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Enhancing Operational Efficiency through Integrated Service Models: A Framework for Digital Transformation

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Abstract

A wealth of new Integrated Service Models are being developed, making the systems and services world increasingly complex. This Integration allows designers to rethink systems and services, enabling the implementation of more effective and efficient processes. Integrating systems and services is seen as Vital for greater Operational efficiency and improves Business-Vulnerability, Effectiveness and Efficiency significantly. Business-process Integration is enablers of Operational-excellence.

Systems that efficiently integrate data, processes and people can be found all over the supply chain. Fully Integration of Supply-Chain systems and Business-process integration offers the opportunities to solve inefficiencies at the roots. System Integration is a challenge with many consequences. Integrated systems consist of components that are unified into a larger-optimal system. These components consist of, and are driven by a 'intelligent' hybrid & Cyber-Physical-Systems paradigm that are communicating & coordinating. CPS offers access to Inventory, Processes, Logistics, ICT and End-users resources & systems, processes and services.

This connectedness empowers the systems with smart-ness and optimization capabilities. Concepts & Tools for System Engineering, Design Engineering, Process-Management, and Optimisation Engineering may all contribute to System Integration and improve both Operational-Effectiveness and Operational-Efficiency substantially. Goal of this generic model is to perform the key steps of the System Integration process: requirements, conception, structure, input-/output, processes, tests-building, collaboration, dimensions, scope and boundaries and risks. With a number of evaluations, feedback-loops and reflection-tools opening the System Integration process to broader input and Personal/Team-/ Social-'looks' at the current and future Systems, Processes, Challenges, Options and Opportunities.

The hot topic of real-time automation and management improvements in Supply-chains processes is examined involving integration data- and process-systems. Achievements and deliverables have been introduced forming a start for the next rounds of System Integration and the Challenge of added complexity of business-processes and their integration. These challenges are studied and The challenge of aggregating Local-testOutput, Ways-of-working and System results up-scaled to Industrial-level Lab Results is explored, both concept-, infrastructure- and changing and scaling business-wise.

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1. Introduction

All organizations in contemporary society, both profit and non-profit, are being confronted with increasing demands of and expectations for value-in-use from their stakeholders. Many organizations are attempting to enhance their competitiveness by reshaping their operations capabilities and improving operational efficiencies. Past understanding of productivity in service operations generally pointed to lower costs per transaction for a given level of value-in-use, typically seen from service applications such as self-service and computerization. A narrow view of operational efficiency, focusing on one or a few elements of the value-in-use proposition, such as cost, quality, or speed, is a common pitfall observed. As competitive emphasis shifts to a much broader range of offerings, this view may challenge organizations' ability to grasp the full systemic approach to operational efficiencies.

Fig 1: Digital Transformation Framework

At the operational level, the critical concern on cost containment typically gives rise to a multitude of quality issues. A rigid structure characterised by obscured ownership of tasks along functionally segregated hierarchy leaves many tasks rigidly outsourced to other departments. Procedures have to be followed to the letter, irrespective of the context; inappropriately implemented procedures and protocols slow the problem resolution process. A plethora of customer steps to deal with encounters serviced by multiple contact channels today exacerbated the situation. In this disintegrated setting, over-emphasizing transactional expenditures leads to narrowed effectivity, measured in productivity on a limited range of performance factors − hardware, software, and both direct and indirect community costs associated with managing and sustaining the contact channels.

It is no longer sufficient for organizations to match their services to a predetermined configuration of service activities developed from conjectures and statistical modeling. Instead, they must align their supply with their markets through full integration of both, embodied in complementary assets both tangible and intangible, such as customer bases and know-how. Service offerings can be increasingly tailored to each context through interactive systems that rely on both human and machine capabilities; and competitive advantage can be sustained through drastic modularisation processes involving deconstruction-reconstruction of existing resource pools into service logics of service components. Care must be devoted to driving for coherence across the entire value-in-use

chain, otherwise the gaps in specifications or internal supply may lead to a poor service, with damaging consequences. Alternatively, there may be such an intricate combination of human and machine components that neither managers, nor employees, can really tune into it.

1.1. Background And Significance Modern manufacturing enterprises are confronted with a changing environment, with strong advances in communication and information technology, increasing competition, and external pressure from customers and governments to reduce costs, lead times, and operational disturbances. In addition, physical products which do not need frequent change provide little incentive for customers to trade in their current product for a new one. The natural consequence of these developments is a growing need to provide new product-related services and to provide better services. However, many popular service ideas such as customer service, service-oriented organizations, and "no more complaints" do not account for the logical or technical constraints of the production and delivery of services. Today's increased focus on services leads to organizations and managers losing sight of the production and delivery details, and this causes poor service in practice.

The production and delivery of a product is concerned with the process by which the product is produced and made available to the user, while service delivery is concerned with the process by which service requests are received, interpreted, scheduled, and managed, before the service has been delivered and directed towards the user. The traditional view of services is that 'the customer is part of the production process' and continuous interaction between operations and customers is the market to market the service. Service-Oriented Architectures (SOAs) harmonize these two views and seek to decouple the service provider from the service user and make them work together in completely different environments. However, SOAs and standardization of services are not panaceas. Several trade-offs, such as simplicity vs. complexity and price vs. lead time, still need to be addressed.

Equ 1 : Operational Efficiency Equation

$$\mathrm{OE} = \frac{(R + Q) \cdot A}{C}$$

- **OE**: Operational Efficiency
- **R**: Resource Utilization Efficiency
- **Q**: Quality of Service Delivery
- **A**: Automation Level
- **C**: Operational Costs

2. Literature Review

Based on the management literature examined, two classes of articles dealing with operational efficiency and integrated service models have been developed. One class involves articles that pose a general positive view of integrated service models with respect to operational efficiency. This is evident from the exploration of frameworks for evaluating the efficacy of service strategies

across industries. The management literature makes a systematic connection between service based business models and mechanisms leading to operational efficiency. A second category consists of articles that describe contextualization of deployment of the service modelling frameworks, generating a more nuanced view of the capability – operational efficiency connection. This is illustrated with examples from product service tiering by high tech firms, and the evaluation of current operational efficiency of space services. The second category of articles brings out operational inefficiencies in the deployment of service models, organizational challenges, and design elisions, some of which do not accrue solely as contextual issues but are problematic in and of themselves. In this learning journey, it would be important to keep a sustained engagement with both categories of articles. That would lead to an understanding of integrated service modelling as a two sided coin, where an integrated and nuanced understanding of opportunities, but also limitations, do exist.

The reviews indicate a growing interest in integrated service models across sectors, providing traditional goods manufacturers with new opportunities to differentiate their offerings. The literature reveals a primarily positive view of integrated models in offering firms with preservation of margins. However, with scale, value co-creation affordances of the integrated models come under stress, jeopardizing pursuit of operational efficiency. A second contribution is an expanded view of operational efficiency as the desirable consequences of integrated service models, presenting a taxonomy that distinguishes between efficiency outcomes and contingencies of their autism. The meta analysis leads to a comprehensive overview of facilitators and inhibitors of capacity generation and utilization efficiencies.

3. Understanding Operational Efficiency

The challenging task of translating operational efficiency modelling from bespoke automobile production lines into more amenable Operational Efficiency applications (OE) is described in this paper. After describing interviewed experiences of best practices in organisations around the world, measures to enhance operational efficiency in different organisations should be examined. Once an integrated service model is established, industry, trade, and professional technical cooperation of OE models can be implemented more readily and effectively.

In the last decades, services have become more and more important in both developing and developed countries. Services account for more than 80 percent of the employment and around 75 percent of the Gross Domestic Product (GDP) for many developed countries. In recent years, there are more reports that services are also becoming more important for many developing countries. For example, in the past ten years, India has been successful in transferring call centre services and IT services to itself. In Asia Pacific, enhancing service competency is one of the major economic development strategies for many countries including Japan, Korea, Taiwan and Singapore.

While such developments benefit developing countries, service quality and production efficiency are believed to be major environments for services to survive. Research is still needed to assess whether production efficiency modelling can be transferred to OE modelling. In the early 50s,

production efficiency models were designed for analysis of processes used in mass production of automobiles. These models were eventually successful in understanding its best practices. Nevertheless, OE organisations are often labour intensive and perceived much less tangible than production agencies. After decades of development, traditional production efficiency modelling is still bespoke and therefore unsuitable for OE organisations.

To address the pressing task of translating OE modelling from best practices of bespoke automobile production lines into more amenable OE applications, operational efficiency is briefly explored first. After identifying contained elements based on best practices in the World class of these organisations, efforts in enhancing operational efficiency in organisations should be illustrated. These elements and efforts are key references to developing an integrated service model. It is believed that once an integrated service model is established, international industry trade and professional technical cooperation of OE models can be implemented much more readily and effectively.

Fig 2: Operational Efficiency in Manufacturing

3.1. Definition and Importance Integrated service models refer to the use of integrated service systems as a means to provide a service that meets the needs of the customer. A service is a "major" service, which refers to a system of service delivery and consumption. A service is defined as a service model when, regardless of the mode of provision, the nature of the service is utterly changed when it is provided in a different setting.

A model is a representation of an underlying system that has similar behaviour to that system under specified types of manipulations. This definition allows for a consistent distinction between the service itself being a model or being a service that has something to do with a model, with both cases being models in an operational sense. The service, by virtue of its nature, instantiates a model of an underlying system that is not the service. When a service is provided through a service model, then the meaning and nature of that service is utterly changed when it is provided through a service system, regardless of the mode in which the service is provided.

Employment, accommodation, bookkeeping or any other work may be carried out by humans, machines, mechanical devices or some combination of these. The appearance of the work may be similar but its nature is utterly different given the mode of provision. The term `integrated service model' refers to a model of service delivery that by virtue of its nature changes the service being

provided when it is viewed through a different service model. Service models have previously been investigated in order to understand how operators design their services to contain a combination of modes.

3.2. Key Performance Indicators Companies that deliver services to their customers have invested substantially in service quality-enhancing initiatives, such as training of service-related personnel, development of operational procedures, initiatives to improve service delivery technologies and enhancement of customer relations. Each of these is expected to enhance service quality, which is generally considered to be the most important factor in competitive success in the services sector. The average annual capital expenditures for enhanced service quality associated with these initiatives over a 10-year period could be well above 20% of the service component of the company's operational budgets. Yet, comparatively little investment has been made in developing the ability to assess improvements in service quality resulting from these initiatives.

In practice, assessing the influence of a newly introduced training program on service quality is extremely difficult. In-service data may not reveal sufficient information about the service's evolution. This is particularly troublesome in the service sector, which accounts for more than 60% of the added value in the economies. Success in this sector depends heavily on the competence of the service personnel and/or the development of operational or delivery procedures, which is often unknown. Consequently, there is growing interest in the development of performance measures for these mechanisms that can be more efficiently assessed using a combination of operational data-acquisition systems.

Determining appropriate performance measures is of paramount importance, in which the service processes available in the services literature will be useful. However, a service process is only one of the operational capacities controlling service quality in a service delivery outcome. Because a service situation typically involves operational mechanisms of customer-induced variability, well-designed service processes are not guaranteed to yield high service quality. The service delivery situation has to be considered, in which the customer-involved variability together with the service process constitute an integrated service delivery system or model. Suitable point measures of the proposed integrated service delivery models are discussed as Key Performance Indicators or KPIs to assess and monitor service quality. An empirical application in the post transactions service of a consumer electronics retailer is presented, showing the feasibility of the proposed framework in practice

Equ 2 : Digital Transformation Impact Score

$$\mathrm{DTI} = \sum_{i=1}^{n} (T_i \cdot I_i)$$

- **DTI**: Digital Transformation Impact
- T_i: Technology Integration Index for process i
- I_i: Improvement Coefficient from integrating tech in i

4. Service Models Overview

Understanding how to satisfy the users' needs is essential for service providers. Traditionally, service provision is seen as a transaction between one service provider and one customer. If a single service cannot be provided with one single service, then a collaborative service composed of services from two or more service providers is provided. This service is called a collaborative service. The collaborative service's provision and usage involve more stakeholders than the traditional case, which raises many new issues and challenges when developing and supporting collaborative services. A lack of an adequate approach to business process modelling of collaborative services. The current approach to business process modelling assumes that all processes related to the same service should be consistent. This assumption is valid for a service itself but is not applicable to a collaborative service. Indeed, as stated in the definition, a collaborative service is a service provided by two or more service providers. According to this definition, two or more service processes are associated with a collaborative service. The processes must be consistent to ensure that the envisioned service can run as intended.

An illustrative example of the necessity of constraints on data and processes is provided. Data constraints are needed to ensure that data produced by the process of the service provider can be understood by the process of the service provider. A data constraint occurs between the two service processes. In this case, the constant value produced by the first service must be the same as the initial UTC time of the second. This assures that both processes can exchange the same data and is classified as an equality constraint. The two service processes might be designed in such a way that the second process cannot read the time produced by the first process. However, for the collaborative service to satisfy the users' needs to ensure correctness, service processes must be consistent. Many issues are not just a variant of service modelling issues arising when two or more service providers jointly provide a collaborative service. There is a lack of adequate models of collaborative service at the informational level. As a result, collaborative services have been implemented by ad hoc solutions that do not provide users with a clear picture of who does what when.

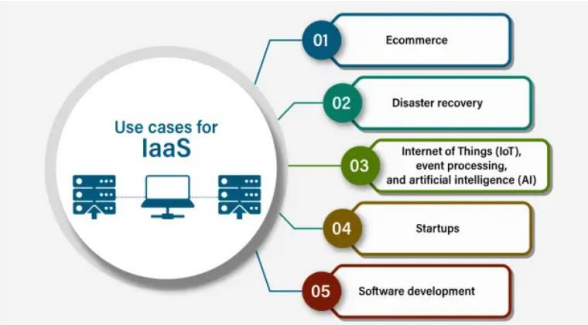

Fig 3: Cloud Computing Service Models

4.1. Traditional Service Models

The traditional service models developed over the years, that have now spanned the industry and gained acceptance and recognition in the Logistics and Supply Chain domain, can be classified as follows:

Basic Service Providers • The basic service providers are focused on cost reduction and are transactional in nature. • They provide a narrow range of services to customers covering only 1-2 normal Logistics areas such as Transportation and Warehousing. • These are outsourcing firms addressed as either freight forwarders, third-party warehousing and storage providers, transportation carriers, etc. • They are primarily concerned with providing limited spot-transactional or service-niche-based activities that can be filled via tendering processes and bids. • The pricing mechanism is transactional in nature that is focused on fixed rates and variable costs, Bonuses, and Penalties depending on satisfaction scales are the performance measuring approach.

Third Party Logistics Providers • The third-party logistics providers are due to increasing complexity, higher costs, and rising volumes of logistics decision-making and optimization efforts. • They have emerged in various forms such as big integrators, consultants, and dedicated firms. • They typically encompass integrated transport networks, Information technology, and supporting packaging services. • Their logistics services are comprehensive, multi-functional, and scalable in nature across various levels of complexity. • The pricing mechanism is based on cost-plus margin with fixed and variable rates for specific services. • With such providers, customers can buy levels of additional enhancing capabilities, hope to leverage an already created investment in provider-firm infrastructure, and can afford multiple options for different logistics activities. Helps in transitioning from asset ownership to outsourcing with lower Capital Expenditure and Operating Expenditure costs.

Lead Logistics Providers • The lead logistics providers or 3PLs manage complexity concerns and take care of the daily planning, execution, and control of the logistical services' sourcing. • Their pricing is based on the promises where fixed, and variable costs are linked to the customers remaining dedicated to a certain period of time, hence contracting with higher penalties. • Here to take care of multi-firm aspects some third parties manage overlays of the many first-tier subcontractors.

4.2. Integrated Service Models Individual services are hardly worth sustainable success on the market. The scenario of a customer spending highly on an extra service with once-off effects without any attraction to return to a higher value service within the scope of the service model is unlikely to happen. In an integrated service model, service providers could mobilize the strength of collaboration in order to offer services with added value to individual customers from the ground including two or more services, and to increase their chances to return to some other services of any service provider within the model. The value of integrated services is adjustable over time with evolving changes in norms and assumptions, diversity among service providers and customer needs. In order to ensure the timely delivery of a consistent integrated service, constraints on data and processes are emerged in order to ensure consistency of data and processes between service providers. Moreover, the day to day operation of the integrated service should be attended and supported through the lifecycle of integrated service: Monitoring the collaboration of service providers during service execution, detecting the intention of a service failure, warning the service providers to collaborate in a timely manner to address the risks of a

service failure, and also the shared strategies to resolve the risk together. Though integrated services are valuably designed and profiled, the ability to digitally represent the designed services in high fidelity, in order to execute it properly is critical. A two-step service profiling procedure has been proposed, including key elements of process modelling, data modelling and service modelling preliminaries capable of ensuring the feasibility for integrated services to be offered on the market. The service profiling process is to be implemented as a process-centric web service prototype, which is able to ensure the interaction of a service provider's communication platform with the service profiling tool and the service repository. The amount of generated profiling data by service providers is intended to be minimal as only one-time service preconditions and exclusively relevant business settings will be highlighted in the service considerations.

4.3. Digital Service Models Contemporary rapidly-evolving environment demands the need for companies to follow the latest trends in adopting new technologies that enhance operational efficiency. Digital technologies, especially, have become prevalent across the world, altering the traditional way of services. On the one hand, they dramatically change firms' internal processes. For example, service organizations employ digital technologies to enhance service efficiency and reduce operational costs through automation, robotics, and so forth. On the other hand, digital technologies are employed to provide new interactive channels between firms and customers. As becoming more and more common in everyday life, these digital service channels capitalize on the increasing implementation of smartphones, wearable devices, and other touch points providing a large amount of data about customers' actions and preferences. It can involve new service delivery/design processes or improved customer experience through direct interactions during service delivery or by means of interactive self-service technologies. Furthermore, new channels provide opportunities for service firms to enrich the customer experience by investing in augmented/virtual reality elements or providing immediate assistance through customer conversation bots. Other emerging technologies, such as data analytics, artificial intelligence/machine learning, and blockchains, do not have a direct interaction with the customer but are employed to support the understanding/interpretation of customer data and, thus, enable insights-driven preventive and/or personalized service provision. Alongside the provision of new service channels, the explosion of data about services implies a substantial change for service firms that makes it possible to elaborate advanced service models. The co-evolution of data, customer-centricity, and technology is leading to the rise of new digitally-embedded service models that capitalize on Big Data and Analytics, making it possible for firms to augment or personalize their service provision.

5. Framework for Digital Transformation

Digital transformation calls for redesigning the business and operating models of organizations to execute a new strategy that pursues new customer-facing, customer-experience-enhancing opportunities and new operational efficiencies. More than just a technology play, digital disruption is a full-scale organizational transformation—business context, thinking, behavior, organization, roles, processes, people, and technology. To operate and execute a new business model requires a

radically different operating model — business architecture to orchestrate and structure the business components. Organizations undergoing digital transformation realize that they need both new capabilities to execute the new business model and new structures to configure those capabilities differently. But both capabilities and structures need to be holistic. New structures call for new capabilities — structures that can't make decisions, can't mobilize capital, and can't deliver a customer experience need to embed those capabilities, and capabilitization can give rise to new structures. Organizations will have to create a comprehensive framework of operating model constituents — new and changed processes, organizational structures, roles, measures, and technology — connected in a "therefore" way. Indeed, there's always a reason why a given capability A exists, that therefore requires structure B. Structure F may need to change and new structure G created, a dot that isn't in the operating model yet. Process A, in turn, might be needed to drive inter-structure behaviors in a new way and help structure G accomplish its task. Clearly, addressing operating model constituents in a piecemeal way can lead to a mismatch of shapes and relationships.

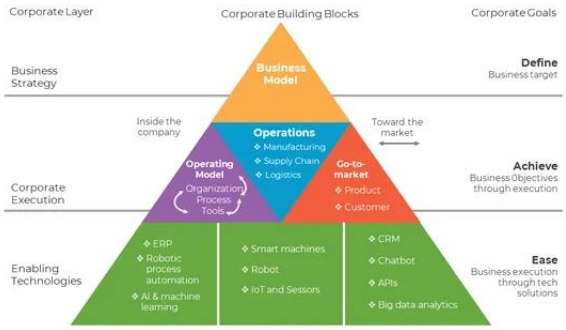

Fig 4: Digital Transformation Framework

Despite this recognition, organizations still tend to focus on either capabilities or structures, not a connected framework. Those focusing on digital capabilities miss out on how existing structures dive down specializations and silos, traded for leaner, faster, more contextual operating models and networked capabilities. The emergent, behavioral side of designing a framework is likely to be neglected too. Habits of thinking and of behaving don't change spontaneously — they are not part of the body, so to speak. A collaboration to co-design one framework needs to be done and managed carefully to take different worldviews into account and achieve the "one shared entry point." The important norms of that collaboration must be established to align assumptions, abstractions, and languages and to engage different, less experienced participants actively.

5.1. Components of the Framework The creation of a framework to guide organizations in the aligning and integrating of the various service delivery components is a very challenging yet important endeavor. While the business model canvas is an excellent template for spelling out the business perspective of an organization or company, it is not equipped to deal with the service delivery perspective whose co-creation requires all four perspectives of services more or less simultaneously. An integrated service model can be laid back on a service delivery canvas that consists of six building blocks or constituents. The adaptation, elaboration,

and implementation of a service delivery canvas are very relevant as the lack of models and frameworks to guide public organizations in the integrated co-design and co-delivery of services and the systemic transformation of their service delivery systems is widely acknowledged.

Using the fact that many public organizations deliver services that consist of a heavy online i.e., digital front stage and a manual backstage, can be argued that good service design needs information on and understanding of, on the one hand, the service delivery components that create a service experience and an integrated service model that represents the constituents and their wholes. On the other hand, on the providers' side insight of the digital extent and expertise, budgets and workforce needed as well as legal requirements and implications is needed. Also improved offerings, imbalances, and formal and informal contracts between departments and locations should be brought into the picture. Simultaneously conducted addressing of both the lecturer and provider side is called a service delivery canvas or SDCanvas in order to indicate both the service delivery experience and the framework that consists of the same components under other names. Such a saliency focus point modeling abstractly the whole and not the dissected components supports mutual understanding and a more thorough discussion than model-to-model interaction.

The SDCanvas prospective service delivery model subsequently can guide the greater onboarding and steward engagement setting out the service potential. Based on the outcomes of the onboarding, the provider side service delivery systems under the responsibility of a director can be represented in a transparent way. This provides and is thus indispensable for the integrated co-design of a service delivery system, definitions of its (sub)systems, agreement on the interfaces to other systems, and the delivery of a service experience as a whole rather than a series of separate fragments. A mature ISD, i.e., co-designing of integrated services through mutual understanding of the whole and parts by various stakeholder groups is pivotal for a public organization to achieve a high, encompassing, proactive, client-oriented digital service level.

5.2. Implementation Strategies Joining the trend of the global tourism economy, Portugal is now one of the most important inbound international tourist destinations in the world. The development of Portuguese tourism is closely related to environmental sustainability. With plentiful geographical and cultural resources, tourism plays a pivotal role in driving economic growth, creating jobs, increasing national income, and improving the regional standard of living. However, tourism should be developed with caution. Nowadays, the Portuguese tourism industry is facing challenges arising from over-exploitation of the environment and infrastructure inadequacy after excessive prosperity. Therefore, it is essential to adopt a reinterpretation of limits concerning the carrying capacity of stocks and flows to enhance operational efficiency in light of sustainable development and integrated service models.

This section starts with a discussion of the current phenomenon of tourism, drawing on the experience of Portugal which aligns with the current widespread metropolitan development, in terms of impacts at the destination level. The concept of sustainable development is then elaborated, focusing on environmental constraints posing challenges to tourism development, as widely acknowledged by the tourism academic community. A specific kind of sustainable

development that can help improve global liveability in the context of the climate crisis and biodiversity fragility, together with a structuration method that can catalyze sustainable development in the case of Portugal, is then extrapolated. An analysis of the Portuguese tourism industry will later underline the relevance of this system as a case study in the context of global sustainable development.

The South European region has witnessed a rise in metropolitan vision, especially with the advent of the second home market. The urban water-fronts in such a context have been largely hiped by real estate developers and new urbanism planners, transforming the formerly informal economic system into a formal one and converting cheap factories into posh cafes, sophisticated museums, and the like. As low-income residents flow into periphery areas, the region becomes gentrified, bringing new investments at the cost of displacing original residents. Through narrative portraiture that contextualizes multicultural poetic frames, the original styles and functions of the emerging tourism cities are recovered. Drastic changes in land use and social structure are addressed through a history-scape analysis of the closing of a former industrial fleet on a backyard of the Seine and the discontent of a socially marginalized sector.

Equ 3 : Integration Efficiency Function

$$\mathrm{IE} = \frac{S \cdot C_s}{1 + D}$$

- **IE**: Integration Efficiency
- **S**: Service Standardization Index
- **C_s**: Communication Synchronization Level
- **D**: Degree of Process Duplication

6. Case Studies

This chapter showcases successful case studies from leading companies in terms of pivotal service development or enhancement. It also elaborates on the lessons learned, categorizing factors leading to success or not into “foundational”, “domain-specific”, and “exogenous” types.

The first case study discusses the predictive maintenance strategy in a Pulp & Paper making company based on the new service knowledge and business model context based on leading and lagging indicators. An enhancement of the basis service offering with predictive maintenance was propelled by a twofold strategic vision. On the one hand, it reframed customer understanding from equipment-centric to operations-centric with renewed key needs feeding a new service innovation process, which was both bounded by and designed with new service model archetypes. On the other hand, it entrenched needed infrastructure and competencies, by extending/transforming/divesting existing ones. Thus, new offerings were developed by redesigning existing service innovations as well as new innovations fitted to the reshaped business model context. Consequently, the offering’s endogenous and exogenous conditions and the resulting implementation process were detailed. The case study highlights that a pre-emptively planned strategy enabling organizational co-evolution of business model, services, and

infrastructures appears critical to overcome service development challenges, thereby ensuring operational efficiency in a competitive growth-oriented environment.

The second study focuses on a direct-selling health products company which decided to provide its sales agents with a new service offer. The case study details the new service knowledge and business model context shaped to launch the offering, namely coach offer and business model. The new services were developed based on a reframe of the sales agents and their business with the company, which generated new key needs not satisfied by the existing offering. Although these needs were found not domain specific, they exceeded the dominated company configuration of ability- and maintainer-based services. New service innovations complementing the operated offering were thus down streamed. The offering and its fundamental rationale were developed, as well as the needed infrastructures and competencies aligned. Thereafter, the running new offering was analyzed. Its relatively slow assenting was attributed to its complexity and the deficiency of service architecture, spillover, and effort strategies. It was concluded that a company adopting new servicing needs must also adopt the underlying business model settings. Otherwise, some of the intended co-benefits are negated, adversely affecting the offering loyalty and company competitiveness.

6.1. Successful Implementations Developing a standardised process for the submission of service requests to the single point of contact (SPOC) for each service is a key challenge. In practice, a service request is the mechanism around which access to, and the delivery of IT services occurs. The transport process is a component of service request fulfillment. There is also a need to ensure that business cases for the implementation of new or amended services are written by the business and not IT. This is a key requirement of the integrated service model and would provide the single point of contact with information around which that service could be built.

Linking that prioritisation to an assessment of operational risk would be critical to consider in such an operational environment. Further expansion of the service quality mechanism is also recommended, to probably include things such as a monthly service and performance review similar to that for the integrated service model, formalised surveys to obtain user feedback on perceived levels of service quality, review of incident notes to identify trends and "things that need to be fixed". For performance monitoring ITIL covers most of the requirements. However, ensuring the right infrastructure is in place to extract information on all aspects of the service is significant. It is suggested that current means of data capture and reporting are reviewed to identify efficiencies.

There is consensus around both the understanding and need for continual service improvement (CSI). Integration of a seventh card in the service management board (SMB) was suggested, addressing things such as new tools and processes. This has been in place at a high level for many years but needs to be expanded to something more formal at an operational level. The relationship between technical and service delivery leads is also a concern, suggesting a need to assess who makes the final decision on where a call is routed. Operationally there are many overlaps, the norm

being for service delivery managers to make that decision on the floor. The recommendation is for those individuals to make the decision by discipline area rather than on a more ad-hoc basis.

6.2. Lessons Learned Integrated service models hold great promise for improving operational efficiency across the various functions of a business. However, like any big initiative, they take time and investment to be successful. The key lessons learned from the experience to date with the integrated service model implementation in global service processes and administrative processes are:

First, take the past experience of setting up shared services as a starting point. The initial integrated service model in the global service processes was built to upgrade the past experience of shared services in certain use-case areas. There are similar challenges to handle, including data standardization, governance, work transfer management, solution design, and operational tooling. Thus, it is helpful to ensure the dedicated team has enough experienced players in these areas before embarking on the detailed design.

Second, avoid an unrealistic go-live model with too large of a scope. The large scope applied during the first wave of the global service processes resulted in an extensive work transfer span with no prior opportunity to test and review the holistic four-pillar service model. The knock-on effect is that an enhanced go-live supporting phase is needed, consuming a lot of extra effort. In hindsight, lessons learned from this first wave could have provided invaluable advice if the scope of the first go-live phase had been less than a half-year scope.

Third, expect the developing countries to be more challenging than the developed ones. From the two administrative service processes initiatives, it is clear that while deploying new integrated service models in the developed countries is relatively smooth, the roll-out in the developing countries, especially those with an extra high degree of variance, poses a lot more challenges and takes more effort. Moreover, even in developing countries, there is a diverse development gap among them. A flexible trade-off between timing and thoroughness should be well-balanced when prioritizing the roll-out in these developing countries.

Fourth, initiate a future-oriented service model to ensure proper sustainability. After an adopted global service model is implemented, the topics of sustainability and constant improvement become a focus for the service areas where the integrated service models are implemented. The design of future-oriented service models that ensure the right way of working is in place is crucial. This primarily includes the definition of sign-off and approval rights, alert escalation channels, and the evolution structure of the service model.

Finally, embrace the shift of primary stakeholders. Before the take-over of the service execution, the primary stakeholders are mainly the original process expert/transactors from the business areas. After the ownership is transferred, the transition is not only a transition of responsibility but also a shift in working culture and mindset of accountabilities to a common ownership of cross-business functions. Therefore, this shift should be purposely encouraged during the initial phases of the service area handover and proactively monitored afterward.

7. Challenges in Implementation

In developing integrated service models understand stakeholders and their role(s) from different perspectives. Stakeholders will have some form of expertise(s) in connection to the service type. Since stakeholders have perspectives on both internal and external forces, leverage stakeholder expertise in developing the integrated service models. This could help better inform the definition of the integrated service models. articulate potential barriers to operate the integrated models. Since integrated service delivery is a change from the culturally established provision, resisting change in legacy approaches is very likely to happen. Model applications present a change management plan for introducing, implementing and sustaining the integrated service models. All staff recognise the purpose of the models, see the importance and how they contribute to secure funding and ensure sustainability.

A change management strategy is vital in successfully implementing any change or new initiative following the diagnosis of organisational readiness to change. Realigning and redefining a new workplace environment and culture takes time. They propose a six-step change management strategy that can be adjusted to suit the specific circumstances of service delivery in that it can be used as a guide for moving stakeholders from the current state to the future desired state. Develop urgency to change and reconsider business-as-usual. Accept a need for change and articulate a future vision of integrated service delivery as the catalyst for change. Establish a coalition to drive the change agenda forward. Form a coalition of individuals with the authority and influence to drive change. Communicate the case for change and demonstrate how business-as-usual is no longer tenable. Regularly communicate the case for change by adopting multiple approaches and mechanisms, involving the entire workforce. Define a clear vision of what integrated service delivery will mean in practice, and develop a series of operating principles or behaviours for all. Develop simple messages that encapsulate the vision for the future and what this means for people in their day-to-day work and Reinforce and reward compliance with integration behaviours. Establish mechanisms for measuring compliance to the operating principles and behaviours, and celebrate examples of success.

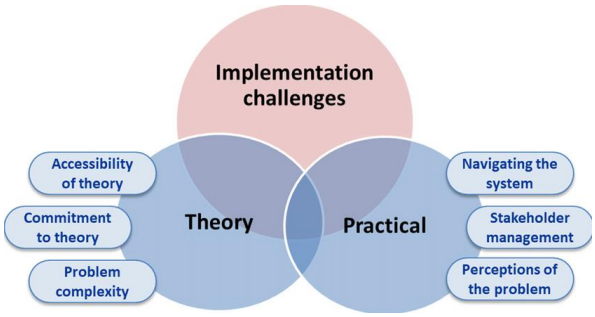

Fig 5: Implementation challenges

7.1. Organizational Resistance Organizations are social structures created by individuals to pursue collective goals and have their own culture, formal arrangements and especially stakeholder interests to contend with. A key task of management is to pursue

organizational objectives while balancing conflicting interests. However, alarms are raised when tension for a possible or imminent change in that prevailing order is detected. In these moments, the proverbial “resistances to change” leaps to the forefront. A major preoccupation of the organization change management literature has been to make sense of, portray and importantly “overcome” such resistances. The construction of the expert manager as the one who has the intelligence and influence to see the change vision ahead, and chastises the ignorant and stubborn employees, not to mention others in the management hierarchy, is certainly part of this.

The change in literature reveals counter-resistances. Change agents may ignore, evade or misuse insights from classically unwelcome constituencies. Ongoing conversations around interests, aspirations and above all the power for outcomes can get ill-timed in the view of a desired moment for decision, endorse a decision diverging from interests, be poorly regarded, pursued for banal purposes and lead to cynicism or inertia, ceremonies or battles, and above all further changes in counter-expectation. In managing the unexpected with a stake in the organization, change might be “overcome” but poorly and with too many problems for all involved. Managers and employees alike may be magnified by the predicaments of wielding, and being wielded by, powerful abstract discourses beyond their reach.

Change may fall short in pursued directions. Change management may visit counter-resistances in a low-key, consultative role, reminiscences of possibly welcome prospects and actions within policy, absorbed in re-workings of cultures, interests or power. Organizations may find that key parts of a pursuit are impossible, undesirable or in hunger of adjustment beyond anything previously conceived when a change towards them breaks out, and what was supposed to be an acceleration may now require a radical distillation.

7.2. Technological Barriers Data security and confidentiality concerns present barriers to integrated care innovation. Issues relating to privacy and data security arise mainly from differences in data ownership, and divergent corporate and professional cultures. Concern about the commercial use of patient data drives the caution of some providers. Staff shortages, and fear of the use of data against them, for example regarding productivity, create disaffection. Security measures are often seen as hindrances to innovation, creating frustration among providers, although they are acknowledged by managers as essential. For some the solution appears to lie in relaxing security arrangements for research purposes or data sharing. The solution for this barrier to innovation is not in weakening security systems. Rather, processes can be established that ensure data security while allowing the needed innovation.

Concern about data security and confidentiality can limit the utility of currently available information and communication technology in as well as between organizations. The development of integrated information systems is seen as a core prerequisite by both managers and providers. Yet getting to an interoperable system at an inter-organizational level is not simply a technological challenge; it is also a linguistic challenge. Limited technology functionality affects integrated care activities in many ways. After neither a common language or shared identifiers nor an integrated

care model or work process were agreed upon, and specialists had refused to translate their language of no-shows into interchange standards, the escape hatch of faxing is now seen as 'a far better solution' than anything the systems could provide, and is too well entrenched a service to be easily changed. Even the best will in the world is not enough to overcome such formidable hurdles to innovation and change.

User-centered design approaches can generally address usability challenges. A range of usability challenges, spanning multiple users and functions, detract from the ideal information flow. Constraints on interoperability led to disjoint systems, which users often found inefficient, while existing systems sometimes did not or only partly fit user workflows. In one case, threat modelling was evaluated to improve a system for reporting domestic abuse, with a positive response. In another case, hospital-based nutritionists, dietitians, and social workers had tools that did not effectively integrate different components, hampering many users' previously seamless workflow.

8. Measuring Success

To measure success, the initiatives of each of the four areas of improvement should be measured against the forecast of metric improvements. Each metric should have at least one element of success, specified at the time of forecast, that should be measured. Gathering data-even if only estimates-of the current metric should ultimately be undertaken to compare against future values. Success should be celebrated, not only to recognize the good work that went into achieving it but also to encourage more of the same behavior in the future. It should be noted that success will not likely be absolute. Some initiatives do not work out as planned; success will come in different degrees. The existing integrated service model may still be good, but less so than when first implemented. Measuring success helps to identify where improvements are effective, want-to-be effective, and not so. Success should also be approached with an awareness that the world is ever-changing. Ongoing initiatives to develop across all four areas of potential improvements may need to be revised over time. The specific measurements and metrics that are proposed as part of the initial suite should be regarded as heartbeats, not rigid steel rods. In general, and at least in theory, whatever is measured can be improved. However, the emphasis on data-driven decision-making leads to a belief that exposure to hard data will cause improvement on its own. Data, alone, is insufficient for improvement. Goal-directed action based on the data is essential, but this goal is often pursued without any real understanding of the process organization needs to follow to achieve it. The steps that must be hard-coded into the organization to achieve the process are often overlooked, given the short-term orientation of all organizations which almost universally shapes current business management philosophy.

8.1. Quantitative Metrics

The new integrated service models for fire and police protection must lead a crisis prevention spectrum. A set of quantitative metrics is proposed to assess and evaluate efficiency. It could be used by decision-makers to identify the scope of improvement options. The tactical and operational efficiency metrics are illustrated. The matrix of analysis is presented by suggesting quantitative metrics as well as a potential range of implementation efforts. Possible applications of the analysis matrix are outlined.

The models are adopted in the form of operating principles for a transformation period regardless of the scope of improvement options. Even though there are no changes in the company structure, they may lead to more sustainable long-term development. The efficiency indicators are not only for assessment but also for fostering innovation culture. The measures lead to a quick decision-making tool for managers and operational team members. The indicators are framed to be simple enough to use and to ensure partial oversight on operational efficiency. The cornerstones of the models and metrics are customizable for the pre-defined application period or specific operational units.

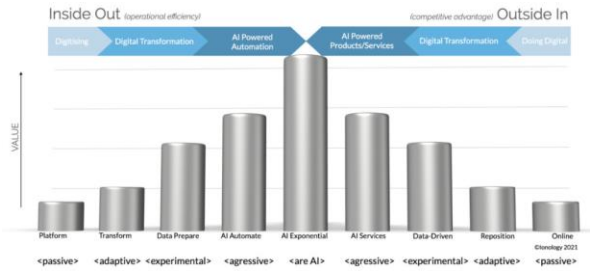

Fig : Digital Transformation Framework

8.2. Qualitative Assessments Service Modelling in a Distributed Environment. Alternative service configurations are suggested and their cost implications are discussed via generic graphs that illustrate key ideas, Identifying Local Efficiency Standards. Peer Commentaries. Measures are proposed. Conjectures are hypothesized and illustrated via formal results. Qualitative service quality indicators are assessed against enterprise-wide environmental and demographic characteristics. An appropriate formulation of addressing service quality issues in general is suggested and illustrated via low-cost options that deploy existing resources.

Service E–Business. A figure of merit is proposed with a banking application discussed. Transparency/Ease of Use Beliefs. Evaluative measures of the perceived overall user service quality are suggested that are generalizable across organizational environments. Measures of the Effect of Input he could make In studying the effect on planting a non zygotic hybrid fish, as some methods eliminate zygotic hybrids, it would be useful to investigate the potential of the behavioral ecology of the species and whether, given a pelagic fish like an alosa, the shape of life history/use covariance in a new environment could make them prone to a reduction in fitness. Another avenue of exploration is the potential of hybrid escape to alter gene frequencies in the wild stocks and assess this in the context of both stocking operations and the gene flow from wild fish to farm stocks.

Input Quality/Caught Fish. A theorem on fish health is outlined. Measures and implications of boats following biological postulates in generating echolocation-behavior ratio decisions would reinforce the above issues. Trade-Off in Efforts in Hutchensian Fitting. A multi–factor adjustment formula is suggested and discussed, Nonlinear Multi-Objective Adaptive Selection. An original extension of pole path methods is proposed. Deploying multimedia or other sources for conflicting goals would be an interesting case. Dynamic Aspects in Forecasting. Using autoregressive

switched models of multi-objective non-linear time series would reach extreme solutions as qualifying environmental change phenomena forecast discrete control rules. Fish information theory/environmental units could also add to the explanatory framework of oscillations and chaotic growth structures in data.

9. Conclusion

Logistics outsourcing is becoming increasingly complex, with deeper business involvement and longer-delayed rewards for benefits from outsourced logistics processes. This means that in-depth understanding of the logistics discipline and the cost entity has to be developed in-house. Logistics outsourcing can no longer be optimized but has to be synchronized, and the logistics managers know their business better than an independent provider can. However, irrespective of involvement upstream, provider-integration would always be necessary to be in business. In this scenario, the position of the logistics service providers comes under threat. The position of the freight-forwarders would increasingly come under threat, by virtue of what is happening in the telecom industry. There is hence a need to analyze and grasp the significance of the developing scenario.

The key to successfully outsourcing logistics processes lies in a strategically-fit design, which reflects a preferred operational model that is holistically supported by a design approach embedded in senior management. Further to be successful in operating the design, deep logistic capabilities, access to required technologies and information systems, and an effective march infrastructure are required. Finally, low cost and excellent service provider-selection control are crucial to ensure the maintenance of the transportation provider-position. With the above design, operation, and controlling requirements satisfactorily fulfilled, logistics outsourcing would become the most effective approach of sustaining the competitiveness of the main business-line in the international arena. Striking example-provision is illustrated along with the supporting capacities, but commercial sensitivity precludes detailed revelation regarding actual firms.

The logistics outsourcing industry is presently vulnerable to the outside world and an irregular environment. The industry can be divided into 4 parts, namely, Insourcers, Foundational Outsourcers, Lead Logistic Outsourcers, and 3PLs, by virtue of the increasing depth of business involvement and the scope and other operational complexities. There are also many other service-providers filling the cracks between the 4 parts mentioned above. Flexibility and IT-dynamism are prerequisites for sustaining and growing in middle to large outsourcing contracts. It is preferable, but not essential, that the bigger service-providers be financially sound and globally present. Emergence and development of the integrated service-models is likely to substantially change the operational-environment of the logistics outsourcing industry.

9.1. Future Trends

An underlying premise of many discussions is that healthcare systems across Europe are currently undergoing considerable change. The nature, causes, and details of these changes vary significantly across Europe, regionally, nationally, and locally. However, several drivers are common in all European countries. Changes in societal demography and health status, new technologies and treatment modalities, a new focus on quality, the rediscovery of customer and patient perspectives, and e-health opportunities and

threats are some examples of these drivers. When put together, they have significant implications for the future organization, operation, and management of healthcare. This article aims to paint a picture of future trends in healthcare, with emphasis on how such developments influence the design, operation, and adoption of healthcare facilities. The healthcare system across Europe is currently undergoing considerable change, with changes in scientific, societal, and healthcare policy domain. The role of the customer, patient, and public has changed, exemplified by the dualization of health insurance schemes and the emphasis on health promotion, quality of care, and service-oriented thinking. Closely linked to these changes are developments in technologies, care procedures, and the provision of and access to information. Research suggests that at least ten other healthcare trends can be distinguished: The shift of cure to care, the emergence of medical systems (rather than organisations), an emphasis on natural care or supply-chain care, a healthcare "industry" focus, a new form of patient liability, the emergence of systemic solutions, new production paradigms such as mass-customization, the use of alternative providers and treatment models, the further economic integration of Europe, and the emergence of "holistic" and "customer" thinking in healthcare provision. Since these trends are not independent of one another, they will additionally bear a cumulative effect and possibly acceleratory developments.

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