest adding other suitable and meaningful regressors to the equation. And the adding regressors shall be done keeping the focus to explain the attractiveness as output/result without neglecting its so “ancient” role as input/cause (factor) of location choice and performance.

All the equations specified above are under cross section analysis conditions, and the interest of this study is to analyze the causality situation between the variables. To estimate these equations, the study uses data which was collected from the INSEE database. The series is comprised of annual data from 2013. All the variables in the models are in plain form as presented by the data base. The reason behind is that we keep an easy form showing the relationship between the variables. Such being the case, they tend to show causality effect among them.

Despite the non-transformation of used variables the magnitude of the effect of a change in the independent variables it is predictable on the dependent variable. For instance, measures by what percentage Turnover or Sold Service changes when Value Added changes by 1 percent in the equation. Finally, an error term explains the changes of the dependent variable, which are not explained by the included independent variables. The equations will be estimated by using E-Views software.

On the procedure, the study estimated the models through OLS technique and analyses the results of the estimations in terms of goodness of fit of the models and other econometric properties. An interpretation of the meaning behind the estimated elasticities to determine the impact of the chosen independent variable will then be made.

Turnover is the dependent variable in the first equation. Here taken on plain values of the data base and thanks to the use of absolute numbers the estimated coefficients can be

interpreted as elasticities. And same occurs for the dependent variable Sold Service in the second equation.

It is to take notice that the chosen independent variables switch places and become each one at their own turn dependent variables. It is possible in this analysis once indeed they can take part as explainable influence in the moves of each other. It is possible to assist an “in circle feedback influence” between these results (Turnover and Sold Services): strong Sold services contribute to raise Sold Services and vice-versa.

Looking at independent variables and making focus especially on the Added Value. This one influences movements in Turnover or Sold Service. An increase in the Added Value leads to an increase in Turnover or Sold Service. Shall be reminded that here the dependents variables are taking as results mirroring the attractiveness. And the main reason explaining movements of dependent variables are the swings witnessed on independent variables swings. If service sector Added Value increases consequently results (Turnover and Sold Services) go up and so the Attractiveness.

Taking a look at the others independent variables it is on same reflection perspective: if the workforce number goes up it primarily contributes for a rise up on results (Turnover and Sold Services). And if the results go up it is possible to assist to a raise on the number of the Workforce.

Going for the significance test taking the t-Statistic we can see that in both equations, with “Attractiveness” as output variable, they are positive for the VA variable (“Valeur Ajoutée” e.g. Added Value found at Business Service definition earlier in this section and in the econometrical treatment it is faced as cause variable) proving the suitability on explaining de variation of “Attractiveness”. We do reject the hypothesis the VA gets null values and so we conclude its

significant explaining power. And we wish it shall be kept on future deepening econometric analyses concerning the “Attractiveness”.

To confirm the intimate connection between the location of activities and the structuring of a Location by the “Attractiveness” is a hard task once the “subjective” as main characteristic to this variable (being dependent and independent) through time.

5.1.2.7. Conclusion

Whereas the models and studies explain the spatial strategies of the services sectors with moving frontiers the question is not only: what are the factors that explain the choice of companies to locate in a location? But also: how can mutate locations by the phenomenon of implantation may declare itself attractive? More importantly how to measure its attractiveness?

The business services are an essential element in view of selective bias in favor of some locations. And focus on cities can bring lots to respective knowledge.

The hypothesis of this work is that the evaluation of the attractiveness of a location could be measured by service business based on the general behavior of location of this business category. The behavior of choice of location within a location as determinative and specific influences contributes to such evaluation.

Future research could adopt this hypothesis for a deep investigation in comparatives terms using locations as main objects. This would help to understand if locations should be aware to get to know their own attractiveness level and advantages following such knowledge. An audacious attempt to quantify what remains as qualitative characteristic. But then this knowledge of Attractiveness could finally be more than just subjectively measured.

5.2. R&D and Innovations on Tertiary Sector's Performance and Its Contribution to the World Economic Growth

5.2.1. Introduction and Literature Review

“Economic growth is a complex process, which depends on many variables including human and physical capital, trade, technological change, political conditions and quality of institutions” (Sahli and Carey 2011).

Romer (1990) highlighted technological progress as one of the engines of economic growth and indicated theoretically why the advanced economies have grown at something like 2 percent per year for the last century. In empirical studies of economic growth, Solow (1957) performed a simple accounting estimation to break down growth in GDP into growth in labor and growth in technological change and indicated that considerable part of the GDP growth was explained by technological change. Concerning R&D investment, Gordon (1990) had estimated that many of the gains of improved capital goods by technological progress reflected in GDP growth in addition to the product innovations or generating new and improved goods.

Barro and Sala-i-Martine (2004) presented empirical study investigated the stylized facts of economic growth. They indicated a persistent growth in the per-capita output and in the labor productivity as well as the considerable differences in the growth rate of the labor productivity in different economies. Although they did not make direct address on growth effects of technology progress, in their investigation of a growth accounting, they suggested R&D spending as a determinant of the total factor productivity growth in some rapid developing countries such as Hong Kong, Singapore, South Korea and Taiwan.

Djellal et al (2003), on the other hand, focused R&D and its importance on growth and development of service sector. They clarify the role of the R&D in services on growth and so on

the development of economy by amending its definition. In this here, we will address our attentions to the importance of R&D in the service sector according to the views of Djellal et al, and we will investigate its impact on the growth of world economy.

In the theoretical part we will show the importance of the innovation and technological progress in the service sector to economic growth by using the three sector economic growth model which include R&D and service sector in addition to the production sector according to Romer (1990). After deducing hypothesis from the theoretical investigation, we will test the validity of the theoretical consequences empirically by using economic development indicators of the World Bank. The aim being to enlighten the R&D and Innovation as the real value of the Tertiary Sector's contributions to World Economic Growth.

5.2.2. The Importance of R&D and Innovation in the Service Sector's Performance and Its Impact on the Growth of World Economy

Research and development (R&D) is underestimated in services (Djellal et al 2003). According to Djellal et al 2003, services are constantly challenging economic theory and the existing evaluation systems. It's perfectly clear that productivity in services is no lower than in other sectors of the economy, and there is no less innovation. As their article says it is our theoretical concepts and the measurement systems arising out of them that are unsuitable. So similarly, it is likely that R&D and innovations in tertiary sector's performance is underestimated when coming up to its contribution to the world economic growth.

In the same time during the past few decades, throughout the world, we have witnessed an increasingly strong development of the tertiary sector which has led to the significant growth of the services percentage in the formation of the GDP exceeding easily 70%.

However and despite the R&D's strategic importance it seems hard to evaluate it in service firms and in service industry. The sector that now a days dominates the charts and tables showing out the growth all over the world.

Djellal et al (2003) focused R&D and its importance on growth and development of service sector. They clarify the role of the R&D in services on growth and so on the development of economy by amending its definition. Their main concern relies on their willing to explain the inability of the definitions and indicators of R&D to take account of certain specificities of the "systematic creation of new knowledge" in services. R&D was a good indicator of innovativeness at both micro and macro levels. In the traditional sense, according to the Frascati Manual (OECD, 1993, paragraph 57), "Research and experimental development (R&D) comprise creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications."

R&D is a term that recovers three activities: basic research (experimental or theoretical work to acquire new knowledge), applied research (also to acquire new knowledge but directed towards specific practical aim) and experimental development (acquired knowledge directed towards improve, install or producing new materials, products and services). Three fundamental principles underlie these definitions: the notion of the production of knowledge; the systematic nature of this production and the criterion of an appreciable element of novelty in the knowledge.

These lines mean that R&D is an intentional and organized activity. To distinguish R&D from related scientific, technological and industrial activities (OECD, 1993) it is needed to know: the nature of the project objectives; the type of personnel allocated to the project; the method used; the nature and source of the funding; the degree of generality of the conclusions or

results obtained, etc. According to service characteristics and specificities various spheres of R&D depends on the type of service activity (implications of the relationship to technologies, product and process innovation as well as back-office and front-office technologies – ref. Frascati Manual).

Djellal et al (2003) think it is better to question why a single definition for goods and services and in the same concern what amendments should be proposed.

These authors then suggest RD&I (research, development and innovation) and RD&D (research, design and experimental development) where both suggestion follow their willing to “make explicit certain elements that have hitherto been implicit: this is one of the basic preconditions for breaking out of industrialist inertia, and these minor modifications may lead to major changes in the identification and measurement of R&D in services” and so in the evaluation of Innovation through tertiary sector’s performance.

An important consequence of the new definition of R&D is “an attempt to re-establish some degree of consistency between the definition of research and researcher”. Researchers that in our empirical evaluation are taken in account as part of the labor indicator. They “are professionals in the natural sciences or the social sciences and humanities (including various categories of designers and ‘developers’) engaged in the conception or creation of new knowledge, products, processes, services, methods, and systems, and in the management of the projects concerned”.

Many types of creative activities, including design and development or service engineering, which inextricably combine products, process and organization have done a lot to elude attempts at their own measurement. And services are constantly challenging economic theory and evaluation systems once its sector performance has lately been all over the statistical reports of growth.

Shall this article come to as an additional contribution on revealing the causality effect among per-capita GDP and R&D in/and service sector.

5.2.3. Theoretical Model of R&D in Service Sector and Economic Growth

Romer (1990) addressed endogenous technological progress by introducing the sector for researching new idea and technology. Due to the non-rivalrous property of new knowledge, a fixed cost of production and zero marginal cost incurs to R&D process which is closely tied to the presence of increasing returns to scale and imperfect competition (Jones (1997): that is technology progress occurs as profit maximizing firms or inventors. The model includes, therefore, a monopolistic intermediate goods production sector which produces intermediate goods (or capital goods) that are sold to the final goods retailing sector (service sector). According to a model introduced by Jones (1997), we will investigate implications of R&D and service sector growth in a three sector endogenous economic growth model.

5.2.3.1. Service Sector

The service sector of the Romer model consists of a large number of competitive firms that combine labor and intermediate goods to produce the final good Y. The production function is specified in a slightly different way to the ordinary growth model to reflect the fact that there are many inter-mediate goods in the model:

$$Y = L_Y^{1-\alpha} \sum_{j=1}^A X_j^\alpha. \quad (5.2.1)$$

Output Y is produced using labour L_Y and a number of different inter-mediate goods, X_j , which we also can call “capital goods.” A measures the number of inter-mediate goods that are available to be used in the final goods sector and the firms in the service sector take this

number as given. Inventions or ideas in the model correspond to the creation of new intermediate goods that can be used by the service sector to produce its output.

For the analytical reason of model tractability, we replace the summation in the production function with an integral:

$$Y = L_Y^{1-\alpha} \int_0^A X_j^\alpha dj. \quad (5.2.2)$$

Then, A measures the range of intermediate goods that are available to the service sector. With constant returns to scale for a given A , the number of the firm cannot be determined from the profit maximization problem. We will assume therefore there are a large number of firms

The profit maximization problem for the service sector is to decide how much labor and how much of each intermediate goods should be utilized in production:

$$\max_{L_Y, X_j} L_Y^{1-\alpha} \int_0^A X_j^\alpha dj - wL_Y - \int_0^A p_j X_j dj, \quad (5.2.3)$$

Where p_j is the price for intermediate goods, j and w is the wage paid for labor. The first-order conditions characterizing the solution are

$$w = (1-\alpha) \frac{Y}{L_Y} \quad (5.2.4)$$

and

$$p_j = \alpha L_Y^{1-\alpha} X_j^{\alpha-1}, \quad (5.2.5)$$

where the first condition states that the firms employ labors until their marginal products is equal to the wage rate and the second condition is also the marginal condition applied for each intermediate good.

5.2.3.2. The Intermediate Goods Sector

The intermediate goods sector consists of monopolists who produce the intermediate capital goods which are sold to the service sector. These firms utilize their monopolistic power to purchase the design for specific intermediate goods from the research sector. Because of patent protection, only one firm manufactures each intermediate good.

According to Romer, we assume that once the design for particular intermediate good has been purchased, firms produces intermediate goods with a very simple production function that ensure the one to one translation of the row capital goods into final (intermediate) or capital goods. The profit maximizing problem for the intermediate goods sector is, therefore:

$$\max_{X_j} \pi_j = p_j(X_j)X_j - rX_j, \quad (5.2.6)$$

where $p_j(X_j)$ is the service sector's demand function for intermediate goods. The first order condition for this problem is then,

$$p'_j(X_j)X_j + p_j(X_j) - r = 0. \quad (5.2.7)$$

Rewriting this equation, we get a following elasticity expression:

$$p_j = \frac{1}{1+\eta_j} r \quad (5.2.8)$$

The elasticity $\eta_j \equiv \frac{p'_j(X_j)X_j}{p_j}$ can be calculated from the demand equation of inter-mediate goods (5) and it is equal to $\alpha - 1$. Therefore, the intermediate goods firm sets the price $p = \frac{1}{\alpha} r$ that is same for all intermediate goods and is a markup over marginal cost of knowledge. As the demand function of final goods sector is also the same, each intermediate good is inputted in the same amount: $X_j = X$. The total demand for capital from the intermediate goods sector must be equal to the total capital stock in the economy:

$$\int_0^A X_j dj = K \quad (5.2.9)$$

Since the capital goods are used in the same amount, X , is determined from this equation:

$$X = \frac{K}{A} \quad (5.2.10)$$

5.2.3.3. The Research Sector

According to the Romer model we assume that the creation of new idea or knowledge depends on the stock of knowledge at that time and the number of researchers attempting to discover new ideas:

$$\dot{A} = \delta L_A^\lambda A^\phi \quad (5.2.11)$$

$A(t)$ is the stock of knowledge or the number of ideas at that time and $\dot{A}$ is the number of new idea produced at any given time. L_A is the number of researchers and λ, ϕ are parameters between 0 and 1.

In the case of creation of a new idea it depends not on the researcher himself only but on the research expenses or investment including labor cost of research. The production function of the R&D sector, then, is:

$$\dot{A} = \delta A s_A Y$$

5.2.3.4. The Aggregate Frame of the Model

The final goods production function (2) can be rewritten, using the fact that $X_j = X$, as

$$Y = A L_Y^{1-\alpha} X^\alpha \quad (5.2.12)$$

and substituting from equation (10) makes the aggregate production function as:

$$Y = K^\alpha (A L_Y)^{1-\alpha} \quad (5.2.13)$$

For a given level of technology, A , the production function exhibits constant returns to scale in K and L_Y . However, as the technology level A is also an input into production and it grows endogenously, it reveals an increasing return in the production of the economy as a whole.

The accumulation equations for capital and labor are identical to those of ordinary economic growth model.

$$\dot{K} = s_K Y - dK, \quad (5.2.14)$$

where s_K is exogenously determined saving rate and d is given rate of depreciation.

Labor is assumed to be equivalent to the population and to grow exponentially at some constant and exogenous rate:

$$\dot{L} = nL. \quad (5.2.15)$$

The production function of the R&D sector, by assuming λ and ϕ are equal to 1 on the equation (11), is:

$$\dot{A} = \delta A L_A. \quad (5.2.16)$$

And the alternative definition is finally, labor is used to produce new idea or to produce output in the service sector, so the resource constraint of the labor is as follows:

$$L_A + L_Y = L. \quad (5.2.17)$$

5.2.4. Growth along the Balanced Growth Path

Given a constant fraction of the population is employed in the R&D sector along the balanced growth path, it is easily predictable that all per-capita growth is due to technological growth:

$$g_Y = g_K = g_A.$$

The per-capita output, the capital labor ratio and the stock of knowledge at the same rate along a balanced growth path. And this common growth rate can be attained by rewriting the production function of R&D sector, equation (16) as:

$$g_A \equiv \frac{\dot{A}}{A} = n \quad (5.2.18)$$

By applying the aggregate production function (16) and the production function of the R&D sector to the capital accumulation equation, the/a per-capita output on the balanced growth path can be shown as follows:

$$y^*(t) = \left(\frac{s_K}{n + g_A + d} \right)^{\alpha/(1-\alpha)} (1 - s_R) \frac{\delta_R}{g_A} L(t) \quad (5.2.19)$$

Where, s_R is share of researchers employed in the R&D sector out of total labour force.

In this simple R&D model, per-capita output is proportional to the population of the economy. In other words, the model exhibits scale effect in levels which arises basically from the non-rival nature of the technology. That is, in a larger economy can be provided on a larger market for technology and a raise on the return to research can be witnessed.

5.2.5. Empirical Analysis

5.2.5.1. Estimation of the Growth Equation

All the data utilized here are international cross country data from World Development Indicators 2012, published by World Bank. The descriptive statistics of the data is shown in the table 5.3.

Table 5.3. Descriptive Statistics

Variables	n	Mean	Std. Deviation	Minimum	Maximum
GDP Growth Rate	82	3.934	2.298	-0.400	12.700
Share of Service Sector	82	62.280	12.530	35.000	94.000
Investment Rate	82	5.235	4.627	-3.200	16.400
Population	82	66.524	203.227	1.000	1351.000
Population Growth Rate	82	0.768	0.998	-1.000	3.000
Share of Researcher	82	0.00032	0.0072	0.000	0.00511
Per-capita GDP	82	18895.488	21697.007	320.000	98780.000

Notes: The data are from World Bank, *World Development Indicators 2012*. Due to the data availability, 82 countries out of 216 countries opened all these 7 data. The name list of the countries is indicated in the table 2 below. The ‘Share of Service Sector’ is the share of service sector’s value added out of total GDP and the ‘Share of Researcher’ is the share of the researchers employed in the R&D sector out of total employed labor. ‘Per-capita GDP’ is indicated in 2012 U.S. dollar.

Theoretical Hypothesis expected from the growth equation (5.2.19) are as follows:

- Growth rate of GDP has negative coefficient because it is in the denominator of the equation (5.2.19).
- Service sector share has positive coefficient, and Investment rate has also positive coefficient because they are in the numerator of the equation.
- Population has positive coefficient and Jones (1997) call it the scale effects of knowledge creation.
- Population growth rate has negative coefficient.
- The Share of Researcher has positive coefficient.

The regression takes the form,

$$y_j = \hat{\alpha} + \sum_i \hat{\beta}_i x_{ij} \quad (5.2.20)$$

where, y_j is dependent variable, $\hat{\alpha}$ is constant, $\hat{\beta}_i$ is estimated coefficients, and x_{ij} stands for independent variables. Applying O.L.S. into the data set, we got an estimated results presented in the Table 5.4.

Table 5.4. Estimated Coefficients

Variables	Coefficients	Std. Error	t-Statistics	significance
GDP Growth Rate	-2464.1900	1222.6782	-2.0154	*
Share of Service Sector	843.4330	182.0279	4.6335	**
Investment Rate	-161.3577	612.3775	-0.2635	
Population	11.3606	9.6794	1.1737	
Population Growth	2317.1840	2142.6667	1.0814	
Share of Researchers	6809966.2000	2603558.4000	2.6156	*
Constant	-27840.4000	12840.5100	-2.1682	*
R	Adjusted R	R ²	Adjusted R ²	
0.6951	0.6647	0.4832	0.4419	

Notes: Dependent variable is 'Per-capita GDP.' In the table, **, (*) means that estimated coefficient is significant in 1 % (5%) level.

Service sector share has positive and significant coefficient which implies the positive growth effect of the service sector to the world economy. The share of researcher which implies the inputted labour force into R&D in this model has a significant positive coefficient as was expected. Because the new ideas and technology are embedded in the intermediate goods and capital goods and improve the productivity in the final goods service sector; innovation and technological progress in the service sector contribute to the world growth.

The coefficient applied to population is positive but it is not significant and, therefore, the scale effects of the R&D has not been induced in the estimation. Population growth has positive coefficient which contradicts the theoretical expectations although it is not significant. In order to know development effects of R&D in service sector investigation into underlying causal structure of these variables will be needed.

5.2.5.2. Causality Analysis

Djellal et al (2003) indicated that R&D projects in service sector improve the productivity and cause growth and development of the sector which generates growth and deepening in the economy. By hypothesizing their views, we will investigate the causality among the variables concerning R&D and innovations in the service sector and world economic growth.

The statistical technique we utilize here is Principal component analysis (PCA). PCA is a statistical procedure that uses often to reveal the internal causal structure of the data in a way that best explains the variance in the data. If a dataset is a high-dimensional data, PCA can supply the user with a lower-dimensional picture of the underlying causality structure. This is done by using only the first few principal components which have higher eigenvalue so that the dimensionality of the transformed data is reduced.

Theoretical hypothesis

- R&D in the service sector improves the productivity and causes the growth of the sector.
- Growth in the service sector will cause the economic growth.
- Growth in the service sector causes the deepening of the economy and increases the per capita GDP.

All the data utilized here are, again, from World Development Indicators 2012, published by World Bank. A descriptive statistics of the data is shown in the Table 5.5. Where 'Manufacturing,' 'Service Sector,' 'R&D' mean the share of the sector's domestic products out of GDP. 'Government S.' means the percentages of the government spending out of GDE.

Table 5.5. Descriptive statistics

Variables	n	Mean	Std. Dev.	Minimum	Maximum
GDP Growth	54	4.450	2.388	0.200	12.700
Manufacturing	54	14.296	6.663	1.000	34.000
Service Sector	54	59.556	13.842	33.000	94.000
Investment Rate	54	6.083	4.513	-1.000	16.200
Government S.	54	4.767	4.333	0.000	21.200
Per -cap. GDP	54	15479.259	18093.572	230.000	59260.000
Population	54	83.389	247.668	1.000	1351.000
Population G.	54	0.852	1.188	-1.000	3.000
R&D	54	0.902	0.959	0.010	3.780
Higher Education	54	4.885	2.164	0.800	12.800

Notes: 'Manufacturing', and 'Service Sector' are the share of their value added of total GDP. 'R&D,' in this case, is the share of R&D investment

out of GDP. Due to the data availability, the number of the countries opened all these 10 variables in 2012 was 54.

Results of principal component analysis are shown in the Table 5.6. and Table 5.7. In the table 5.6., components with an eigenvalue larger than 1 are component 1, 2, 3, 4 which we will depicted to the later analysis. The factor loadings of these components are indicated in the table 5.7.

Table 5.6. Principal Component Analysis

Component	Eigenval.	Determin.	Cum. Det.
1	3.613	36.13%	36.13%
2	1.622	16.22%	52.34%
3	1.309	13.09%	65.43%
4	1.104	11.04%	76.47%
5	0.915	9.15%	85.62%
6	0.465	4.65%	90.27%
7	0.391	3.91%	94.18%
8	0.318	3.18%	97.36%
9	0.155	1.55%	98.91%
10	0.109	1.09%	100.00%

Notes: Eigenvalue is the variance of the principal component. 'Determinant' means the percentage of information conveys by the principal factor, and 'Cum. Det.' means cumulative determinant.

Table 5.7. Principal Components and Its Factor Loadings

Variables/Com.	1	2	3	4
GDP Growth	-0.7415	0.2426	0.3893	0.1473
Manufacturing	0.1709	0.8029	-0.3952	-0.1878
Service Sector	0.7576	-0.1785	0.4235	0.0148
Investment	-0.7156	0.2251	0.3105	0.2151
Government Spend.	-0.6322	-0.1147	-0.1516	0.4886
Per-capita GDP	0.7471	-0.1060	0.2605	0.5193
Population	-0.2092	0.6948	0.3951	0.1634
Population Growth	-0.5851	-0.4944	-0.1194	0.2288
R&D	0.7649	0.2332	0.0936	0.3981
Higher Education	0.1359	0.1727	-0.6748	0.5043

Notes: Factor loadings means correlation coefficients between the principal components and each variables.

For the component number 1, Per-capita GDP (0.7471), R&D ratio (0.7649) and the service sector share (0.7576) are the most influential elements. Manufacturing Sector Share (0.1709) and Higher Education (0.1359) have weak positive correlations with the component. Furthermore, GDP growth (-0.7419), Investment rate (-0.7156), Government Spending (-0.6322), Population Growth (-0.5851) and Population (-0.2092) have negative relationship with the

component. From these observations, we suppose the component number 1 as the developed economic stages or the deepening of economy related factor. Because R&D ratio and the service sector share and per-capita GDP have higher correlation and manufacturing share and population growth have lower correlation with this component, a positive development effect of R&D investment and growth in service sector share are implied in underlying causality linkage.

For the Component number 2, Manufacturing Sector share (0.8029), Population (0.6948) and GDP Growth rate (0.2426) have positive factor loading and then Investment rate (0.2251) and R&D share (0.2332) follow. Other variables have negative values of factor loading, such as Service sector share (-0.1785), Per-capita GDP (-0.1060) and Government spending (-0.1147) which means these variables has negative relationships to the component number 2. From these observations, we can suppose the component number 2 as the economic growth related component. This component, therefore, implies higher growing economies' causality structure of these variables.

5.2.6. Conclusion

The aim to call up the importance of R&D and Innovations on Tertiary Sector's Performance and Its Contribution to the World Economic Growth. In the first half of the section 5.2.3, we deduced positive growth effect of the service sector and R&D activities to the world economy and which implies innovation and technological progress in the service sector contribute to the world growth. To investigate a causality structure more deeply, we applied principal component analysis on economic growth related data in 5.2.3.2. Two principal components relating to economic growth and development were deduced in the investigation. In the first principal component, a positive development effect of R&D investment and growth in service sector share are implied in underlying causality linkage. In the second principal

component, on the other hand, we got higher growing economies' causality structure of economic growth related variables.

To improve the understanding and evaluation of R&D and Innovation in firms in which a certain number of service characteristics are becoming increasingly evident in products, behavior and modes of organization revisions such suggested earlier is needed. New definition of R&D can bring some degree of consistency. And so the immaterial reference of service troubling their respective accounting seems to be more and more countered. Proof being given by the update done on the System of National Accounts Manual and on the Balance of Payments (2009) implementing new features regarding to services. According to data availability we could confirm the idea here supported. The category concerning the R&D which production is no longer considerate as an intermediate consumption makes easier to evaluate the expending on. Instead of just take the value of assets obtained once frequently the expending about doesn't always give tradable assets (Vanoli 2008). We would like to had data about researchers' population (in tertiary sector and others once it would be a service belonging to different sectors) so the factor loading analyse conclusions could have supplementary explaining empowerment.

Future works can take in concern the results of the empirical part once continuous work is necessary to get deeper knowing on services real value on economy's evolving growth process.

5.3. Increasing Product Variety and Innovation in Tertiary Sector: Impacts on Economic

Growth

5.3.1. Introduction

“A growth model emphasizing product variety as a potential channel for economic growth is much less persuasive than is commonly believed and therefore the profession’s faith in the merits of product variety may be hasty” (Funke & Ruhwedel, 2001).

The earlier studies suggest that an endogenous potential source of productivity yields gains like the creation of new inputs under monopolistic competition or the development of new intermediate inputs that leads to greater specialization in the use of resources and higher productivity (Ethier, 1982). The creation of new intermediate inputs increases “division of labor” over time by enhancing productivity in the economy; however, fixed costs limit the number of new inputs that can be developed at any given point of time (Feenestra and Markusen, 1994).

The most frequently discussed models of endogenous technological progress are those in which R&D expands the variety of inputs or machines used in the production of final goods. The model of input variety indicates that research leads to the creation of new varieties of input or machine, which, in turn, increases the “division of labor” and raises the productivity of firms that produce final goods (Romer, 1987, 1990). This can be viewed as a form of process innovation. An alternative model formulated and studied by Grossman and Helpman (1991), focuses on product invention. In this model, research leads to the invention of new products, and “because households have love-for-variety preferences, they derive greater utility when they consume a greater variety of products.” (Acemoglu, 2009) Consequently, aggregate income increases as a result of product invention.

However, “new growth theory,” in the context of countries opening up their economies to the rest of the world, lends support to the dependency created by product variety. Therefore, the growth rate under policy changes, such as the opening up of the economy, has long-run level effects, but not lung-run growth effect (as derived from the Solow model).

Nishigaki and Moreno (2015) applied the input variety model of R&D to a generalized supply side model in the tertiary sector as well as the intermediate goods producing sector, and extended the focus of the investigation to process innovation in tertiary sector and its impact on economic growth. In order to investigate inventions of new products as a driver of economic growth, we will focus expanding product variety in the final stage of production and assume utility-maximization of consumers with love-for variety preferences as a more complete model¹⁴. This study, therefore, expands the scope of product innovation to include product increase in the tertiary sector and its consequent growth effects with reference to supply-side factors in the tertiary sector¹⁵.

From the empirical works, “technical change,” which is measured by the estimated time trend in the regression of aggregate output on inputs, or indices of total factor productivity, which is measured as a residual of the regression analysis, incorporates all factors that influence Gross National Product (GNP) growth [Funke, 2000; Feenestra, (1994); Feenestra and Markusen (1994)]. Despite various refinements made to the measurement of total factor productivity, we still lack a convincing explanation for its source (Jorgenson and Griliches, 1967; Solow, 1988).

Measuring the product variety across the OECD countries involves measuring the supply-side factors of product variety. A standard definition of input index can be helpful and a consistent classification of goods across countries reflects that important goods are probably exported and/or imported. Extensive discussions on the levels of investment in R&D of quality and variety in domestic and foreign economies can be found in the existing literature (Grossman & Helpman, 1991). Due to the differences among countries in their initial conditions, level of technical know-how, culture, government investment expenditures, or access to knowledge

¹⁴ For the literature review in this field, see Barro and Sala-i-Martin (2004), Groot and Nahuys (2002), Saviotti and Pyka (2008), Buera and Kaboski (2012) and Glaser et.al. (1992).

¹⁵ For invention of new goods and services in tertiary sector, see Tanase and Tanase (2012), Djellal, Francoz and Gallouji (2003).

imply that investment in physical capital does not necessarily translate into economic growth (Funke & Ruhwedel, 2001).

Growth can be decomposed into two parts, an increase in the quantity of existing inputs and the development of a wider range of inputs (Feenestra and Markusen, 1994; Funke and Ruhwedel, 2005). The aggregate production function as an indicator of growth is just a “measure of our ignorance” (Abramovitz, 1956). Economic growth due to an increase in product variety is significantly correlated with the relative per capita income level. A strong outward-oriented trade regime produces a greater variety of products and technologies. And the consequent increase in trade leads to growth in the economy, provided by maintained pro-trade policies (Funke & Ruhwedel 2001).

The theory of repeated quality innovations (Aghion and Howitt, 1992) contribute to the studies on structural and institutional determinants of current technological progress. A continuous and simultaneous approach to the relationship between the size of the resource base and long-run growth rates that describe the long-run patterns of specialization in innovation and trade in the world economy (Grossman, 1989) helps in choosing between quality and variety of product. Technology-based growth, as a process of generating an ever-expanding variety of horizontally differentiated products¹⁶, can be considered as the engine of economic growth. Marginal innovation has a net positive externality in the variety-based growth model and equilibrium growth is always slow to attain (Grossman and Helpman, 1991).

A growth model with quality-based product innovation indicates features of the growth process that are not evident from a one-factor, one sector (manufacturing) model. The relationship between the growth rate and the size and composition of the Nishigaki and Moreno

¹⁶ *Horizontally differentiated products are relatively similar in quality but differ by subjective features, such as style (online ref. <http://smallbusiness.chron.com/horizontal-differentiation>).*

(JGEMBR, 7(4): 235-245, 2016 237); resource base can be studied for a homogeneous product of fixed quality in the service sector (Grossman and Helpman, 1991). A positive monotonic relationship between resource supply and employment of those resources in growth-generating activities exists only in certain general equilibrium models.

The model constructed and utilized in this study is based on a paper by Acemoglu (2009) with some necessary amendments to the structure of the model have been considered to include innovation in the service sector. The first such amendment is the special consideration of the tertiary or service sector and the other amendment, for the purpose of simplification, is to increase the tractability of the model.

The novel contributions made here are as follows. By constructing a growth model with tertiary sector, we succeeded, especially, in describing the growth effects of innovation and increase in final products and not intermediate goods that give the hypothetical equation or estimated equation of economic growth that are different from those used in earlier works. The second contribution is related to the data utilized in statistical work. Availability of data on the number of products is usually very limited. Earlier works in this field discovered that an increase in the items of commodity are captured through the import and export statistics; although, all the commodities produced and consumed in an economy are usually not exported or imported. In this study, we will address the new index of product items and utilize the number of items in the industrial classification.

5.3.2. A growth model with tertiary sector and increasing product varieties

Romer (1990) considered the sector for research and development of new ideas and technologies in his model of endogenous technological progress. As new knowledge is non-rival in nature, investment in R&D, which is related to increasing returns to scale and imperfect

competition, requires a fixed cost of production with no marginal cost (Jones, 1997): technological progress occurs as profit maximizing firms or inventors.

In the expanding product model, economic growth is driven by an increase in product variety and as such, innovation occurs not only in the secondary or manufacturing sector but also in the tertiary or service sector. To shed light on innovations in the tertiary sector, we will extend this model into a three-sector model with focus on the tertiary sector.

Therefore, the model includes a monopolistic manufacturing sector that produces intermediate goods (or capital goods) to be sold to the final goods retailing sector (service sector). We will investigate the implications of R&D, increasing product variety, and service sector growth in a three-sector endogenous economic growth model, which is in line with the model proposed by Jones (1997) and Acemoglu (2009).

5.3.2.1. Consumers

In an infinite-horizon economy with continuous time, there is a representative household with preferences given by

$$\int_0^{\infty} \exp(-\rho t) \frac{C(t)^{1-\theta} - 1}{1-\theta} dt \quad (5.3.1)$$

$$\text{Where, } C(t) \equiv \int_0^{N(t)} c(v, t) dv \quad (5.3.2)$$

is the consumption index for different varieties of products, that is, $c(v, t)$ is the consumption of product v at time t , while $N(t)$ is the total measure of products. In this model, research leads to the invention of new goods and as households have love for-variety preferences as indicated earlier, they derive greater utility when they consume a greater variety of final products. There is no population growth and the labor supply of the total number of worker L is elastic in the model.

5.3.2.2. Service Sector

The service sector, which is introduced to the increasing product variety model by Romer and Acemoglu, is assumed to consist of a large number of competitive firms that use labor and intermediate goods to produce the final good Y . The production function is specified in a slightly different way as compared to that used in an ordinary growth model to reflect the large numbers of intermediate goods in the model:

$$y(v, t) = l_Y(v, t)^{1-\alpha} \cdot x(v, t)^\alpha \quad (5.3.3)$$

Here, we assume that each final good is produced using very simple technology. $y(v, t)$ is the product, $l_Y(v, t)$ and $x(v, t)$ are labor and capital goods respectively allocated to the production of the variety v . Let us assume that x depreciates fully after use, as did by Jones (1997) and Acemoglu (2009). As Jones (1997) and Acemoglu (2009), we refer to the input as machine in throughout this analyse. As the machine is used up in production or depreciates fully after being used, the quantity of these machines used in the past production is not a state variable.

Macroeconomic relations of the production is represented in the aggregate form

$$Y(t) = L_Y(t)^{1-\alpha} \cdot \int_0^N x(v, t)^\alpha dv \quad (5.3.4)$$

$$\text{Where, } Y = \int_0^N y(v, t) dv, \quad K = \int_0^N x(v, t) dv,$$

$$L_Y = \int_0^N l_Y(v, t) dv, \quad N(t): \text{ variety of intermediate input available at time } t.$$

N denotes the kinds of final goods in total Y produced using labor L_Y and a number of different intermediate goods, $x(v, t)$, which we also can call “capital goods.” N measures the number of intermediate goods and final goods. The firms in the service sector are assumed

to take this number as given. Inventions or ideas in the model correspond to the creation of new intermediate goods that can be used by the service sector to produce its final output.

With constant returns to scale for a given N , the number of the firm cannot be determined from the profit maximization equation. Therefore, we will assume that there are a large number of competitive firms in the economy.

The profit maximization equation for the service sector is to decide the quantity of labor and intermediate goods to be utilized in production:

$$\max_{l_y, x_j} p^C(\nu, t) \cdot l_y(\nu, t)^{1-\alpha} \cdot x(\nu, t)^\alpha - w l_y(\nu, t) - p^x(\nu, t) x(\nu, t) \quad (5.3.5)$$

Where p^x is the price for intermediate good j , and w is the wage paid for labor. The first-order conditions characterizing the solution are:

$$w = (1-\alpha) l_y^{-\alpha} x^\alpha p^C = (1-\alpha) \frac{y(\nu, t)}{l_y(\nu, t)} p^C \quad (5.3.6)$$

and

$$p^x(\nu, t) = \alpha l_y^{1-\alpha} x^{\alpha-1} p^C = \alpha \frac{y(\nu, t)}{x(\nu, t)} p^C, \quad (5.3.7)$$

The first-order condition states that the firms employ labor until its marginal product equals the wage rate and the second-order condition implies the same condition for each intermediate good.

5.3.2.3. The Intermediate Goods Sector

The intermediate goods sector consists of monopolists who produce the intermediate capital goods that are sold to the service sector. These firms utilize their monopolistic power to purchase the design for specific intermediate goods from the research sector, but with patent protection, only one firm manufactures each type of intermediate good.

Following Romer, we assume that once the design for a particular variety of intermediate good has been purchased, firms produce intermediate goods with a very simple production function that ensure the one to one translation of the raw capital goods into final intermediate or capital goods. Therefore, the profit maximizing equation for the intermediate goods sector is:

$$V(v, t) = \int_t^{\infty} \exp\left(\int_t^s r(s') ds'\right) \pi(v, t) ds,$$

where,

$$\pi(v, t) \equiv p[x(v, t)]x(v, t) - \psi x(v, t), \quad (5.3.8)$$

$p[x(v, t)]$ is the service sector's demand function for intermediate goods, $\pi(v, t)$ denotes the profit from the monopolist producing machine v , and $r(t)$ is the market interest rate at time t . ψ is the marginal cost of producing capital goods $x(v, t)$

The first order condition for this problem is then,

$$\frac{dp^x[x(v, t)]}{dx} x(v, t) + p^x[x(v, t)] - \psi = 0 \quad (5.3.9)$$

$$r(t)V(v, t) - \dot{V}(v, t) = \pi(v, t) \quad (5.3.10)$$

where equation (5.3.10) is a Hamilton-Jacobi-Bellman equation assuming that the value function is differentiable in time.

Rewriting Equation (5.3.9), we get the following representation of elasticity:

$$p^x(v, t) = \frac{\psi}{1 + \eta_v} \quad (5.3.11)$$

The elasticity $\eta_v \equiv p'^x(x)x(v, t) / p^x(v, t)$ can be calculated from the demand equation of

intermediate goods (5.3.7) and it is equal to $1 - \alpha$. Therefore, the intermediate goods firm sets

the price $p^x = \frac{\psi}{1-\alpha}$ that is same for all intermediate goods and is a markup over the marginal cost of knowledge. By normalizing the marginal cost of the machine production to $\psi = 1-\alpha$, we get $p^x(\nu, t) = p^x = 1$ for all varieties of the machine at time t. As the demand function of final goods sector is also the same, each intermediate good is inputted in equal quantity:

$$x(\nu, t) = x .$$

From Equation (5.3.7), profit maximization implies each monopolist rent the same quantity of machines in every period, which is equal to

$$x(\nu, t) = \alpha y(\nu, t) p^C . \quad (5.3.12)$$

This gives monopoly profits:

$$\pi = (1-\alpha)\alpha y(\nu, t) p^C . \quad (5.3.13)$$

Here, we assume that the total profit is distributed to the owner of the capital stock.

The total demand for capital goods by the intermediate goods sector should be equal to the total capital stock in the economy,

$$\int_0^{N(t)} x(\nu, t) d\nu = K(t) . \quad (5.3.14)$$

As the capital goods are used in equal quantities, x , it can be determined from the equation

$$x(\nu, t) = \frac{K(t)}{N(t)} . \quad (5.3.15)$$

5.3.2.4. The Research Sector

According to the Romer model, we assume that the creation of new idea or knowledge depends on the stock of knowledge at any given time and the number of researchers attempting to discover new ideas.

$$\dot{N}(t) = \mu L_R(t) N(t) \quad (5.3.16)$$

where, $N(t)$ is the stock of knowledge or the number of ideas and $\dot{N}(t)$ the number of new ideas produced at any given time, and L_R is the number of researchers.

The creation of a new idea depends not on the researcher itself but on the expenditure or investment in research, including the cost of labor cost. Thus, the production function of the R&D sector is

$$\dot{N} = \mu N s_R L \quad (5.3.17)$$

5.3.3. Balanced growth path

Balanced growth equilibrium requires that consumption grows at a constant rate.

Labor market clearing requires that

$$\int_0^{N(t)} l_Y(v, t) dv + L_R(t) = L(t) \quad (5.3.18)$$

where, $L(t)$ is population at time t .

The resource constraint at time t is

$$C(t) + K(t) \leq \int_0^{N(t)} y(v, t) dv \quad (5.3.19)$$

A balanced growth path of the model is described in this section. Given the preferences expressed in equations (5.3.11) and (5.3.12), the household demand is calculated as below:

$$c(v, t) = \frac{p^c(v, t)}{\left(\int_0^{N(t)} p^c(v, t) dv \right)} C(v, t) \quad (5.3.20)$$

where, $p^c(v, t)$ is the price of product variety v at time t .

According to the assumptions of the production function and the price of the intermediate goods ($p^x(v, t) = 1$), the prices of all the final goods are the same under the competitive equilibrium of the final goods market. Therefore, equation (5.3.20) implies that the consumers allocate their total expenditure proportionally to each good.

By maximizing the utility function subject to the resource constraint, we get the usual Euler equation for optimal consumption.

$$\frac{\dot{C}(t)}{C(t)} = \frac{1}{\theta} (r(t) - \rho) \quad (5.3.21)$$

Labor is demanded by both the R&D and final goods sector. Labor demand of the R&D sector can be determined by the free-entry condition that states that the net value of one unit of labor input into the section leads to the invention of η units of new machines:

$$\eta N(t) V(t) = w(t) \quad (5.3.22)$$

In the balanced growth steady-state, the growth rate of consumption coincides with the growth rate of product variety:

$$g^* = g_C^* = g_N^* = \frac{1}{\theta} (r^* - \rho) = \mu L_R^* \quad (5.3.23)$$

By rearranging Equation (5.3.23), we get the following expression of the steady state equation:

$$r^* = \theta \mu L_R^* + \rho. \quad (5.3.23')$$

By applying equation (5.3.15) to the aggregate production function in (5.3.1), we get a simplified expression of the total product,

$$Y = K^\alpha (L_Y \cdot N)^{1-\alpha}. \quad (5.3.24)$$

For a given level of product variety N , the production function exhibits constant returns to scale with given K and L_Y . However, as the product variety N is also an input in production that increases endogenously, it indicates increasing returns to scale in production in the economy as a whole.

For per-capita representation of aggregate product (in terms of efficiency), we get the following equation by dividing both sides of equation (5.3.16) by the efficient labor.

$$y = \frac{Y}{L_Y \cdot N} = \alpha \left(\frac{K}{L_Y \cdot N} \right) = \alpha x \quad (5.3.25)$$

where, x is the capital stock per unit of productive labor and it is expressed as

$$x \equiv \frac{K}{L_Y \cdot N}.$$

5.3.3.1. Empirical Analysis

5.3.3.1.1. Estimation of the Production Function

In this section, we focus on the growth equation of per capita GDP in terms of efficiency to explain the growth effects of an increase in product variety.

Despite the inability of traditional indicators of innovation to capture the “invisible” innovations in the service sector, “services are becoming more manufacturing-like in innovation” (Howells, 2006). Therefore, we are yet to “redefine the product in a way that offers a relatively solid framework to generalize a theory of innovation for material and immaterial product” (Gallouj & Savona, 2009). “The increasing complex and multidimensional character of modern services is easily noticed and manufacturing into solutions” (Salter & Tether, 2006). The endogenous determination of growth and product variety with internal and external economies

of scale indicates that product variety enhances productivity due to the presence of increasing returns to variety.

In this sub-section, the growth effects of increasing product variety will be verified by estimating the macro-production function of equation (5.3.24). As is mentioned in the introduction, the increase in commodity is captured through the import and export statistics in earlier works (Feenstra et al. 1994 and Funke et al. 2005); although all commodities produced and consumed in an economy are usually not exported or imported. In this study, we will address the new index of product items and utilize the number of items in the industrial classification.

As Japanese data on industrial classification has continuously added new industries and eliminated the extinct ones, it works as a good proxy for the index of product variety. However, as the available data on the number of industrial classifications is very limited and the lack of any international data so far, an alternative to cross-country data will be used to complement the international evidence.

The data for annual GDP is from the National Income Accounts of the Cabinet Office, Government of Japan and the data for labor input is from the Labor Survey of the Ministry of Labor. The data for (private) capital stock is from the Ministry of Economy, Trade and Industry. All the data utilized here are annual one and its period is from 1970 to 2009.

The dependent variable of the estimation equation is per-capita GDP in terms of efficiency based on equation (23). By taking the logarithm of the equation and rearranging it

$$\ln(GDP) = \alpha \ln(K) + (1 - \alpha) \ln(N \cdot L), \quad (5.3.26)$$

$$\ln(GDP) - \ln(N \cdot L) = \alpha(\ln K - \ln(N \cdot L)). \quad (5.3.27)$$

The regression equation is deduced from equation (27) as

$$y_i = \mu + \alpha x_i + u_i, \quad (5.3.28)$$

where, $y_i = \ln(GDP) - \ln(N \cdot L)$, $x_i = \ln(K) - \ln(N \cdot L)$, and u_i is the error term.

In order to check stationarity, the augmented Dickey-Fuller test was conducted on the time series of y_i and x_i . The ADF statistics are -3.858 and -4.448 for each data and rejected the presence of the unit root. As it suggests that the stationarity is valid for each time series, we applied the ordinary least square (OLS) method with particular considerations of heteroskedasticity in the standard error terms.

The estimation results of the regression model are indicated as follows:

Table 5.8. Results of the regression analysis

Coefficients	Estimated	Std. error	t-value
μ	-1.190	0.219	-5.411
α	0.778	0.091	8.529
Adjusted R ²	0.870		

Note: Standard error of the Newey-West statistics to deal with the distribution bias.

By applying the OLS method to the dataset, the estimation results of Table 5.8. are obtained. The table shows that there is a stable positive relationship between y and x , which implies the positive growth effects of capital stock. Furthermore, as suggested by the theoretical hypothesis, the positive and significant estimated coefficients of α and $(1-\alpha)$ implies that an increase in product variety N leads to a growth in the per-capita income and GDP.

5.3.3.1.2. Increasing Product Variety and World Economic Growth

In this subsection, we will conduct a statistical investigation based on the world development data. A regression analysis based on per-capita income in the steady-state as

described by equations (5.3.23) and (5.3.24) will be conducted to explain the growth effects of the R&D activities.

$$\bar{y} = \frac{Y}{L} = \left(\frac{K}{L}\right)^\alpha \left(\frac{L_Y}{L} \cdot N\right)^{1-\alpha} = k^\alpha (l_y \cdot N)^{1-\alpha} \quad (5.3.29)$$

Due to lack of data availability, especially, concerning product variety and capital stock data, we will deduce new equations which have applicable data from equations (5.3.16) and (5.3.19). First, by re-writing equation (5.3.16), the following relation is obtained.

$$\frac{\dot{N}}{N} = \mu \frac{L_R}{L} = \mu s_R \quad (5.3.30)$$

where, s_R indicates the share of researchers in the R&D sector who are out of the total labor force. By solving the differential equation in (30), the state of product variety is indicated as the following equation with constant μ (productivity of researchers) and s_R in the steady growth equilibrium path.

$$N(t) = N_0 e^{\mu s_R t} \quad (5.3.31)$$

Equation (31) implies that the product variety at time t depends on the productivity and the number of researchers in R&D sector.

For the next step, by re-writing equation (19) and setting equal, a growth equation for the capital stock on the steady growth path is obtained as

$$K(t) = Y(t) - C(t) = I(t) = s_I Y(t) \quad (5.3.32)$$

where, s_I is investment share out of national income and indicated as $s_I \equiv \frac{I(t)}{Y(t)}$. As the national income grows as constant rate of g on the steady growth path, the capital stock also grows at the same rate.

$$K(t) = s_I e^{gt} Y_0 \quad (5.3.33)$$

Following Mankiw, Romer, and Weil (1992), we will implement the model, which explains the per-capita GDP and not the rate of income growth. Estimation equations are deduced from equation (27) as

$$\bar{y}_i = \eta + \gamma_1 \bar{x}_i^1 + \gamma_2 \bar{x}_i^2 + \gamma_3 \bar{x}_i^3 + u_i, \quad (5.3.34)$$

$$\bar{y}_i = \eta + \gamma_1 \bar{x}_i^1 + \gamma_2 \bar{x}_i^2 + \gamma_3 \bar{x}_i^3 + \nu z_i + u_i. \quad (5.3.35)$$

where, $\bar{y}_i$ is the per-capita income, $\bar{x}_i^j$ is vector of explanatory variables, z_i is a control variable, and u_i is the error term.

For the vector of explanatory variables, we use (i) the product of marginal productivity of labor¹⁷ and the share of labor input in R&D sector (μ^S_R), (ii) share of investment in GDP (S_I), and (iii) labor growth rate (n) based on equations from (5.3.29) to (5.3.33). Furthermore, according to Mankiw et al. (1992), an enrollment rate for secondary education is utilized as a control variable¹⁸.

All the data utilized here are from World Development Indicators, published by World Bank. We constructed and utilized a balanced panel data of 41 countries for the period of 2009 to 2013¹⁹.

Results of the regression analysis are illustrated in Table 5.9., 5.10 and 5.11. As the statistics of the Hausman test was 16.825 (p-value: 0.002), we estimated the fixed models of estimation equations (5.3.34), (5.3.35) by using OLS method with particular consideration for heteroskedasticity in the standard error terms.

The table indicates that there is a stable positive relationship between per-capita income $\bar{y}$ and investment share $x^2(S_I)$, which implies that an increase in capital stock brings about

¹⁷ Due to unavailability of marginal productivity data, we use average labor productivity (GDP/L) in the regression.

¹⁸ As Barro (1991) indicated, the “convergence” of GDP growth rate seems to be inconsistent with the cross-country evidence and the starting level of per-capita GDP has little correlation with the per capita growth rate, we did not use the level of GDP at certain times as a control variable.

¹⁹ The availability of data concerning labor force input in R&D activity is very restricted, especially, before and after the period from 2009 and 2013. The list of 41 countries is shown in the Appendix.

growth of the per-capita GDP. However, there is weak negative relationship between per-capita income $\bar{y}$ and labor growth $x^3(n)$, which implies that an increase in labor input decreases the per-capita GDP as suggested by many earlier studies²⁰. The coefficient of the product variety term $x^1(\mu_{SR})$, which is the main focus of this study, has a very significant positive sign that indicates positive growth effects. Therefore, the results imply that an increase in the product variety N causes growth in the per-capita income and GDP also in the international panel data.

Although, the second model includes additional control variable of school enrollment rate for secondary education, the estimated coefficients of the other explanatory variables have much similarity and the coefficient for the $\gamma^4(s_E)$ is not significant. This implies that secondary education may not be an appropriate variable to absorb the cross-country discrepancies of development environment²¹.

Table 5.9. Results of the regression analysis on world panel data

Variable	Description
$\bar{y}_i$	per capita GDP
μ_{SR}	product of the average productivity of labor and the share of labor input in R&D sector
s_I	share of investment in GDP
n	labor growth rate
s_E	enrollment rate for secondary education

²⁰ An increase in the labor input usually decreases per-labor output and, therefore, it brings a decrease in per-capita income. See, for example, Mankiw et al. (1992) and Barro (1991).

²¹ See Mankiw et al. (1992) and Barro (1991) for the growth effects of the education or human capital.

Table 5.10. Model 1: Equation (5.3.34)

Coefficients	Estimated	Std.error	t-value	p-value
η	1611.897	3408.092	0.473	0.637
$\gamma^1(\mu s_R)$	9.48E-05	1.32E-05	7.187	0
$\gamma^2(s_I)$	278.723	128.568	2.168	0.032
$\gamma^3(n)$	-262.277	138.995	-1.887	0.061
R^2	0.981			
Adjusted R^2	0.975			

Table 5.11. Model 2: Equation (5.3.35)

Coefficients	Estimated	Std.error	t-value	p-value
η	2081.636	3824.487	0.544	0.587
$\gamma^1(\mu s_R)$	9.54E-05	1.46E-05	6.550	0
$\gamma^2(s_I)$	276.390	131.533	2.101	0.037
$\gamma^3(n)$	-262.260	139.868	-1.875	0.063
$\gamma^4(s_E)$	-5.371	16.796	-0.320	0.750
R^2	0.981			
Adjusted R^2	0.975			

Note: Standard error of White cross-section statistics to deal with the distribution bias.

5.3.4. Conclusion

The main contributions of our study are summarized as follows. By investigating the balanced growth path of the theoretical model, we formulated two basic equations, the aggregate macro production function and the per-capita income on the steady growth equilibrium, that indicate the positive growth effects of increasing product variety. Based on these two equations, we conducted two statistical investigations, an estimation of the macro-production function based on Japanese macro-economic data and a cross-country analysis based on the data from World Development Indicators published by World Bank. The results of these two statistical works show positive growth effects of an increase in product variety.

Although the evidence is scattered and the link between product variety and growth has been subjected to empirical scrutiny, direct measures of product variety are extremely difficult to obtain.

Moreover, alternative growth theories provide new dimensions for testing. Yet, systematic empirical evidence on the actual magnitude of product variety and its significant policy implications, as provided in this study, keep providing additional elements to examine.

Despite the inability of traditional indicators of innovation to capture “invisible” innovations in the service sector, “services are becoming more manufacturing-like in innovation” (Howells, 2006; Vanoli, 2008). Therefore, we are yet to “redefine the product in a way that offers a relatively solid framework to generalize a theory of innovation for material and immaterial product” (Gallouj & Savona, 2009).

To create new niche strategies, developing pervasive innovations, and increasing efficiency and variety are all necessary measures. Economic development driven by “forces” of efficiency

and creativity is inevitably associated with two types of competition, classical and Schumpeterian or inter-sector and intrasector competition. Balance and virtuous combinations adopted by policy makers, who introduced both measures, aimed at intensifying competition and protecting intellectual property rights (IPRs) to promote growth.

The endogenous determination of growth and product variety with internal and external economies of scale indicates that product variety enhances productivity due the presence of the returns to variety. On the contrary, product variety also creates a smaller internal scale and leaves less room for growth-enhancing R&D. When returns to diversity are strong relative to the elasticity of substitution between varieties of high-tech goods, external economies of scale become important and the market supports a high growth rate and yields a lack of variety.

All the above econometric approaches gathered data treatments with common target: to unveil the so hard to measure contribution service sector performs in the account of economic growth/development. The logic here supported in simple says: after finding out the location and the advantages from it, the R&D allows to come out with innovations translated into variety of products. Again, thanks to the attractiveness of locations related hypothesis; the R&D and innovations on tertiary sector and increasing product (service product specially) variety impacts economic growth. Comforted by the results that explains the choice regarding each of approach that is to identify determined geographical spot where efforts will be done to work out innovation in the “engine sector” of development (here the service sector) acknowledging the respective resource endowment.

Chapter VI: General conclusion and discussion

6.1. Introduction and overview of the study

This dissertation aimed to give contribution to the growing area of service research by providing empirical evidence regarding the role of service specialization based on knowledge and supported by policies in a limited resource island economy like Cabo Verde.

This study set out to investigate the potential of service specialization to boost sustainable development and enhance the process of necessary transformation for such kind of economic orientation. This research had reach own main goals: to provide empirical evidence on service contribution to growth; to investigate the potential of alternative development strategy based on service for Cabo Verde economic structure and the patterns of the actual globalization and KIBS era; the identification of type of policy to promote sustainable development base on KIBS as well as promoting the change in the structure necessary to the transformation; in this study was used a broad, but relevant for Cabo Verde, definition of service specialization strategic approach for sustainable development policy that includes the set of innovation, skill, competences, sectoral and competition policies employed by governments to induce structural change and servitization. Finally, the study sought to identify conditions that should be created to engineer the economic transformation.

Combining quantitative methods approaches composed with of computational methods and statistical analysis including computable growth model, linear regression, principal component and factor loading method. The influence analysis was used to understand the strength of the relationships between different services and determine how the structure of Cabo Verde's economy can guide the choice of sustainable development strategy. The models were here used to

assess the economy effect of attractiveness of a location, followed by R&D and innovations on tertiary sectors and finally the increasing product variety combined to innovation on service sector. The alternative finding out willingness of specialization and the service/knowledge-led strategies as well as sectoral policies regarding chosen diversification into higher value-added service products, skill upgrade, and future trade of services was enabled by the used methods.

The thesis is organized in two empirical parts. The first part include Chapter III that conducted systematic literature review and study cases analysis to identify the source, the definition and the process of alternative solutions on service shapes. The second part included Chapter V that conducted linear regression, principal component and factor loading method positioning service innovation into world-wide economic performance. In the end, it conclude that the policy directed to transform the service structure and upskill of the labor is a key for productive transformation and sustainable development. Reforms to improve the sector efficiency are crucial for the inclusive wanted development. The findings suggest that the production of high-value service products is complementary with the identification of the alternative solution. A brand new service brings as long as the definition of the new is understood by users along the generating process of the above mentioned service. The positive findings that confirm the importance of the location attractiveness is directly reflected in the contribution R&D in tertiary sector gives to the performance of the sector, as well as the choice to increase the product variety accompanied by innovation on service sector impacts on economy.

The following sections will elaborate further on the findings along the line of the contribution to the literature. Then follows the discussion about limitations of this dissertation. Afterwards, the implications are identified for policymakers to improve the knowledge based service sector. Finally, the study concludes presenting areas of possible future research.

6.2. Main findings

Here the aim is to summarize the main findings with regard to the research objectives and questions supporting the Thesis.

6.2.1. Chapter II: Identifying the kind of Service Innovation Effort leading transformation on limited resource economies

This chapter is preparing and mind-setting for the examination of the chosen economy. Thanks to theoretical, empirical and founding inputs assembled up to this point in the thesis analysis, the feeling of culmination of information to knowledge the sighted economic transformation is clear. The following chapter will treat the chosen reference economy after all the inputs to make obvious the economic transformation into a KIBS economy.

6.2.2. Chapter III: Genesis process of innovative service: finding out alternatives

This chapter provided an opportunity to advance the understanding of how important it is to finding out alternatives for the third sector to produce economic results through diverse activities.

Thanks to the identification of sources of innovation and consequently the ability to define the innovative service, it is with ease that stepping into the process of generating new services gives bases to advance analysis putting together Services, Innovation and R&D on Growth and Sustainable Development matter. The chapter brought together elements in response to the concern of finding out alternatives for the third sector to produce economic results through diverse activities. This chapter contribution to this study is precious for the different knowledges in there called and matched give bases of understanding how economies work finding source of

innovative services; define the innovative services and state the process to generate new services. And the new services will come out from economies using the knowledge commodity.

In the study on genesis process of innovative service, precedents studies and approaches which are effective to process and service innovations in tertiary sector had been investigated and classified from perspectives such as: improvement of productivities or decrease in cost in process innovation, efforts in innovative service creations and sustainability of innovative process. Based on these investigations, a new categorie of the notions of service innovation had been proposed in the theoretical part and attested by a case study, questioner and interviews in empirical parts of the thesis.

By direct interview to the 91 leading companies of innovation in Kyoto, resources, information, and effort which lead to the service innovations had been investigated and clarified. Elements contribute to innovations in service had deduced empirically in this manner.

Among the resources of innovative new services, there exists a kind of service that is conventionally supplied in the market but is served in newly adjusted according to the needs of contemporary market. It is defined and named as a retrospective service, and after that, a precise cross case study on one of the examples with much success had been executed to fix empirical significance and to show the details of recognition of its resource, process and effects of innovation.

The findings of this chapter highlighted the possibility economies have to create their choice in bringing out solutions. And bringing out solutions with the inputs of their choice as well. This is the scenario this study support: economies choose the specialization strategy based on the knowledge commodity input leading to the sustainable development.

6.2.3. Chapter IV: Services, Innovation and R&D on Growth and Sustainable Development

matter

The findings from this chapter add to a growing up on the understanding as we put together Growth and Sustainable Development matter and introduced economic entities. With the interpretation of the fair value of the intertwined relationship Service / Innovation / R&D / Growth / Sustainable Development; followed the reading of tertiary sector activities development under public service sector and private service sector hands; location and attractiveness factors/performance for international visibility interested the analysis and recognition of the Era of the Knowledge Intensive Business Services (KIBS) setting the new trend leading economic specialization nowadays. For an analytical and empirical understanding, selected approaches of service economic results follows in the next chapter.

- How service approach can be created for sustainable development strategy?

The investigation about the strength of the linkages between Service / Innovation / R&D / Growth / Sustainable Development have shown that it is very high. Thanks to the chapter we found obvious reasons to put efforts on creating the service approach strategy based on knowledge when targeting sustainable development when resources are limited.

The different ways innovation in/by services prove existence of alternatives for ad hoc strategy building effort for the economy. Moreover it is a win-win decision when public and private efforts are combined as attention is vowed to location and attractiveness factors/performance for international visibility of the economy in the existing globalization context. And the major point of all finds support when this chapter brings the Era of the Knowledge Intensive Business Services (KIBS) section. It is the main feature of globalization we live in nowadays. To answer then how to build up service approach for sustainable development strategy show itself up with little effort.

- How can services be taken as the engine for development of small economies?

Services based on knowledge finds justification to be chosen to nurture sustainable

development when we faced as source of economic solutions. Services play an active role in the production of innovations. Whether the innovation is technological or non-technological, environmental or socio-economic in a preventive or proactive approach (education of populations, training related to environmental norms or labels, etc.) they come to cure or repair damage inflicted on the environment or on individuals' socio-economic well-being. This latter action takes place in specific point of space. It is what leads next section about location.

- There is a way to ensure the choice of such specialization?

All the arguments advanced regarding service knowledge based for sustainable development makes the choice of service specialization almost "self-explained or self-justified". It makes extend explanations at this stage little needed.

6.2.4. Chapter V: Analytical and Empirical Specific Approaches of Service Economic

Results

The present chapter provided additional evidence with respect to metric and empirical approaches. The study started to use, for easy working all the models, linear regression then estimations took shape under principal components analysis and factors loading testing. The latest model worked to prove service specialization choice found metric treatment in the regression analysis on panel data.

Theoretical and empirical study on economic growth effects of innovative process of service creation by using an endogenous growth model of R&D and increasing product variety had metric treatment.

In the part of economic growth study, after introducing a tertiary sector to the R&D and product variety type endogenous growth model (Jones, 1997, Acemoglu, 2008), economic effects on increase in product variety caused by R&D had been investigated by examining a steady growth

path. Based on the assumption of consumers' love for product variety, it is indicated that increased input into R&D activities which implies an increase of product variety and an increase in input into the tertiary sector which implies expansion of the sector, enhance the rate of economic growth and increase the per capita output level.

In the part of the empirical study, this thesis conducted 2 types of statistical works:

- a. At first, by using international cross-country data, regression analysis on the per capita output equation in a steady growth equilibrium showed significant positive growth effects of labor input increase in R&D that lead the increase in product variety and also, intermediate input increase in tertiary sector that implies tertiary sector's expansion.
 - b. Multivariate covariance structure analysis on main variables appeared in the growth model showed a principal component which has positive factor loadings among per-capita GDP, labor input share in R&D sector and share of tertiary sector which implies positive growth effects of increasing product variety and tertiary sector expansion.
 - c. A regression analysis of a macro-production function in a steady growth equilibrium, by using Japanese macro data including industrial classification number that implies variety of products showed significant positive coefficients of capital stock and product variety.
 - d. Furthermore, a regression analysis of macro-production function by using international cross-country data, showed significant positive coefficient of an investment share of GDP and a labor input share into R&D activity that implies positive growth effects of increase in product variety and capital stock.
- Can limited resources for the other sectors motivate service strategy empowerment?

It was possible to take service sector and specific resources in the models. The econometric approaches gathered data treatments with common target: to unveil the so hard to measure contribution service sector performs in the account of economic growth/development. The logic

here supported in simple says: after finding out the location and the advantages from it, the R&D (organized and institutionalized translation of knowledge commodity use in economic body) allows to come out with innovations translated into variety of products. Again, thanks to the attractiveness of locations related hypothesis; the R&D and innovations on tertiary sector and increasing product (service product) variety impacts economic growth. Comforted by the results that explains the choice regarding each of approach that is to identify determined geographical spot where efforts will be done to work out innovation in the “engine sector” of development (here the service sector) acknowledging the respective resource endowment.

6.2.5. Appendix: Reference Case Cabo Verde: Policy Implications

In this chapter the official strategic document of Cabo Verde is brought as real element of the study out of theoretical and empirical contributions to allow an analysis of an actual context. Presenting the country strategic paper allowed to analyze what was done and what is yet to be done collaborated to the contributions the thesis assembled during the study.

Thanks to this chapter an approach to real case was possible to bring the actual strategic document of a real small economy with limited resource base. It was very important to go deep on the country vision and introduce the country policies allowing to depict the bases set allowing service knowledge based specialization for sustainable development. Real application of all the theoretical affirmations supporting service specialization with knowledge commodity on the first line.

6.3. Limitations

In this dissertation the findings were subjected to limitations as:

- In the study cases, the used populations were rather small and translation bias as well as privacy

matters shaped the questionnaires;

- In the models the proof brought in account was worldwide dimension and the chosen economy, due to respective lack of information, is absent from the list of countries included on the metric treatments;
- This study assumed diversification into high-value service products and the models could only include the commodity Knowledge thanks to the R&D labor force (researchers) which is quite reductive for the kind of resource it represents.

6.4. Policy implications

- Institutional reforms that would increase the capacity to implement effective knowledge intensive based services policies and strategies;
- More efficiency for the macroeconomic policy regarding knowledge intensive based services implementation;
- Amplify the clustering structure vision to all the stakeholders: Communication to the mass about benefits of such option as well as sharing the ways to attain clusters functional benefits. With special focus on how cluster structure handle the Knowledge commodity;
- Strengthen services' research and education;
- Increase the access of national service products to high-value markets by investing in the market development;
- Reinforce the quality of education, skill and competence of service labor force.
- With the vision to foster sustainability, public authorities induce innovation thanks to their power to facilitate the use of knowledge-intensive services. "Incentive programs" in order to encourage upgrading, compliance with standards and innovations in the sphere of sustainability through regional consultancy demanded by regional authorities.

- Public policies intending to promote and support sustainable innovation by various forms as the “assimilation, differentiation and integration - ADI” framework for satisfactory basis for analysis.

6.5. Contributions and Novelties

In this thesis, by identifying and classifying the preceding studies and respective results, the study had succeeded in showing the resources available to service innovation and new service creation. Such as the effective reintroduction of old-fashioned service and focus on knowledge as commodity resource for service-based economy. Managerial theoretical investigations of this thesis showed productivity improvement effects of those resources stated above, generative effects and a sustainability of the growth effects of service innovation. According to the author’s knowledge, this is the first study presented these results and policy proposals.

Interviews and questionnaire to Japanese leading service companies conducted in the study had succeeded in indicating and clarifying the resources and efforts of their service innovation. Especially, the cross case study on the leading companies of retrospective service innovation showed a quite available example of innovation in accordance with the contemporary needs of the market. These results provide effective policy implications to the economy characterized with limited availability of resources for economic growth.

In the theoretical study of increasing product variety and economic growth, this study constructed a three sector endogenous model with R&D and increasing product variety by introducing a tertiary sector; and indicated growth effects of increase of new products, especially, the expansion of tertiary sector caused by the introduction of the new products.

The empirical works on growth effects of R&D and increasing product variety had succeeded in fixing the positive growth effects of new products introduction to the market and, moreover, positive growth effects of tertiary sector expansion. Although precedent study focused on the

growth effects of new products introduction caused by import, this study conducted a direct regression analysis on macro-production function by utilizing industrial classification index.

These results of theoretical and empirical analysis on macro growth effects reinforce the analytical results and policy implications of the study on growth effects of service innovation and product increase in tertiary sector.

To diversify into high-value services products is a challenging choice and useful to be explored in further research. In this dissertation it was incorporated specialization by diversification over the knowledge input. Same simulation setup can incorporate others indicators based on the same concept of economic complexity of main input as knowledge for sustainable development.

6.6. Possible extensions

This study was supported and lead by questions needing investigation. The analysis undertaken was limited by some to be completed information. Future research can comfort the need to complement the knowledge on how to structure the economy to the transformation based on service specialization. Future researches can go in depth and provide details for factors that allow the main resource knowledge to make its way to the cluster operating type of service production. The study of the impact of services transactions would be interesting, at domestic as at international level. It would also be interesting to analyze the potential effects of cooperation aimed to improve the access to high-value market once the concern about international visibility was introduced by the study.

Cabo Verde is an aid-dependent country and as the strategic paper advances the intention to empower its financial cluster is crucial once it will nurture the other clusters; it will then be worthy to find out the means that will be used to the specialization on services. And further to be

example for economies wishing to follow same steps in rigorous economic analysis involving estimations of costs associated with each servitization policy and its financing source. An example would be the association of resources such as ODA, FDI, domestic private investments, and others to be investigated in future studies to assess the optimal combination of these financing sources on sustainable development.

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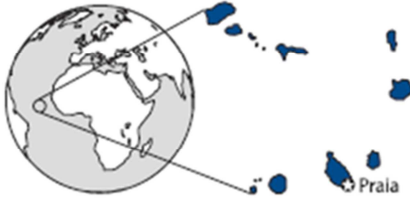
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Appendix A



World Rank: **60**

Regional Rank: **3**

Cabo Verde's economic freedom score is 66.4, making its economy the 60th freest in the 2015 *Index*. Its overall score is 0.3 point better than last year due to advancements in monetary stability and the rule of law as measured by property rights and freedom from corruption. Cabo Verde is ranked 3rd out of 46 countries in the Sub-Saharan Africa region, and its overall score continues to be much higher than the global and regional averages.

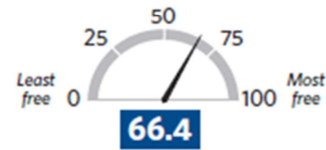
Over the past five years, economic freedom in Cabo Verde has advanced by close to 2.0 points, reflecting broad-based improvements in six of the 10 economic freedoms, including investment freedom, fiscal freedom, and the protection of property rights. In the 2015 *Index*, Cabo Verde has recorded its highest economic freedom score ever, progressing further into the ranks of the "moderately free."

With macroeconomic stability well maintained and good governance firmly in place, Cabo Verde has made notable progress in economic growth and development. Its impressive transition to a more open and flexible economic system has been facilitated by policies that promote open markets and regulatory efficiency, buttressed by a transparent legal framework that upholds the rule of law.

BACKGROUND: Cabo Verde is a stable, multi-party parliamentary democracy. Prime Minister Jose Maria Neves of the Independence for Cabo Verde Party took office in 2001 and was re-elected in 2006 and 2011. Opposition leader Jose Carlos Fonseca of the Movement for Democracy won presidential elections in 2011. The Cabo Verde islands have few natural resources. Severe droughts in the 20th century caused the deaths of 200,000 people and prompted heavy emigration. As a result, Cabo Verde's expatriate population is larger than its domestic population. Services dominate the economy, and about 82 percent of the country's food is imported. Economic reforms aim to boost foreign investment and diversify the economy.

CABO VERDE

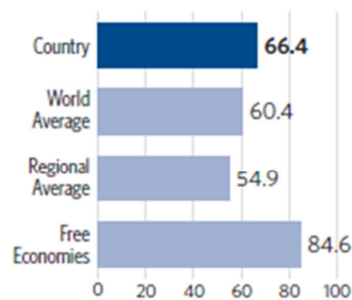
Economic Freedom Score



Freedom Trend



Country Comparisons



Quick Facts

Population: 0.5 million
GDP (PPP): \$2.2 billion
 0.5% growth in 2013
 5-year compound annual growth 1.1%
 \$4,338 per capita
Unemployment: 8.6%
Inflation (CPI): 1.5%
FDI Inflow: \$18.7 million
Public Debt: 95.0% of GDP

Figure 1 Index of Economic Freedom 2015 Cabo Verde (I)

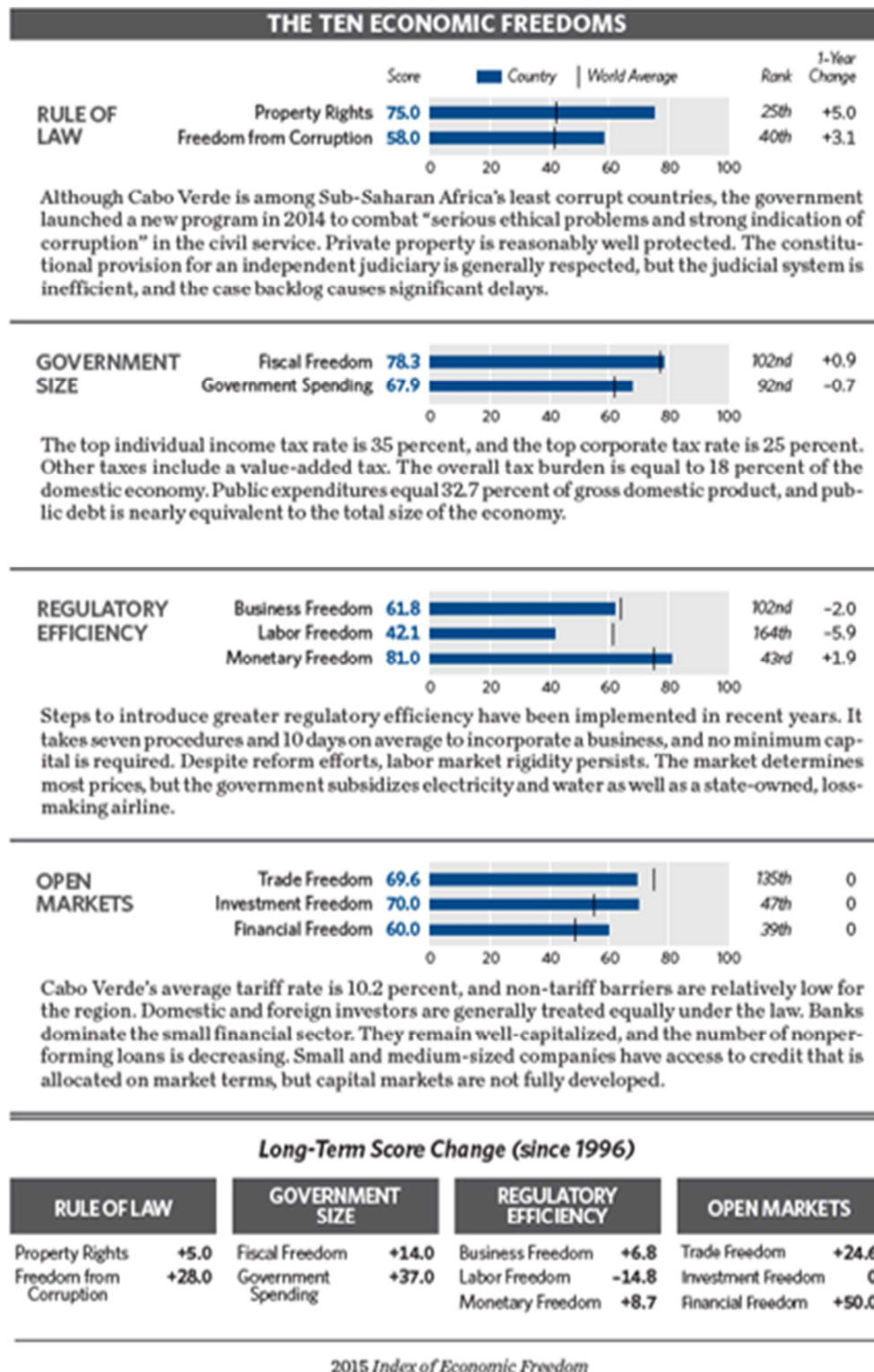


Figure 2 Index of Economic Freedom 2015 Cabo Verde (II)

Appendix B

Former Chapter VI: Reference Case Cabo Verde: Policy Implications

What to do where and why?!

6.1. Serving Culture (Morabeza)

The culture factor is incontestably to be called in economics studies when comes to development.

The composing elements of culture such as the way specific people elaborates the way of thinking plays crucial role when comes to be open, absorb and reply on the global paradigm. Values and beliefs influence interpretations of organizational policies, practices and procedures. The Caboverdean people got shaped by innumerable difficulties. As for this the awareness and understanding of hardship translates into a natural generosity composing the features' collection of this people.

The geographical insular position made of Cabo Verdean an open and curious individual. Allowing outside knowledge to be pair with inherited traditions coming from different parts of the world crowned in a proper culture to the islands.

In similarities with Omotenashi (c.f. Chap.6) element of Japanese culture, Cabo Verde has also the reputation of hosting in its own warming way and it is known under the name of "Morabeza". It is amazing how far from each other countries with distinguished course in general history cultivate same cultural aspects. Might be "island specificities". And is in one by one aspects that this particular hosting culture that the match operates.

Before going in depth regarding macroeconomic and microeconomic Cabo Verde's elements allowing the economic transformation into a KIBS economy (under Service historical progression rich in lessons), let ourselves be invited by World Bank Cabo Verde Metadata and by Index of Economic Freedom 2015 to have a picture of Cabo Verde positioning.

Long Name	Republic of Cabo Verde
Income Group	Lower middle income
Region	Sub-Saharan Africa
Lending category	Blend
Currency Unit	Cabo Verde escudo
Latest population census	2010
Latest household survey	Demographic and Health Survey, 2005
Special Notes	Cabo Verde is the new name for the country previously listed as Cape Verde. Based on official government statistics and IMF data, national accounts data have been revised from 1990 onward; the new base year is 2007. Value added is measured in basic prices.
National accounts base year	2007
System of National Accounts	Country uses the 1993 System of National Accounts methodology.
SNA price valuation	Value added at basic prices (VAB)

PPP survey year	2011
Balance of Payments Manual in use	IMF Balance of Payments Manual, 6th edition.
External debt Reporting status	Actual
System of trade	Special trade system
Government Accounting concept	Consolidated central government
IMF data dissemination standard	General Data Dissemination System (GDDS)
Source of most recent Income and expenditure data	Core Welfare Indicator Questionnaire Survey (CWIQ), 2007
Vital registration complete	Yes
Latest agricultural census	2014/15
Latest trade data	2014
Latest water withdrawal data	2001

6.2. DECRP: the National Strategy Document Service traits for a Sustainable Development

For the next lines the official strategic planning document of Cabo Verde share in own behalf information on crucial steps for the economic transformation.

6.2.1. Cabo Verde's National Agenda and Vision (GPRSP III: Strategic Agenda)

The agenda for economic change has guided the development process of Cabo Verde. The agenda provided the long-term vision on which Government policies and actions have been

sustained so far and which points to a changed economy, focused on taking advantage from Cabo Verde's geostrategic location for developing the country as an international platform for high value-added services. The agenda aims in particular to develop a diversified and productive economy by developing clusters and competitiveness poles based on a growth model sustained by the dynamics of the private sector, which will foster the change of comparative edge into competitive edge. In this framework the following areas are outlined as the ones where Cabo Verde has a strong potential, considering the position it occupies in the trade route linking the three continents (Africa, Europe and the Americas):

- ▣ Tourism: promoting high added value service;
- ▣ Maritime Economy: development geared towards fishing, transshipment of goods and maritime services;
- ▣ Aerobusiness: transforming Cabo Verde into a regional hub for air cargo, free trade zone and services provided to airlines;
- ▣ Information and Communication Technology (ICT): to attract advanced technology and especially ICT companies, which may use the country as their headquarters for doing business, particularly in the sub region;
- ▣ Finance: transforming into a financial investment service center;
- ▣ Creative Economy: service industry founded on Cabo Verdean culture, geared towards exports and promoting the brand of Cabo Verde (Made in Cabo Verde);
- ▣ Agribusiness: conducting agribusiness activities and creating agribusiness companies in view of promoting more quality production, which may replace imports, including the link with the tourism value chain, and which will create an export base for some more competitive product niches.

The agenda for change introduced a comprehensive long-term vision for the development of

Cabo Verde. Considering the potential for capitalizing on Cabo Verde's few competitive and natural advantages – large ocean, geostrategic location and tropical climate. The agenda seeks to lead the country to a modern economy, high output and service-based (c.f. Chap.III), which would require the development of new sectors of activity as the drivers of growth, considering the current small and limited productive base. Some progress has been achieved, but the challenge lies in accelerating the process of change and reform in order to trigger new competitive factors which will foster the structuring of clusters.

The Government Program of the 8th Legislature 2011-2016 , notwithstanding the constitutional requirements, was drafted with a view to accelerate the country's agenda for change. The vision of the country's development under the program framework is that to put up “an inclusive nation, fair and prosperous, providing opportunities for all”. The 8th Legislature is geared towards "building a dynamic, competitive and innovative economy, and shared prosperity". To meet this goal, the Government identifies seven strategic challenges which are intended to be resolved during the Legislature:

- ☐ To build a dynamic, competitive and innovative economy, with prosperity for all;
- ☐ To foster the private sector, investment and productivity growth;
- ☐ To promote social development and cohesion in facilitating the access to basic services;
- ☐ To build capacity and produce knowledge to foster economic growth;
- ☐ To consolidate Democracy, enhance freedoms and reinforce Good Governance;
- ☐ To modernize and expand infrastructures;
- ☐ To assert the Global Nation and develop partnerships for competitiveness.

To meeting the aforementioned challenges the Government's intentions and the commitment of the Cabo Verdean society at large is required. Considering the overall adverse domestic and external environment. This is where the GPRSP III comes in, by structuring policy

measures and programs for addressing the challenges identified by the Government as obstacles to implementing the development vision.

Cross-cutting issues also have an important part to play. Aspects like environmental sustainability related to infrastructure, energy and urbanization projects, and programs like: management of natural resources, including land, water, fish and forest is encouraged; and economic, social and physical resilience to natural disasters and climate change phenomena enhanced to mitigate associated risks (Chap.I).

Cabo Verde has demonstrated the political will to implement a “green” economy, clearly illustrated through its strong bet on renewable energies. Yet it is also faced with significant challenges: the lack of water, inefficient energy services and the need to strike a balance between natural resource conservation and the country's development process. The focus on a framework for sustainable environmental growth has already earned the close support of several development partners, including the United Nations and the African Development Bank.

Given the heavy dependence of Cabo Verde on a global and competitive market, to attract investment more than custom tax incentives is needed (c.f. Chap.V). Therefore, new components of competitiveness are of growing importance: access to export markets; knowledge and training; the existence of national skills (public and private sectors know-how) in the fields of international policies and negotiations; affordable communication and transport infrastructures (road, sea and air); loans; the development of viable and affordable information and communication platforms; and the availability of production factors, like energy and water. These are thus decisive factors in the economy's competitiveness (c.f. Chap.III).

The Government's Program calls for a trade that values national production. The projects and activities programmed in the GPRSP III for the trade sector envisage improving the legal and institutional environment, while fostering the development of an environment propitious to the

development of the commercial activities, to the sector's modernization, to reinforce external competitiveness of national companies and products in the areas mentioned before, to the diversification of markets and to trade facilitation, namely with the Economic Community of West African States (ECOWAS).

6.2.2. Growth and Poverty Reduction Strategy III

The growth and poverty reduction strategy is an instrument that is implemented by the Agenda for Economic Change. By structuring, in a multiannual framework, actions measures are for meeting the objectives laid down in the Government Program. The main goal of the Agenda and the Program is to promote inclusive economic growth with opportunities for all as the driver of poverty and inequality reduction. In this framework, job creation is vital with the private sector to be the economy's engine, while the public sector should play the part of a catalyst and facilitator of an investment and business-fostering environment.

Despite substantial efforts, poverty and unemployment remain serious obstacles to Cabo Verde. New and more efficient approaches must be found in order to accelerate growth and reduce poverty. Consequently, the strategy should present clear and focused priorities for economic growth, poverty and unemployment reduction. However, the domestic and external environment is significantly different. The resources, including access to concessional loans and grants, will not be as readily available as in the past. The State Development Aid (SDA) did indeed decrease in 2011 and the prospects of further decline are quite high. Domestic macroeconomic and social space is substantially smaller, and to achieve success a sound and innovative approach will be necessary, focusing on clear priorities.

Cabo Verde's poverty reduction strategy features the non-exclusive commitment to growth or redistribution. The single focus on growth will not turn out to be very quick and may even not

work at all. To focus only on redistribution in such a small economy like that of Cabo Verde is also unsustainable. Which means that a strong emphasis should be placed on: (i) programs and policies promoting growth within clusters; (ii) programs and policies implemented for enabling the poorest and increasing their productivity and their participation in the economy, and (iii) social programs for the most vulnerable within the society.

Table 12 Cabo Verde Strategic Matrix of GPRSPIII

STRATEGIC MATRIX OF GPRSP III

Vision: Cape Verde International Service Centre

DRIVER IN BUSINESS CLUSTERS/AREAS

Programmes

CONDITIONING FACTORS FOR SUCCESS: (Public Investment Programme)	Business Sector	Private Investment	Public-Private Partnerships
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AXES

CLUSTERS OF COMPETITIVENESS

BUSINESS AREAS

General Objective
Dynamic economy, competitive, innovative and inclusive

MARITIME ECONOMY (Fishing, Shipyards, Transshipment, Transportation, Oceanographic Research)	AEROBUSINESS (Flight Information Region, Air Transportation, Cargo and Passenger Hub, Maintenance Services)	INFO. AND COMM. TECH. (Business Process Outsourcing, Back Office and Back-ups, Call centers, etc.)	FINANCIAL (International Financial Institutions' Back up systems, Cape Verde Stock Exchange, Financial and Banking System)	TOURISM	CREATIVE ECONOMY	AGRIBUSINESS
INFRASTRUCTURING (Ports, Roads, Airports, Telecommunications, Urban Renewal, Water, Energy, Sanitation)	Broad-Based Growth Poverty Reduction	Broad-Based Growth Poverty Reduction	Broad-Based Growth Poverty Reduction	Broad-Based Growth Poverty Reduction	Broad-Based Growth Poverty Reduction	Broad-Based Growth Poverty Reduction
HUMAN CAPITAL (Education, Health, Sports, Vocational Training)	Broad-Based Growth Poverty Reduction	Broad-Based Growth Poverty Reduction	Broad-Based Growth Poverty Reduction	Broad-Based Growth Poverty Reduction	Broad-Based Growth Poverty Reduction	Broad-Based Growth Poverty Reduction
GOOD GOVERNANCE (State Reform, Decentralisation, Safety, Justice, Land Planning, External Policy, Regulation, Environmental Protection, Macroeconomic Stability, Social Welfare)	Broad-Based Growth Poverty Reduction	Broad-Based Growth Poverty Reduction	Broad-Based Growth Poverty Reduction	Broad-Based Growth Poverty Reduction	Broad-Based Growth Poverty Reduction	Broad-Based Growth Poverty Reduction
REINFORCEMENT OF PRIVATE SECTOR (Business Environment)	Broad-Based Growth Poverty Reduction	Broad-Based Growth Poverty Reduction	Broad-Based Growth Poverty Reduction	Broad-Based Growth Poverty Reduction	Broad-Based Growth Poverty Reduction	Broad-Based Growth Poverty Reduction
ASSERTING THE GLOBAL NATION (Developing Partnerships for Competitiveness)	Broad-Based Growth Poverty Reduction	Broad-Based Growth Poverty Reduction	Broad-Based Growth Poverty Reduction	Broad-Based Growth Poverty Reduction	Broad-Based Growth Poverty Reduction	Broad-Based Growth Poverty Reduction

Economic Growth and Poverty Reduction

Human Development and Social Cohesion

Cabo Verde will embark in a three-tier strategy for the development of the agenda for change. This means that the priorities will have to be set at different levels, initially among clusters and later within the clusters themselves. This exercise is necessary for identifying the value chains (c.f. Chap.VI) in the clusters where Cabo Verde has the potential to grow and which must be leveraged quickly to generate growth. By setting the priorities between clusters and within them,

the weighing factor shall be the cluster or action's potential to promote inclusive growth by creating business and generating employment.

The clusters are divided in three groups according to the country's current capacity, the international context and the capacity of Cabo Verde's private sector to foster the reinforcement of the Gross National Product. Clusters cannot be tackled only from a strictly academic perspective, but rather through a pragmatic approach of generating business opportunities which create value in the economy. Agro-business, tourism and maritime economy are the top priorities, since these are the clusters which may have the greatest impact on poverty reduction and growth generation. The second set of priorities includes the ICT and creative economy clusters, and the third financial services and aerobusiness.

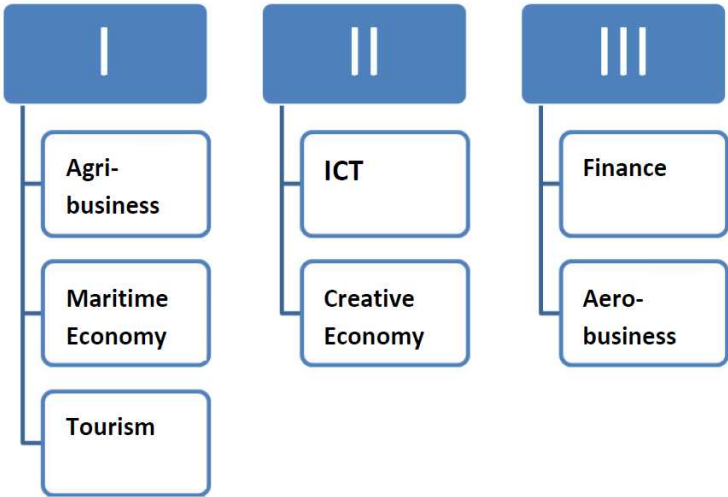


Figure 16 Cabo Verde Classification of Clusters (Source: DECRPIII)

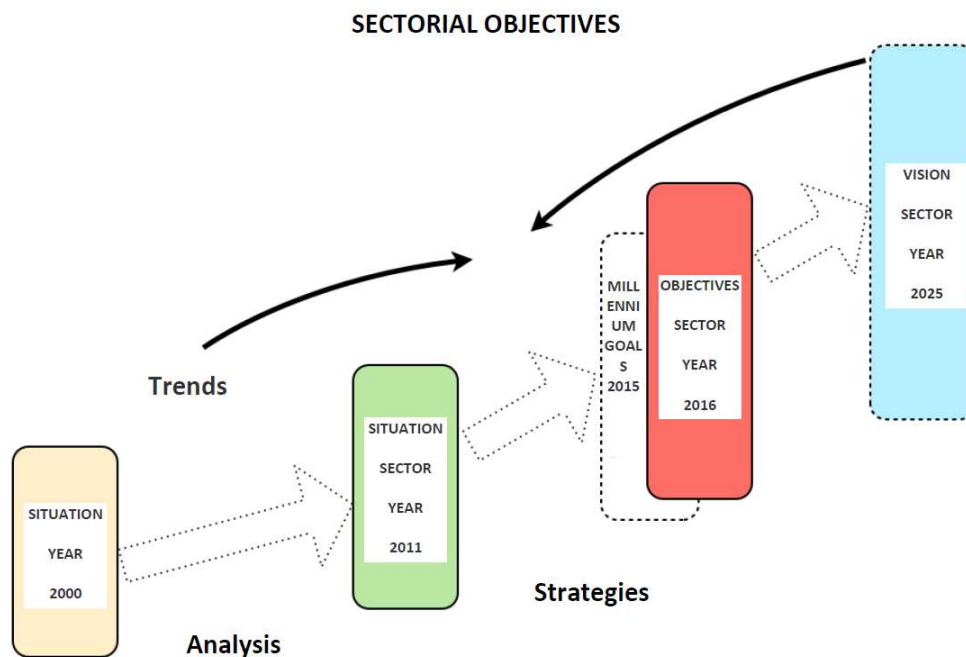


Figure 17 Cabo Verde Sectorial Objectives (Source: DECRPIII)

Due to scarce resources, the prioritization of investment is for meeting the strategy goals. The purpose is to focus on areas where the impact is the greatest and which provide the grounds for developing the other clusters in the long-term. The transformation or development of a cluster is a process that takes time. Although the Government orients its investment towards enhancing national capacity, the private sector is invited to work to create and implement these clusters. The Government may facilitate public-private partnerships where they are viable, support the development of the private sector and implement policies and create the necessary incentives, but it is up to the private sector to lead the process of business development and of the value chains in the clusters.

6.3. Clusters bold vision: Ideal Structure to stimulate Sustainable Development

Fostering growth through economic diversification

Related to the large cross-cutting reforms mentioned, the diversification of the economy through the development of economic clusters is supreme. The country intends to become a

global supplier of services with high added value (c.f. Chap.II). The GPRSP III sets the stage for outlining the vision for the clusters, setting the medium-term objectives (2012-2016) and proposing a strategic agenda for these clusters based on the review of the development context and the situational analysis. For the rest of this chapter, we will present a strategic summary of each chosen cluster for this analysis, which amount to the findings of the thematic groups created under the GPRSP III by competitiveness cluster.

In this study the focus is completely on the second set of clusters including the ICT and creative economy. For they are going straight to the encounter of the KIBS economic transformation from the ad hoc service specialization supported by the analysis here. And for logical and unavoidable reasons, the financial cluster enters the analyses as previous chapters stated through theories the very important financial contribution needed. Investment is needed and financial world has been showing great capacity in innovation as well. So the three clusters together makes the perfect picture to give birth of a KIBS economy. The chosen set of clusters exploitation carries chapter V and VI realizations according to the chosen economy features.

6.3.1. ICT Cluster: Analysis of the Current Status

Information and communication technologies (ICT) have played an important part in Cabo Verde's agenda for change, insofar as the country points to a model where ICT support the necessary reforms to foster the implementation of clusters, and in this framework it is a cluster in its own right. The country has endeavored great effort to develop ICT, and the results hereof are internationally acknowledged. The sector was regarded as one of the pillars of good governance, while driving entrepreneurship and entrepreneurial development. To move ahead with the agenda, a national plan - the Strategic Plan for Information Society (Plano Estratégico para a Sociedade de Informação - PESI) - was published in 2005. The strategic plan foresees the development of information society in Cabo Verde and provides a strategic agenda supported by nine pillars:

- ☐ Accessibility for all;
- ☐ Government closer to citizens;
- ☐ New economic opportunities;
- ☐ Improved quality of life;
- ☐ Capacity building for innovation;
- ☐ Stimulating environment;
- ☐ Leadership in action;
- ☐ Investing for growth;
- ☐ Measuring for developing.

The Government has invested significantly in developing the information society and in the growth of the ICT sector. PESI was divided into initiatives and action plans, including: PAGE – Plano de Acção para a Governação Electrónica (e-governance action plan); “KONEKTA” – plano de acesso à Internet e ao conhecimento (internet and knowledge access plan); and “Mundu Novu” education plan. The outcomes of the governance program have been impressive; e-governance tools have been developed in house, the integrated government budgetary and financial management system (SIGOF - Sistema Integrado de Gestão Orçamental e Financeira or Integrated budget and financial management system) and the local government management system (SIM - Sistema de Informação Municipal or Municipal information system) in particular.

The use of ICT in Cabo Verde as a tool that facilitates the implementation of the reform agenda has played a fundamental part in improving the business environment. The One-stop-shop (Casa do Cidadão), providing several services such as the incorporation of a business in one day, mobile government for the provision of services in rural areas, and access to civic information, has

helped improve the quality of public services (c.f. Chap.III) provided to citizens and companies, consequently drawing the State closer to the population.

Cabo Verde has earned worldwide acknowledgement of its ICTs, following the successful implementation of e-governance, which has improved continuously since the start of the PESI. Besides the achievements on e-governance, ICTs are now well integrated in schools and in the educational system, as a result of the Mundu Novu program. The following were the program's outcomes (c.f. Data 2012 DECRP III):

- ☐ Schools and training centers with full Internet access;
- ☐ Schools linked to the State's network;
- ☐ Wimax antenna network installed all over the country;
- ☐ Classroom Kits in 433 classrooms of 29 pilot schools, accounting for 94% of all classrooms;
- ☐ ICT studies included in the school curricula;
- ☐ Universities of Cabo Verde offering new Information Technology studies;
- ☐ Students of the universities of Cabo Verde with access to digital libraries;
- ☐ SIGE (Sistema de Informação sobre a Gestão da Educação - Education management information system) developed, but implemented only in pilot schools;
- ☐ SIGAE (Sistema Integrado de Gestão e Acompanhamento de Estudantes - Integrated student management and monitoring system) implemented.

The development of the ICT cluster depends, however, on the solutions devised and developed by the companies, which may be used locally and/or exported. There are currently more companies operating in the field. Some began developing applications for both the national market, and for exporting. Access to Internet has also grown exponentially, ADSL broadband and 3G wireless service has led to a quick increase of Internet penetration in Cabo Verde. From 2007 to 2011, Internet penetration grew from 8% to 30%. The rapid growth in Internet penetration was

sustained by the 35 digital public squares of the Konekta program. Growing competition in the telecommunications sector was also conducive to a drop in prices and increasing catchment.

But there are still some obstacles that must be overcome, including the high cost of telecommunications. A benchmark study conducted in 15 countries found that the weight of telecommunication prices in the average income of each Cabo Verdean is 3 fold higher than the weight for the population of Seychelles, 8 fold higher than for Portuguese nationals and 18 times higher than in the USA. These findings are even clearer when analyzed according to the sub-components of mobile phone, whose weight in the average income of Cabo Verdeans is 16.6%, and of fixed broad band, with a weight of 12.6% in the monthly income per capita. There is also a shortage of skilled workers in the sector. Training quality could use some improvement and international certificates are not widespread. Most enterprises operating in the sector are small and have limited capacity. The sector is constrained by the restricted access to venture capital and the salary cost compared to potential competitors is quite high. The biggest challenge now is to know whether the private sector can build capacity to compete in a sustainable manner, since innovation in the sector has been driven by the government agency NOSI (Núcleo Operacional para a Sociedade de Informação - Government IT office).

In summary a look over the cluster by using the SWOT analysis (strengths, weaknesses, opportunities, and threats and is a structured planning method) is very helpful and give clear understanding.

Table 13 SWOT Analysis of the ICT cluster (Source: DECRPIII)

Strengths: • Good ICT progress; • Good telecommunication infrastructures; • Good level of political involvement in the ICT sector; • Good penetration rate of mobile phones.	Weaknesses: • High telecommunication costs; • Small stakes of national companies in the ICT sector; • Small number of digital contents; • Lack of incentives for Research and Development; • Reduced investment in promoting technological entrepreneurship; • Insufficient investment in ICT and English and French language teaching; • Maintaining the monopoly of international Internet connections; • Absence of a national stimulus policy for the creation of IT businesses; • Shortage of internationally qualified professionals; • Small size firms.
Opportunities: • Consolidation and export of the e-governance sector; • Positioning Cape Verde as a Gateway to Africa in terms of ICT; • Potential for the development of digital contents for e-governance; • Strengthening the link between the ICT sector and education.	Threats: • Intense competition, • Dominant nature of large world players; • Rapidly changing market.

Over the past decade, Cabo Verde made great strides in e-governance under NOSI. The immediate opportunity is to understand how to turn new designs into a national product of e-governance (including the tools fostering citizen-Government interaction), which may be marketed in other countries. There is also the potential for developing digital contents for e-governance and e- education with a view to foster the development of a dynamic sector, which is capable of creating jobs (c.f. Chap.IV).

6.3.1.1. Vision for the ICT cluster

The ICT cluster in Cabo Verde is still at an early stage; NOSi-driven innovation has produced an impact and a triggering effect. However, there is clearly the need to build a strong private sector which can help design and develop innovative products (c.f. Chap.IV) for the Portuguese-speaking markets and other markets worldwide. Cabo Verde should position itself as an international

service providing center, hereby enhancing its geostrategic position, while tapping into its image of stability and credibility to project itself as a gateway/platform for launching businesses in Western Africa and the PALOP (Países Africanos de Língua Oficial Portuguesa - African Countries of Official Portuguese Language) countries. The following functions of the ICT sector are envisaged, which are conducive to the advocated vision:

- ☐ Revenue-generating business, and all efforts should be focused on fostering export capacity, as the national market is limited;

- ☐ A tool for other clusters geared towards the development of the country – particularly sea, aero-business, financial services and tourism – for promoting greater efficiency in the private and public sectors;

- ☐ Promoter of Foreign Direct Investment (FDI) (c.f. Chap.V), attracting companies from developed markets which intend to set up in Africa and in a highly politically and socially stable country, with a Western culture;

- ☐ Laying the foundations of a strong partnership for the development of a knowledge-based (c.f. Chap.III)economy and society, ensuring more access to information, sovereignty and technological safety, the participation of people in the development process, fostering entrepreneurship and meeting citizens' Fundamental Rights in view of achieving the Millennium Goals.

For the GPRSP III implementation period, the objectives of the ICT cluster are: to help Cabo Verde become a recognized reference in some market niches, like e-governance and e-education and mobile telecommunication; to have the ICT cluster help improve the productivity of other activity sectors, in particular for the development of other clusters.

6.3.1.2. Strategic Agenda for the ICT cluster

There are opportunities for Cabo Verde's cluster, in the global ICT market, although in its embryonic stages in commercial terms, the belief is for over time to be able to play a key part in the economic transformation of Cabo Verde. Progress, such as the one-stop-shop for several public services and the computerization of the election process, the results of which may be announced within approximately two hours after the voting procedure has ended, can become exportable goods. The private sector will play an important part, but will have to become stronger to have the support of services which may guarantee the capacity to compete in the global market.

In the long term, Cabo Verde will have to:

- ☐ Foster ICT penetration in society, by encouraging the purchase of equipment and the subscription of Internet services;

- ☐ Reduce telecommunication costs, which hinder the development of quicker access and use of ICT by:

- ☐ procuring international data services from other providers;

- ☐ reviewing the current legal and regulatory frameworks, by imposing strict requirements which ensure the availability of wholesale prices conducive to a more competitive environment;

- ☐ Support the supply of ICT vocational courses and specific training programs, introducing ICT studies in all school levels and conducting professional certification exams (e.g. Microsoft). Such support can come in the shape of advertising public policies and education grants;

- ☐ Create the conditions for the development of a culture of innovation which will support businessmen in the designing and developing of ICT ideas and projects;

- ☐ Negotiate with large international companies in the sector their establishment in Cabo Verde.

As for specific short and medium-term actions to facilitate the development of the ICT cluster are:

▣ Creating an ICT business management body

With great chances of being a public-private partnership by nature, its main objective is to strength, promote, organize and function as the national network and partnership system for the development of the cluster. The managing entity should also count on greater involvement of civil society, universities, private sector and greater dissemination of ICT, through access to information, education, professional and technological empowerment and private initiative (c.f. Chap.III).

▣ Building a technological center

The development of a technological center is currently in the pipeline. If its feasibility is proven, the center may become the driver of the development of an ecosystem of innovation and entrepreneurship, enhanced by international players, technology incubators, universities and certified education and research centers, among other stakeholders. The technological center may position Cabo Verde as a country of innovation and a regional reference in knowledge economy, while fostering the development of technology-based companies (c.f. Chap.I, II & III)..

▣ Conducting a legislative review of the areas related to the ICT sector

The legislation applicable to ICT-related areas must be reviewed, to provide the favorable conditions for attracting (c.f. Chap.IV) multinational companies to Cabo Verde and creating a healthy competitive environment conducive to the growth of the cluster (c.f. Chap.II). Furthermore, an efficient legal framework for the implementation of the information society should be developed, namely through legislation on policies concerning public access to information and on the protection and safety of personal data. Consequently, Cabo Verde may safeguard the applicable data protection and intellectual property laws (c.f. Chap.III), providing an environment which is conducive to technological businesses. It is also expected to reinforce regulation, thus offering the opportunity to develop a competitive productive fabric and making communication prices more attractive for using information and communication technologies.

▣ Capacity-building for the sector

To foster the growth of a technology-based cluster will be of little use if unaccompanied by capacity-building of the professionals who will develop it. So, due to the lack of properly qualified human resources (c.f. Chap.VI) for conducting business in the sector, measures must be taken to reverse this situation. Actions including: (i) supporting ICT education from early school years, fostering the willingness to use technological tools (extension of the Mundu Novu program); (ii) consolidating the supply of ICT studies at university level, and offering the number of vacancies required for the growth of the sector, and supplying technical and vocational training; (iii) reinforcing in the curricula the development of language skills (English and French), management and marketing skills; (iv) creating specialized training courses in leading edge technologies and in partnership with some international players, for ensuring the qualification of professionals.

▣ Developing suitable financial instruments for supporting investment

The Government must ensure the development of financing mechanisms which foster investment and national entrepreneurship to avoid good opportunities which are not fully developed or may miss the time to market. Therefore, suitable financial instruments should be created, like investment funds which allow financial resources to be matched to good ideas, in many cases kick-starting and expanding projects. This could be backed by national or international financing bodies, bilateral partners of Cabo Verde and the Diaspora , among other agents which could be interested in investing in the sector.

▣ Creating a national network of incubators

Each incubator should provide good project follow-up conditions through mentoring services, support to business planning and current management, and expediting the placing of services on the market. At the same time, the potential of networking with members of the Diaspora who have ties with ICT companies, either as business consultants, entrepreneurs and/or as potential

project funders, cannot be discarded (c.f. Chap.VI).

6.3.2. Creative Economy: Analysis of the Current Status

Cabo Verde is famous worldwide for its music, first in line of the Country's elements of Creole culture. It was one of the first Creole cultures to develop worldwide and it emerged mostly from the interactions between African and European cultures. Poetry, dance, religious celebrations, art, drama and carnival are examples of the culture of Cabo Verde, which are less well known than music. The country's cultural setting is vibrant, its people are highly creative, and many activities such as festivals and popular festivities of religious nature are held (c.f. Chap.VI).

The challenge, however, is that cultural activity was not conducive to a large economic sector which contributes significantly to growth and poverty reduction in Cabo Verde. In many other parts of the country culture became a crucial component of GDP, providing employment and a livelihood to many. The economic impact of culture in Cabo Verde, although as yet to be measured with precision. Even music, for which Cabo Verde is best known, it benefits specially other countries. Great musicians are managed abroad, where the country's cultural products are also produced and later reimported to Cabo Verde. Creative economies encompass all sectors involving creativity (either artistic or intellectual), as well as products and services for fruition and broadcast. Besides the arts sectors (music, audiovisual, performing arts and visual arts), the following are also included: telecommunications and radio broadcasting, editing (books and press), handicraft and popular art, popular celebrations and pilgrimage, material and immaterial historical heritage (types of use and dissemination), leisure software, design, fashion, architecture, gastronomy and advertising. These sectors' impact on the national economy will only be felt if they are optimized within a cluster strategy, i.e. a system which places in a network or interconnects independently operating units. This optimizes the functions and the potential of individual units, instead of only exploiting them.

The development of a creative economy which can help enhance tourism and may contribute to the GDP involves a number of challenges. Namely:

- ❑ Inadequate inclusion of culture in economic, technological and social policies;
- ❑ Inadequate legislation and regulation;
- ❑ Weak institutional capacity to articulate, implement, monitor and assess policies, strategies, programs and projects;
- ❑ Weak funding capacity both in the public and private sectors;
- ❑ Cultural agents and creative workers too dependent on the Government;
- ❑ The sector of creative economies lacks organization;
- ❑ Absence of national professional associations in several cultural areas;
- ❑ Absence of a strong class of businessmen who may work as intermediaries, like managers, producers, technicians, agents or cultural managers;
- ❑ Seasonality in handicraft production and insufficient supply for the demand stemming from tourism;
- ❑ Shortage of training institutions, promotional, export and distribution entities;
- ❑ Shortage of technical capacity at the municipal and local level.

The sectors of creative economies area disconnected: music is not linked to cinema, fashion is not linked to handicraft, editing is not linked to book fairs, handicraft is not linked to tourism. There is also the overlapping of functions currently in the cluster's value chain (c.f. Chap.VI) between tourism, culture and the country's promotion. There is the overlapping of social intervention in neighborhoods and by Municipalities and the central administration as they set a development-oriented cultural policy.

6.3.2.1. Vision for the Cultural Economy Cluster

The GPRSP III set the stage for the critical implementation in the future of a cultural industry

capable of competing globally and providing significant input to growth and poverty reduction. Progress towards high added value and a more diversified market model, which is not too focused on mass type, will depend greatly on the capacity to gear the country's cultural products towards enriching sector. The long-term vision is to build a globally competitive creative economy cluster, with a critical component of the national economy. Cultural products, especially music is extremely important for the country. The extreme importance have been self-proven by the frontiers it trespassed bigger in numbers than the country's name.

6.3.2.2. Strategic Agenda for the Creative Economy Cluster

For the development of the creative economy cluster a number of actions must be in place to sustain the sector's growth. Such strategic actions include:

- ☐ Regulating public administration activities in culture promotion;
- ☐ Introducing cultural events in public ceremonies;
- ☐ Regulating the economic activity of cultural agents;
- ☐ Capacity building of cultural agents in different areas for the incorporation of commercial undertakings and companies in the field of culture;
- ☐ Approving a legislative package for the cultural economy, which may also govern tax incentives and public-private partnerships;
- ☐ Certification of companies and entrepreneurs operating in the field of creative economies;
- ☐ Creating incentive programs for the corporatization of culture and the management of offsets;
- ☐ Promoting national and international business fairs;
- ☐ Linking culture through better coordination and institutional planning;
- ☐ Promoting events linked with cultural activities and festivals;
- ☐ Fostering arts and handicraft;

- ☐ Supporting social media by setting quotas for local production;
- ☐ Fostering cultural exports through the internationalization of local festivals and fairs;
- ☐ Facilitating vocational and specialized training;
- ☐ Setting up a sound framework which ensures intellectual property rights.

There are projects that the Government will implement in the short and medium-term. The following are the target areas in which such projects will be implemented:

- ☐ Culture Bank;
- ☐ Creative Neighborhood and Culture Houses;
- ☐ RENDA (National handicraft distribution network);
- ☐ RNSALAS (National network of showrooms);
- ☐ MUSEUS (A museum in each municipality);
- ☐ Export Bureau (Exporting culture);
- ☐ Nova Orgânica (Institutional reform);
- ☐ Library and archive systems;
- ☐ National orchestra and ballet;
- ☐ National system of artistic education;
- ☐ Heritage classifications.

Articulated then to the above clusters detailed here, is time to bring the one cluster that nurture all of them.

6.3.3. Financial cluster: Analysis of the Current Status

The financial sector of Cabo Verde is relatively small, compared to other emerging markets. The sector is, however, now developing and will play a crucial part in the agenda for change, especially in supporting the other sectors. The financial cluster may be developed simultaneously as a provider of services for export.

The reforms implemented in the last ten years lead to the liberalization of the financial market, including the development of offshore banks. Currently, the financial sector is relatively well regulated and the market environment is improving. Cabo Verde has now five commercial banks, two insurance companies and a stock market. It also has a rather large number of offshore banks, a social security fund (INPS) and parabank institutions like the SISP (Sociedade Interbancária e Sistemas de Pagamento - Interbank and Payment System Company) and Promotora. The SISP manages the ATM machines and provides payment solutions and Promotora is a venture capital firm.

The reforms conducted by the Government resulted in strong growth of the banking sector. The asset base is increasing. The asset/GDP ratio is high compared to other countries in the region. There is growing concerns regarding credit access although. The surveys conducted by the World Bank suggest that the level of financial intermediation is relatively high and much better than in many of the region's countries. However, credit to SMEs is very limited in Cabo Verde . One of the correlated factors is that the banking industry is very concentrated and dominated by two banks – Banco Comercial do Atlântico and Caixa Económica. Management and leadership structure struggle in foster competition and the regulatory environment lack focus on competitiveness. A restrictive competitive environment yet needs to foster innovation in the financial markets of Cabo Verde. Market leaders have no incentive to innovate and to discover creative ways of meeting customers' needs. The stock market is relatively new and small and is still yet to be an option for financing SMEs. There is a shortage of venture capital and only one firm is operating in this segment. These realities suggest that there are key challenges which must be redressed to ensure that the financial sector may provide support to the other clusters and become a competitive cluster on its own.

Again here the SWOT analysis is helpful for clear understanding of the above statements

regarding the cluster.

Table 14 SWOT Analysis of the Financial Cluster (Source: DECRPIII)

<u>Strengths</u>	<u>Weaknesses</u>
• Open culture • Political stability • Telecommunication network • International credibility of the financial system • Ease of creating financial businesses • Strong financial infra-structure • Banking level • Geostrategic position	• Backup services • Specialized services (legal - lengthy criminal proceedings – execution of bank guarantees, financial, business, etc.) • Guarantee systems • Weak know-how transfer • Cost factors (prohibitive telecommunication prices; electricity) • Size (Banks – limited own funds) • Narrow global vision of financial systems • Deficient/inadequate/insufficient Regulatory, supervision and stimulus issues • Financial marketing • Not very innovative market • Difficult access to public debt • Weak economic diplomacy Financial culture • Exposure to financial risk • Country risk/provisions • Absence of global strategic vision of the sector's development • Lack of tax incentives for the general financial activity
<u>Opportunities</u>	<u>Threats</u>
• Internationalization (African coast) • Diversification of financial products (Funds) • Encouraging price-based competition, fostering increase in bank capacity • Innovating financial support services (<i>Backup</i>) • Education and training • Creating a sovereign debt market • Developing a microfinance market • Nonexistence of a financial cluster on the regional plane • Updating the legal framework of the financial sector, Adjusting to the sector's needs, e.g. leasing regulation • Development of the capital market	• Sense of insecurity • Investment requirements • Vulnerability (crises, contexts, dependence, etc.) • Transnational organized crime

6.3.3.1. Vision for the Finance Cluster

Is deeply believed that for all the clusters to achieve their full potential a sound financial sector in place is needed. This is why the development of a competitive sector, which can foster a

local financial market and is compatible with growth and development is vital. Also, it is needed a sector which can compete globally with several well established financial markets, like New York, London and Luxembourg. There are several competitors emerging in the continental market, like Mauritius, Ghana and South Africa, which have progressed significantly. During the GPRSP III period the necessary reforms will start being implemented to ensure the good functioning of the financial markets, in parallel with an agenda for competing in a global market, starting with the relevant region.

The long-term vision is therefore to turn Cabo Verde into a competitive financial market at international level, particularly in the African continent. In the short and medium term, the objective is to foster better structuring, efficiency and efficacy, as well as financial system security, as the foundation for promoting the financial cluster. The objective is to position Cabo Verde as one of the safest financial markets, growing at great speed among the CPLP (Comunidade dos Países de Língua Portuguesa - Community of Portuguese Language Countries) countries and in the Western Africa side.

6.3.3.2. Strategic Agenda for the Financial Cluster

The Government embarks on a strategy for building a financial system and supporting the development of an agenda for change targeting to have a globally competitive cluster. The focus is on the policies and actions over the monetary, banking, insurance and finance areas, while tackling the challenges of developing a capital market.

Table 15 Action Plan for the Financial Cluster (Source: DECRPIII)

Monetary policy, banking, insurance and finance	Development of the capital market
• Increasing use of financial policy tools in order to safeguard price stability and balanced economic growth. • Enhancing financial institutions for extending and strengthening the financial sector.	• Ongoing development of the capital market. • Ensuring effective regulation of the capital market. • Improving investor protection.
• Improving the efficiency of the services provided by the stock exchange of Cape Verde.	• Increasing and promoting diversified investment opportunities.

Chosen the clusters with driving forces for the into KIBS transformation, it is moment to regard the labor market giving the essential input to all: Human Resource.

6.4. Entrepreneurship and Development of Service Sector in Cabo Verde: Urban and Rural Informal Sector controversy

6.4.1. Labor market flexibility

Cabo Verde did very well in the past decade in terms of reducing unemployment, as a result of the implementation of the Agenda for Change. The unemployment rate is estimated by the INE (Instituto Nacional de Estatística - National Statistical Institute) to be around 12.2% (in 2011). This rate however varies between islands with more rural population in unemployment.

Several factors explaining the persistent unemployment in Cabo Verde have been identified. Macroeconomic conditions play a key part and some of the crucial aspects include negative productivity of all factors, deterioration of the terms of trade, and negative job demand.

As concluded in a recent study conducted by the World Bank , Cabo Verde has a formal job market with varying characteristics, but on average labor legislation is considered rigid, and deters investment and, subsequently, employment. The study also mentions that Cabo Verde has a poor performance in the World Bank's Labor Market Efficiency Index, which measures the capacity of companies to increase the flexibility and manage the labor force. The index is derived from the following indicators: (a) cooperation in employer-employee relations; (b) flexibility to fix wages; (c)

rigidity in employment; (d) hiring and dismissal practices; (e) dismissal costs; (f) salary and productivity; (g) dependence on professional management; (h) brain drain and (h) female participation in the labor force. Cabo Verde is classified, when compared to other Sub-Saharan African countries: scoring 3.75 out of a maximum score of 7 and ranks 30th in a list of 35 countries.

Focusing on two indicators as examples— rigidity in employment and redundancy costs in weeks of salary – Cabo Verde's labor market needs significant reforms. Rigidity in employment is calculated on the basis of three sub-indexes: hiring difficulties, rigid timetables and dismissal constraints. In this indicator Cabo Verde occupies 43rd place out of 57 countries. Redundancy costs in weeks of salaries takes into account the pre-warning requirements, compensation for early termination, and the penalties payable to a redundant worker, in weeks of salaries. Cabo Verde is one of the countries with the highest redundancy costs. This index of Cabo Verde is 93 – which is almost ten times more than that of countries like Algeria, Tunisia, Uganda and Mauritius.

Concluding, Cabo Verde's labor legislation is among the most restrictive. Although the goal is to protect workers, excessive regulation promotes informality and fosters the hiring of foreign workers, who currently represent a significant share of the total labor force in the tourism and construction industries. Additionally, over-rigid rules make Cabo Verde less attractive to investors and inhibit the creation of jobs by domestic companies.

The country needs to conduct significant reforms in the labor market with a view to fostering job demand, reducing unemployment and making the labor market more fluid. These reforms are crucial to the extent that, considering the country's demographic structure, the labor force should continue to grow with more people joining the group of working population. However, the much needed reforms are not easy. A national dialogue should be conducted through a consultation procedure between the Government, unions, private sector and political parties in order to find the consensus which can provide the necessary support for drafting and implementing a reform

agenda of the labor market in Cabo Verde.

6.4.2. Improving the quality and role of education and training in combating unemployment;

Linked to the labor and employment market are issues of education, training and productivity. One of Cabo Verde's greatest gains has been unquestionably the bet on education. In the first years after independence, Cabo Verde embarked on the democratization of primary and secondary education. The country also invested in technical and vocational training. The supply of university education has grown and there is greater access to studies in this level of education. All levels of education, from primary to technical and higher education, are now widely available and accessible.

The success in widespread access to education has led to new challenges: quality and relevance. Improving the quality of all levels of education and enhancing its relevance is crucial for implementing the agenda for change. The quick growth achieved by Cabo Verde is largely due to capital accumulation as in other countries, which also achieved equivalent levels of growth. To maintain these levels of growth and to diversify the economy, by increasing competitiveness, the country must increase productivity. The building of a new economy based on the expansion of the productive base and value-added services (c.f. Chap.V), as targeted in the agenda for change, may only be achieved if Cabo Verde manages to supply highly qualified and productive human capital.

However, rapid growth in education supply may compromise the quality of the educational system. Only now are the quality control system and the relevant standards emerging and they were not created before the expansion of educational institutions. The certification process needs to be strengthened and so enable the setting-up of institutions with different degrees of quality. Then there is the issue of relevance tied with this challenge. The gap between the curricula and the supply of studies and market needs in the agenda for change has created a mismatch between

education supply and market needs.

As a result, companies in Cabo Verde increasingly identify labor qualifications as a large constraint. In 2009, 49.2% of companies completing a survey said unsuitable labor force hinders productivity growth. Cabo Verde has a poor performance and is badly placed in terms of Sub-Saharan and global averages: the proportion of companies pointing to labor qualifications as a constraint is 22.2 and 27.1, respectively .

The lack of qualified labor is a constraint on investments in Cabo Verde, since companies do not have the incentive to invest in countries where few workers possess suitable training . Besides restricting investment and growth prospects, unqualified labor is either used to perform low productivity tasks or is self-employment, but without the necessary management skills for successful entrepreneurship. These conditions have yet lots to do to favor the Agenda for Change.

A reform agenda included in the Integrated Strategic Plan for Technical and Vocational Education and Employment is necessary for the development of skills particularly at the level of technical and professional education, with the necessary review of curricula and qualifications. The Government has also put a lot of effort into implementing a system for reviewing the model of higher education. These efforts should, however, be accelerated and extended to the whole educational system. Quality from pre-primary to university education needs a scaling up. The focus is on guaranteeing that education and programs supplied by the educational system are in line with market's needs and the agenda for change. The Government, to that effect, shall promote the collaboration with the private sector and will change the funding mechanisms in order to ensure the suitable alignment between demand and supply and safeguard the system's sustainability. Several policy measures to tackle the unemployment issue, special oriented towards:

☐ Promoting skill development programs, especially for the more vulnerable groups. To promote employability and create a more productive labor force, skills must begin to be developed

before entering the labor market with the help of more relevant educational curricula, suitable governance structures and sustainable funding for technical and vocational training;

② Underscoring the idea laid down in previous sections, reforming labor market regulations for promoting job demand and making the market more fluid/flexible in order to produce better results for job creation, especially for the most vulnerable in society;

③ Enhancing the programs which foster the employability of the most vulnerable through better focused active policies, including employment services, intermediation and support to entrepreneurship. While some intervention, such as labor intermediation and aid to entrepreneurship, require immediate action, other, including the development of skills through technical and professional education (TPE), on-job-training and reforms of worker protection, call for the introduction of long-term merit-based assessment systems and strategic planning.

The Government also intends to expand the programs which promote education and training for entrepreneurship, especially for the younger, considering this is one of the core drivers of innovation and creating value in the economy.

Clear the mind-set for the transformation, the next section achieves the KIBS face economies like Cabo Verdean one can work for.

6.5. Stepping to Become a KIBS Economy

Service-based economy generally and regional economic development particularly see the internationalization and the entry modes as reasons for firms to take advantage of spatial differences. In regional economic especially, the growth is taken through different levels of analysis. Economic geography focused in why firms choose various locations or why specific locations develop competitive advantage that can sustain or attract firms in the area.

Internationalization process is managed and conducted in relation to strategic considerations of the firm.

Micro, meso and macro levels in studies of location dynamics have shown that regions have been put forward as the engine of economic growth involving the creation of regional innovation systems and learning capabilities (Asheim, 2000; Rutten and Boekema, 2007).

Creativity as a driving force for regional economic development needs the study of the concept of talent, technology and tolerance (3Ts) while stressing the importance of urban regions (Florida, 2002). Having the 3Ts regions would be able to attract firms to relocate or upgrade their current operations shifting regional competitiveness. And empirical data from studies of the changed industrial structure shows the combination of knowledge intensive services as an evidence. Implications for regions wanting to attract the creative class, and for firms to formulate strategies intended to utilise locational characteristics in host-markets.

The pace is very rapid and in order to position itself it is need to understand the leading forces behind the changes based on the circle interaction between place-people-firm (Strom and Wahlqvist, 2009) in a conceptual framework combining theories developed in the literatures of international business and economic geography.

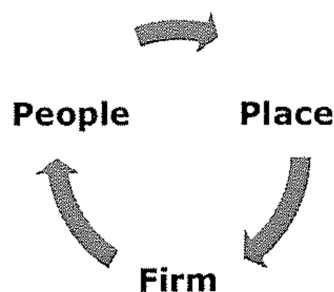


Figure 6.1. Circle Interaction between Place-People-Firm (Strom & Wahlqvist, 2009)

Adjustment have occurred to the country's economic structure in order to respond to global

changes as shown by the section about DECRP.

The economic transformation has involved a reduction in labour intensive and low skilled activities and growth in creative and knowledge-based industries. A high proportion of skilled and educated people will not per se be sufficient to keep up in the international competition between regions and countries as companies search for new and suitable locations for their knowledge-intensive processes (Bryson and Rusten, 2006, 2008).

Knowledge accumulates and agglomerates at different places over different times, being differently important for various corporate activities. Policies involving and facilitating close co-operation between academia, business and local government need to be worked out.

Spatial dimension in the analysis of the globalisation of capital, goods and knowledge to map out foreign direct investment (FDI), for example, on the temporal spread of multinational firms or to identify the geographical determinants of strategy still need further research.

In descriptive or normative approaches the focus on firms and international business rely explicitly on the location aspects of international production, together with the ownership-specific and internationalisation-specific advantages, well-known as the eclectic paradigm of ownership, location and internationalisation (OLI) model (Dunning 1989, 1993, 1998, 2000; Dunning and Lin, 2007; Dunning and Lundan, 2008).

Location as a strategic tool in overall value creation by tapping into various knowledge pools or centres of excellence is fully used by firms.

Research on current innovation has at least three characteristics in common with economic geography theory (Porter and Solvell, 1998): to reduce technical and economic uncertainty; to interact with outside parties; and to have the face-to-face contact for trust and tacit knowledge. These three points come all together in agglomerations of various kinds like clusters (Cabo Verde structuring strategic choice).

Globalization eases the diffusion of knowledge overriding the local-confined knowledge and innovation process (Porter and Solvell, 1998).

Specialized know-how can be hard to transmit over distances without placing it in its local context. An important connection to the strategy since the economies of scale are no longer seen as the most important factor for achieving competitive advantage. Instead, more dynamic aspects, like strategic decision-making, R&D, design and knowledge are becoming more important, and are often embedded in a few important clusters or specific locations.

Location-bound assets became extremely crucial. Clusters with special characteristics will be of great importance, together with governmentally created location advantages. It is precisely what in the section above the Cabo Verdean context fixes own strategy.

Tacit knowledge and clusters with sector-specific attraction (Malmberg and Maskell, 2002; Gertler, 2003; Strom and Mattson, 2006) under governmental influence, in other words business-oriented approach allows to create and sustain innovative clusters and stimulate the growth of new companies, and also attracting existing multinational companies.

High knowledge content services are put forward as engines of regional economic development (Wernerheim and Sharpe, 2003). Organizational forces create shifts in a process where actions variates through policies. Is a must to sustain competitive advantage and at the technological cutting edge it is yet more in order to have a market share.

In the geographically connected value chain (Coe et al., 2004; Dicken, 2007) the emphasis on the approach of the global production networks (GPN) rewrite the sort of dependence links that can be created.

The educational level of the work force is now considered even more important than the pure capital investments (Malmberg and Maskell, 2002). Between push-and-pull factors the need of local understanding by high knowledge content business services define the selected location.

Therefore firms want to tap into specific agglomerations of knowledge. Strategic positioning can be described in the following way: “many services are a result of changing strategies concerning holding versus buying knowledge, and different types of services. In fact, due to scarcity of available labour resources, firms are now using mergers and acquisitions as a way of obtaining the necessary staff for their projects. Furthermore, the boundaries for sourcing services are not limited to national borders” (Hermelin and Rusten, 2007). Example is the consultancy tool, in this manuscript chosen economy reference (Cabo Verde), should be used as framework to genesis alternative activities on the third sector as the continuous investment on education shall harvest fruitful results.

“A static approach is ill equipped for dealing with firm origins, the increasingly varied sources of competitive advantage, and the motivations and pathways of globalization and international expansions” (Mathews and Zander, 2007). Today the advantage of technological opportunities and existing contact networks allow to rapidly internationalise. Firms can be “born-global” due to their specific characteristics (Johanson and Vahlne, 2003; Knight and Cavusgil, 2004). To be successful is a question of “discovering, integrating and adapting new business ideas into the structures and networks of the global economy” (Mathews and Zander, 2007). Above all the location choice is influenced by specific reasons such as clusters of fellow nationals or friends.

Questioning the embeddedness, KIBS or the cultural or creative industries, connections to global knowledge pools through “global pipelines”, of communication and knowledge sharing are of great importance to sustain competitiveness (Bathelt et al., 2004).

Again in creative industries like art, entertainment and music, very important in Caboverdean culture, is where the creativity is the value adding activity in business process (Florida, 2002; Scott, 2004). They appear to fit many of the aspects that the new theories of internationalization stress in terms of the importance of place and the interconnectedness to

related sectors and knowledge networks. These industries are examples of how global connections with firms, placed and specific people can drive internationalization and enhance competitiveness.

Firms' sensitiveness to the change in and the underlying reasons for regional economic development, put a light to existing risk that they could make mistakes impacting their long-term competitiveness.

Conceptual framework based on literature review and theoretical discussions list six important concepts for an integrated approach as this manuscript defends from its beginnings: shifts of powers; choice of production alternatives; speed or pace of development; complex agglomeration advantages; and position in space.

Timing and planning make possible to handle competition on talent.

“The shifting balance of powers between multinationals and states as well as other geographical units, the growing significance of quality of place due to the complexity of value chains and conditions to attract creative and talented labour, the new formations and geographical patterns of production, and the accelerating pace of corporate internationalisation and operations as well as in geographical agglomeration, all come together to form new practice – the way firms and regions choose to act or develop in order to stay competitive, based on available knowledge and potential option - and strategy implications for regional policy and location/internationalisation of firms” (Strom and Wahlqvist, 2009).

People belonging to highly specialised firms with high value-added activities might be more willing to pay for excellent know-how and capabilities that are only to be found in certain locations. The individual became the central source of economic growth ousting the firm. The capital of the future is the creative individual. And in creative milieu investigations are outstanding ones. Three forms of creative milieu (Tornqvist, 2004): geographical, institutional and networks, which differences are illusory once the real source for creativity is the actual people. In the creative age,

the creative class people are furthermore said to be more loyal to their cause and calling in life, rather than to the company or place. Multinationals employ engineers based any and everywhere when they search for skilled people located in emerging markets. The possibility for firm start-ups and entrepreneurship along with these people allows to create endogenous economic growth in combination with the relocations into different regions.

Place can be perceived to be an attractive for creative people if opportunities for meetings to occur to facilitate communication. The attention directed towards competition between places is growing and affecting local and regional policy-making around the globe. That is how the increasing importance of branding places to attract attention (Anholt, 2007) to fuel the “brain circulation” versus “brain drain or gain” (Saxenian, 2006) for places. The local presence to be able to build long-term market share or just trying to tap into local agglomeration advantages without focus of local cost structure in the first place.

Production changing pattern context shows how production can be connected to place and sometimes difficult to separate. Innovation is “locationally” embedded and is built on knowledge tradition. The notion of interconnected global networks is then important when local settings build the internationalisation strategy. Firms become geographical agents under multiform approach embracing both material and sociocultural aspects. Agency structures as well as the social and cultural, and economic dimensions in the knowledge-driven economy sounds to push regions to create local endogenous growth instead of being reliant on global value chains that are controlled by actors located in other regional economies. Seemingly to find the proper balance is the key.

Pace through which multinationals accelerated the speed in strategy decision-making, localisations and operations, the importance of place has increased, whereas the importance of distance appears to have diminished. However rigidities still exist in the system that can limit pace. The development of place-based pools or islands of special competences is built on a long history

of activities which develop under completely different “pace” conditions compared to multinationals and often involve technological shifts and longitudinal changes (Lundquist et al., 2008).

Power as an important consequence of the new patterns it needs a brand new balance. Former position and sovereignty of national state has been challenged and altered (Dicken, 2007). Regions need to attract and retain competent and creative people, which in turn will attract knowledge seeking multinationals to locate there. We witness new determiners of rules.

Practice under new forms influence people-place-firm in different ways. People with the right set of skills help to form the attractiveness of place (Florida, 2002). Companies need to constantly evaluate their practice in order to best utilise specific location factors in different places (co-operative approach). It is the active work of political, academic and business actors that forms the quality of place that is necessary to attract specific industries and sustain long term competitiveness.

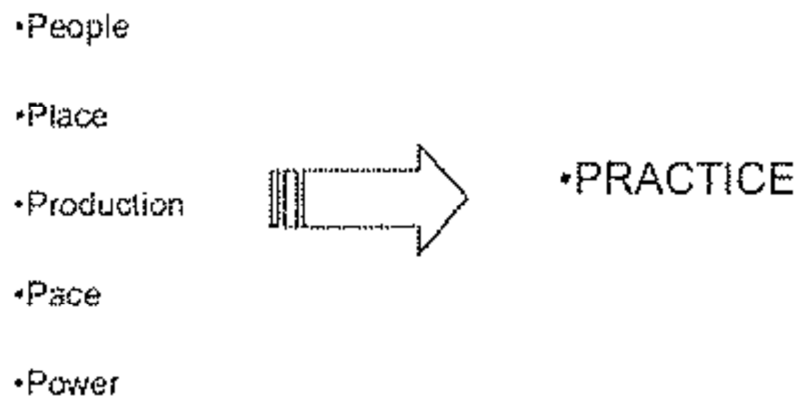


Figure 6.2. Combined Conceptual Framework (Strom & Wahlqvist, 2009)

The combination of the international business theory with economic geography theory to understand the contemporary conditions for competition in the light of knowledge-based economy has created a more holistic picture explaining the circle of interactions place-people-firm. Conceptualising the global economy as creative-intensive or service-based economy continues apace updates the transformation every sized economy, especially the small ones carried by this manuscript. The new power relations make the regions that attract, a lot or less, value added production to have alternatives in the competition. Thanks to the place-people-firm combined conceptual framework it is comforting to witness Cabo Verde managing to specialize in services. Making use of its “Agenda of Transformation” (literally translated from the name in Portuguese) in one of the most reputed version to conglomerate it all: Clusters (ref. Silicon Valley); the place, calling for people carrying the knowledge commodity that will enable to build up firms inputting

for the desired sustainable development. The economic behaviour of Cabo Verde through the structural changes it is operating thanks to ad hoc policies. The proof of the focus that the country is making the need moves so in the future it will promote a Knowledge-based economy.

Appendix C

English version of the questionnaires belonging to the Chapter III.

Questionnaire submitted under Chamber of Commerce of Kyoto advice

Objective: find out the genesis process of the provided service as original idea.

Data: Chamber of Commerce of Kyoto innovative service entities

Definition: new services come from business opportunity depicted from users' decision to allow third persons to serve them as an economic activities.

Dependant variable: innovative service

Independent variable: kind of need; operational means;

Analysis: measurement and decomposition

Outcomes: point out skills, qualifications, organization, labor conditions

Trajectories of learning in practice-based innovation: organizational roles at play in sustainable innovation and innovation management.

Motivation: "Black box" of sustained innovation Increasing demand for sustained (radically) new services in all sectors;

Sustaining of innovation as collaborative learning capability is still a black box – new theorizing and managerial frameworks needed (e.g. Grossan & Apaydin 2010).

What and with whom are the practitioners learning when they co-create and sustain co-created value?

Results: basic learning trajectory of innovation (derived from data, inspired by theory of expansive learning – Engestrom 1987).

Phase 1: recognizing problem/opportunity: practice-based emergence and recognition of motive, relations and capabilities related to available opportunity for innovative solution;

Phase 2: trialing, expanding: practical integration and configuration of innovation-related opportunities, relations and actions from multiple actors in local context;

Phase 3: sustaining: adoption or transformation of successful solutions, models and practices/relations for sustaining, re-innovating and diffusing the new use value (innovation).

Service providers

- Identification and Institution for registration

Data: Numbers and figures – employees, “tranche de profit”, turn over, rate of fulfillment, etc.

- Questions

1. When was the moment of “declic” (point de basculement) for your decision to carry the idea of such service as business?
2. What were and are the reasons supporting the choice of such activity?
3. Describe the activity in few words.
4. What are the quality parameters enlighten by the service?
5. How pragmatically can the service be reproduced by other service providers?
6. How is the user/consumer feedback regarding the service?
7. How often could the user/consumer feedback nurture improvements to provided service?
8. How the collaborative learning capability is supported in the organization?
9. What is the “life expectancy”, the sustain strength this precise solution (provided service)?
10. What are the motivations for further innovation?

Interview grid submitted to MEIJI and respective delivery service users

General Information concerning Identification and Choosing New Service

Service Provider:

I. Describing the activity

The activity:

. How to describe in short terms your activity? Denomination (Corporation)?

. What are the elements composing your activity?

The work place:

. What are the spaces used for the activity?

. How is it structured (mono site, multi site, etc.)

The work force:

. From where

The Costumers:

. How many clients subscribed for the new service?

.How big is the area covered by the service?

II. Novel Generated Service

Which is the most innovative branch in your activity?

Which are the regulations and constraints related to your new service?

III. Evolution and repercussion of Novel Generated Service

General questions:

. What were big evolutions in your kind of activity that influence new services to come out?

- . What could change in your kind of activity stimulating new services to come out?
- . What can be constraining new services to appear in your kind of activity?
- . How are decided big changes allowing new services to be generated in your activity?

Directive questions:

- . How do you develop new services?
- . How can be explained the raise on demand for the new service?

Service User:

I. General Information concerning Identification and Choosing New Service

1. How have you discovered this service?

2. How would you measure the novelty (degree) of this Service?

1: not important

2: less important

3: neutral

4: important a bit

5: very important

3. What pushed you to choose it as alternative?

4. How important you think feedback from users is for providers generating new services process?

1: not important

2: less important

3: neutral

4: important a bit

5: very important

5. Why would you advise using this new service?

Appendix D

List of the countries appears in the International Panel Data for R&D and Innovations on Tertiary Sector's *Performance* and Its Contribution to the World Economic Growth

List of the 82 countries appeared in the table 1.

Albania	China	Estonia	Indonesia	Luxembourg	Netherlands	Rwanda	Switzerland	Venezuela
Algeria	Hong Kong SER, China	Ethiopia	Ireland	Macedonia	Norway	Senegal	Thailand	Zambia
Australia	Macao SER China	Finland	Italy	Malawi	Pakistan	Serbia	Togo	
Austria	Colombia	France	Japan	Malaysia	Panama	Singapore	Tunisia	
Belgium	Costa Rica	Gambia, The	Kazakhstan	Mali	Paraguay	Slovak Republic	Turkey	
Bolivia	Croatia	Germany	Kenya	Mexico	Poland	Slovenia	Ukraine	
Brazil	Czech Republic	Greece	Korea, Rep.	Moldova	Portugal	South Africa	United Kingdom	
Bulgaria	Denmark	Guatemala	Latvia	Montenegro	Puerto Rico	Spain	U. S. A	
Burkina Faso	Ecuador	Hungary	Lesotho	Morocco	Romania	Sri Lanka	Uruguay	
Chile	Egypt, Arab Rep.	India	Lithuania	Mozambique	Russian Fed.	Sweden	Uzbekistan	

List of the 54 countries appeared in the Table 3

Australia	Colombia	Gambia, The	Japan	Netherlands	Singapore	Thailand
Austria	Croatia	Germany	Kenya	Norway	Slovak Republic	Togo
Belgium	Czech Republic	Guatemala	Latvia	Pakistan	Slovenia	Tunisia
Bolivia	Ecuador	Hungary	Malaysia	Panama	South Africa	Ukraine
Bulgaria	Estonia	India	Mali	Poland	Spain	United Kingdom
Burkina Faso	Ethiopia	Indonesia	Mexico	Portugal	Sri Lanka	United States
Chile	Finland	Ireland	Moldova	Senegal	Sweden	
Hong Kong SAR, China	France	Italy	Morocco	Serbia	Switzerland	

List of the countries appears in the International Panel Data for Increasing product variety and innovation in The tertiary sector: impacts on economic Growth Country name

1 Austria

2 Belgium

3 Bulgaria

4 Central Europe and the Baltics

5 China

6 Cyprus

7 Czech Republic

8 Germany

9 Denmark

10 East Asia & Pacific (excl. high income)

11 East Asia & Pacific

12 Europe & Central Asia (excl. high income)

13 Europe & Central Asia

14 Egypt, Arab Rep.

15 Euro area

16 Spain

17 Estonia

18 European Union

19 Finland

20 France

21 United Kingdom

22 Hungary

23 Italy

24 Japan

25 Lithuania

26 Latvia

27 Macao SAR, China

28 Moldova

29 Netherlands

30 Norway

31 Poland

32 Portugal

33 Romania

34 Serbia

35 Slovak Republic

36 Slovenia

37 Sweden

38 East Asia & Pacific (IDA & IBRD countries)

39 Europe & Central Asia (IDA & IBRD countries)

40 Turkey

41 Ukraine

Appendix E

United Nations Small Island Developing States (UN SIDS) Program

<https://sustainabledevelopment.un.org/topics/sids>

