

Kotitori: The Service Integrator Model for Home Care

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Abstract

One of the drivers on the cost inflation in modern health and welfare systems is ageing. It is amplified by the fragmentation of care into narrow specialties that while failing to cater to whole-person needs also increase costs. To counteract these trends, elderly care needs to move from institutional to home care. This, however, requires service integration at the patient level. Service production systems need to be constructed with this end in mind. This article describes an experiment, Kotitori, undertaken in the city of Tampere, Finland. The model combines the functions of vendor management allowing the city to efficiently contract with several small-scale service producers, and patient-level case management.

[Key words] Care integration, vendor management organization (VMO), service machines, service systems, outsourcing.

1. Introduction

In modern societies the care of old and frail people has changed from being an expression of family's respect to their senior members into a professional service. Responsibilities are shifting from informal families to formal service production systems that operate within a market economy under public regulation. As the scope and volume of care services have increased, managers have increasingly adopted various management techniques, most of which developed originally within manufacturing industries. However, modification of these techniques was imperative to meet distinctive characteristics of health service compared to manufacturing industry. This has led to the development of Healthcare Operations Management (HOM) (Johnston and Clark 2005, Vissers and Beech 2005).

This paper aimed at offering a theoretical and conceptual basis of service production systems, specifically focusing on healthcare service area. The first section provides a historical view of how the meaning of service has changed. Second, the concepts "Service Machines" and "Service Motors" are introduced to differentiate the actual production and its contractual governance framework. Third, the Vendor Management Organization (VMO) is described as a tool to facilitate contracting between public and private organizations. Fourth, a case study of Kotitori in Finland is presented to illustrate the benefits and challenges of a VMO. In the final section, an evolutionary model of Service Machines with VMO as a system integrator is proposed and its benefits and limitations are discussed.

2. Historical evolution of "logic of service"

During the early phases of the Industrial Revolution, services were not paid much attention. At the time of Adam Smith, services were not recognized as proper economic activity, as they did not produce anything tangible,

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and production was undertaken within traditional social relationships, such as the master and the domestic servant. (Grönroos 2000).

In the post-WWII era, services grew to share more than half of the GNP in advanced societies, and that stimulated the emergence of “service marketing” concept. Services may not have a physical form that “you can drop on your foot”, but they can be sold, bought, priced, evaluated, and managed. The standard definition of service was solidified in the IHIP model: services are Immaterial, Heterogeneous, Inseparable, and Perishable forms of economic activity (Fitzsimmons and Fitzsimmons 2006). However, since there obviously is a large spectrum of services, from housecleaning to legal advice, the definition still suffered many inconsistencies and contradictions (Lovelock and Gummesson 2004).

A decade ago, a new line of idea emerged. Compared to traditional tangible-product based marketing where the customers are a recipient of goods (Goods-centered dominant logic; GDL), a new type of marketing should regard services as co-creation of value (Service-centered dominant logic; SDL), and customers as a co-producer of service, actively participating in production of services in person, or through their property and/or information about them (Vargo and Lush 2004, Sampson and Froehle 2006).

More recently the IHIP and the SDL models have been further integrated into the Resource Integration Model (Moeller 2010). Co-creation means that the producer’s and the customer’s resources are integrated to produce value. The service contract is Immaterial, as services can be sold only as contractual promises of some future action. Heterogeneity is applied to customer resources, as individuals have varying needs and requests. Production is a process where both parties participate and are for a time inseparable. Finally, producer’s resources are perishable; capacity left unused without a customer request cannot be stored for later use.

3. Service Machines and Service Motors

Service production systems have to deal with constraints not usual in manufacturing. As services are co-created, producers must develop ways and methods to engage with customers; manage their demand to optimally fit available production capacity; build robustness to suit customer’s heterogeneity; and understand quality primarily as a measure of how well producers succeed in keeping the promises made to customers. Healthcare adds further constraints such as information asymmetry, urgency, varying patient preferences and capabilities to participate in their own care.

Health services, including the care of elderly, can be seen as “Service Machines” that need to be designed and managed. A machine, by definition, is a system consisting of several interlinked parts. Systems in general can be the result of evolution; machines, however, are artifacts, the result of purposeful action aiming at defined results (Lillrank and Särkkä, 2012).

Service Machine is a metaphor that helps clarify some non-obvious properties of service production. Machines, such as laptop computer, have processors, displays, input-output devices, power sources, wires, and frames to where the parts are connected. Factories have a physical representation that is visible, even when the lines stop and the workers go home. Many services do not have such obvious visual form. Office workers sit at their desks, process information and communicate with others. Home care workers assemble in the morning at their office then to fan out to do their work at customer’s accommodations. When the day is done, connections are closed, files are put away and the Service Machine disappears, to be reactivated again next morning.

Like a physical machine, a Service Machine is designed from a number of parts. There are “Service Motors” that directly co-create value by engaging with patients, such as a nurse giving physiotherapy to a patient. There are processors, such as office routines by which requests are processed and turned into scheduled tasks. There are energy inputs in the form of financial and supply flows, control mechanisms in the form of performance evaluation, customer feedback and continuous improvement.

A Service Machine has a frame that connects the parts. It is made out of contracts and conventions. A Service Machine thus is a social construct that, like social institutions, can reproduce itself every day in a predictable way.

Services such as home care are performed by numerous Service Motors (e.g. caregivers and customers)

interacting in many ways in many locations. They, however, are part of a Service Machine that directs the work and sets the rules of engagement. The question is, how should such Service Machines be designed to capture the essential requirements and objectives within given social, technical and economic constraints?

4. Service Machines as governance

Governance is a set of meta-rules that define a frame according to which contracts are made, observed, interpreted, and enforced (Heide 1994, Williamson 2002). Contracts may come in different levels of intensity, e.g. written agreements in legal documents, instructions and orders issued by management in lieu of administrative fiat, professional norms upheld by professional circles, or informal ones ingrained in customs (Willcocks and Lacity, 2006).

Many services have evolved over generations and years, are likely produced within larger organizations where boundaries are not clear-cut and communication often relies on person-to-person informal relationships. Therefore their contractual structure may not be easily visualized.

The governance structure of services, however becomes highly visible when services are outsourced (Domberger 1998). A service, such as payroll management, that previously operated inside a company is assigned to a service producer, often at an offshore location connected by a high-speed network. As the task is given to an outsider, the objectives, procedures, quality and delivery requirements must be spelled out clearly. The contract must specify price and include rules for handling claims and how to eventually terminate the relationship.

Offshore outsourcing of administrative services, software programming, and network monitoring has been initiated for various reasons. The most obvious is the attempt to utilize cheaper labor in countries such as India or The Philippines. Some services will take advantage of different time zones; a radiologist working normal hours in Australia can cover the night shift in Sweden for the diagnosis of x-ray images. In medium-skilled tasks, such as coding or call centers, populous low-medium income countries can offer higher quality labor than what is available in rich countries.

These advantages have, however, frequently been hampered by management difficulties (Pai and Basu, 2007). An in-house service can be designed with many loose ends left hanging. Since the user of the service is located near by, glitches can be corrected and misunderstandings can be straightened out by direct personal communication. In outsourcing, communication between the principal and the offshore agent in a different culture and linguistic area is more complex than what it seems. For an outsourced Service Machine to be operable by remote control, its governance structure and ensuing details must be made crystal clear and failure proof (Eisenhardt 1989).

Since the management of the remote control takes some specialized expertise, a new type of professional service has emerged. A vendor management organization (VMO) is a specialist that manages outsourcing. It defines the principals' needs and requirements and translates them into a contractual arrangement expressed in a language the service-performing agent can understand and then monitors the service provider on behalf of the principal.

In the next section, I will provide a case study of how outsourced Service Machine with VMO works.

5. Outsourcing of elderly care in Finnish public sector; background

Finland has a very high rate of institutionalized care for the elderly. According to the Statistics Finland mortality figures for 2015, there were about 34 000 deaths of over 75 years old. The institutional care capacity per death is 2,21 years (<https://www.thl.fi/en/web/thlfi-en/statistics/statistics-by-topic/social-services-older-people/institutional-care-and-housing-services-in-social-care>). The corresponding figure for Sweden is 1,36 years. According to the WHO Hospital Mortality Base 2015, in Finland there were 217 hospital days for dementia per 1 000 population, while for Sweden the corresponding figure was 4 (<http://data.euro.who.int/hmdb/index.php>).

There are historical and institutional reasons. Rapid urbanization resulted in an increased number of older people living alone. Moreover, current municipal health centers were originated from district hospitals that used

to accept elderly people who had difficulties to otherwise find a place to live in community. Institutional care, keeping patients in a bed for their last months or even years, is a costly way to produce poor quality of life. There is now an urgent financial pressure to move from institutional to home care.

The Service Machine of home care requires an assortment of tasks: nursing, medication, assistance with basic needs, and housekeeping. A traditional model would be that the municipality provides the service, financed by tax revenue, and manages the service as a part of the municipal organization. However, this traditional “public” model typically results in high cost and low quality. It is reported that in some major cities, only up to 46% percent of labor hours are spent with patient care, and the rest was used for transport and administrative work (Groop 2012). Further, since the municipality employs the service staff the bureaucratic organization often hinders capacity adjustment and innovations. The high unionization rate and militancy among public domain employees challenge management leadership. In such cases, outsourcing is sometime adopted to bypass the administrative rigidity of public organizations.

Outsourcing of homecare provision service to private producers is a viable alternative (Groop 2012). Private home care industry is evolving rapidly, and operators such as multinational franchises and domestic firms have grown fast by acquiring small local and regional care companies. Some of the multinationals, however, have a reputation as tax evaders. There is a widespread fear among policy-makers that large service providers will monopolize local markets, increase prices, and lower quality. Thus, outsourcing public services to private providers may become more politically acceptable if the providers are small local companies, or micro-entrepreneurs, typically experienced nurses, who would run a company of a few professional, committing to a specific area and customers in a long term.

A model based on small-sized local producers has its problem. Finnish law mandates an open tendering process when a public entity purchases from a private provider. The complexity of such bids is sometimes beyond the administrative capacity of small-sized local companies. The relevant service requirements and selection criteria, including weighted ratios of price, quality, manpower, and qualifications, must be made explicit for all potential bidders. Due to the complexity of the issues, many decisions can be contested. Lengthy legal processes hurt the municipality as well as the customers and have become a common nuisance to the extent that the law of public procurement is up for review. If a municipality would want to use small nurse-led companies to cover the service needs, they would have to do hundreds of separate tendering, selection and contracting procedures, and keep a watchful eye on how the providers meet the requirements.

Facing such challenges, municipalities need an alternative model of governance to build home care Service Machines. This was the very motivation for Kotitori model of which details are described in the next section.

6. Kotitori as a Service Machine

Kotitori is a service system for elderly care operating in the city of Tampere, Finland. Tampere is the third largest city in the country with about 225 000 inhabitants, located 170 km to northwest from the capital city Helsinki. In the Finnish language “koti” means home and “tori” means a market square. Kotitori is a marketplace where people can shop for health/welfare services used at home (Tynkkynen et al 2012).

The basic idea of Kotitori is that the municipal government bids a tender not for care production, but for VMO services. One private company is selected as a VMO to work as an agent for the City authority to contract with service producers. Since there is no legal mandate for procurement in private sectors, this company can make business contracts with any private company.

In 2009 the Kotitori contract was given to a consortium made of Mawell Care, a medium-sized company specializing in IT-systems and home care, and the Nordic Healthcare Group (NHG), a specialized consultancy. Mawell produces some of the care services and the supporting IT system and its maintenance. NHG provides administrative support in tendering and contracting, and analytics for monitoring and continuous improvement. The basic model from the perspective of the user is illustrated in Figure 1.

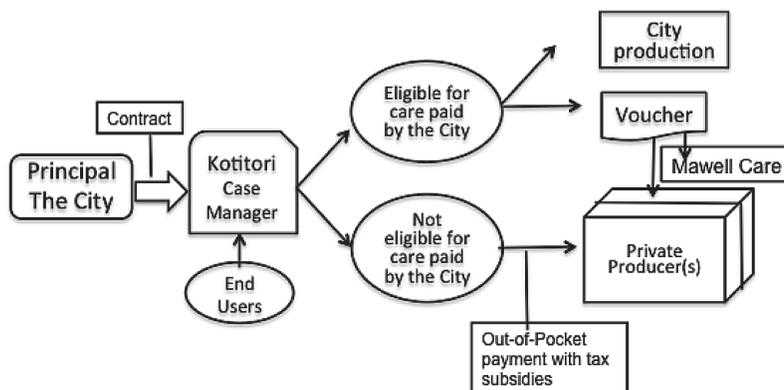


Figure 1. The Kotitori Service Machine

The City of Tampere has the overall responsibility according to law to provide care to elderly people. The City and the Kotitori consortium make a contract that defines the tasks, sets the criteria of who get paid for what kind of service, and determines the rules according to which care plans are designed and service levels are determined.

Kotitori is a VMO that manages the relationship between the City as a regulator and a payer and service providers. In addition, Kotitori serves as an integrator for patients. Kotitori has a customer service office, a phone number, and a web portal through which end users approach it. A Case Manager will look into each patient situation, perform a needs assessment, and suggest a suitable service package. Depending on the socio-economic situation, some patients may receive a full set of care funded by the City, while others get some specific service components. Some patients are offered vouchers by which they pay the private providers.

For political reasons, the City did not outsource all of the home care services. It kept a sizable amount of needs assessment and service production in-house, as a system parallel with private producers. This includes institutional care, which is not part of the Kotitori model. In 2014 the Kotitori model covered about 14% of the home care services for the over 75 years old population and was restricted to a few districts of the City.

There are 15 private service producers of various sizes that are sub-contractors to Kotitori. They are the core group of service providers and operate mostly within the voucher system. There are about one hundred providers of other auxiliary services, such as catering, hairdressing, and physiotherapy, for which customers pay out of the pocket. Kotitori is their sales and marketing channel. Mawell Care is a special case, as it is both a part of the Kotitori consortium and a service provider. The rationale for this is that the VMO / Integrator needs to stay touch with the realities of actual service production.

In 2013, 12% of those who approached Kotitori were advised that they needed no services, 27% went for a public service, 13% for public and private, 20% for private, 11% for voluntary services, and 17% of all customers were advised to continue the way they had been up till now.

Kotitori has an added function to serve as a consultant to improve the City's own production of the elderly services. According to an internal review by the City, the capacity utilization rate (direct patient work hours / total hours) of the City's own production increased from 49% in September 2009 to 56% in December 2014.

7. Performance evaluation of Kotitori model

Since the Kotitori model was implemented in a few selective districts in the city, this allows comparisons between Kotitori and the traditional models.¹

During Kotitori's first year of operation, it held 360 customers with total cost of 4.1 million €, including the VMO fee of 0, 9 million. The direct cost per customer over 75 years of age within Kotitori was 1 287 €, while for those within the City production the corresponding figure was 1958 €. The direct cost includes case management

(patient guidance), regular home care, use of specialist care, and short-term hospitalization. These are not adjusted for severity, although there is no reason to assume significant differences between two groups. The Kotitori customers had less cases of moving to hospital care, resulting in an aggregated saving of 0.4 Million €. The cost of case management per customer for Kotitori was 813 €; significantly higher than traditional cost of 533 € in the City production on average, suggesting that good case management at an early stage will reduce costs later on.

For the fiscal year 2013 an accounting firm was commissioned to compare the costs of the Kotitori and the City production of home care.

The number of patients in the Kotitori system had increased eightfold to 2 831. The number of customers within the City system was 17 464. The Kotitori average case management cost per customer was still 26% higher than those of the City. However, the total cost per over 75 years old customers within the Kotitori, were 811 € lower than those in the City system.

In a publicly financed elderly care a major cost driver is the utilization of medical services, such as emergency calls and short-term hospitalization. Compared to the City production, +75 years old Kotitori customers made

- 14% less visits to emergency care,
- utilized 15% less inpatient care,
- had 30% less consultations with specialists, and
- 29% less moves to institutional care.

¹ Performance measurement in health and social care is a difficult issue. The ultimate measure should be situationally adjusted health outcomes per resources spent (Porter and Teisberg 2006). Public organizations spending taxpayers' money to the benefit of citizens do not have the habit of measuring customer satisfaction. As data is difficult to gather and normalize, average costs per customer and capacity utilization will be used in this paper.

8. Summary and conclusions

In this paper, the Kotitori home care model has been discussed as an evolved Service Machine from traditional in-house production and outsourced programs. The evolution of the Service Machine design is illustrated in Figure 2.

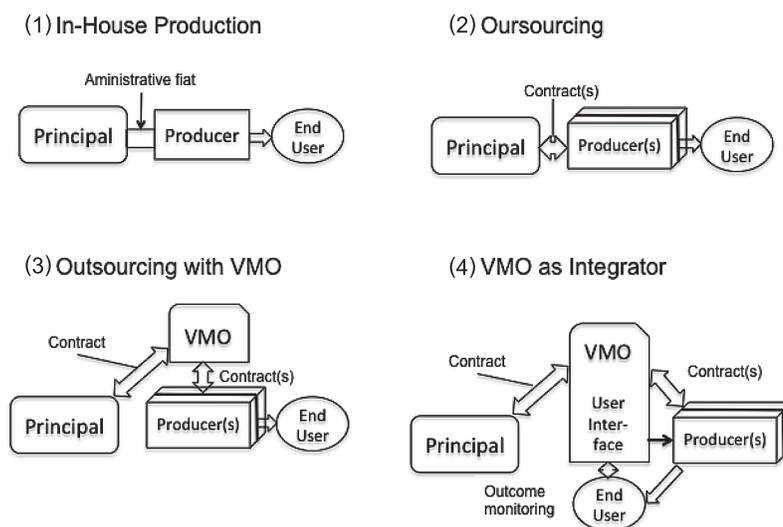


Figure 2. The Evolution of a Service Machine

A Vendor Management Organization (VMO) can be used to manage a three-way principal-agent relationship where a principal (City administration) employs independent vendors (home service producers) to serve the City's population (end user). The principal can control the VMO through various incentive systems, that link performance at the end-user-level, such as cost, hospitalization, and use of emergency services, to the income of the VMO. As a private contractual representative of a public entity, the VMO can contract with service providers following ordinary business-to-business practices, design revenue models that include bonuses and penalties, and monitor performance based on results at the patient level.

A further step is that the VMO takes the role of a service integrator. A recurring problem in elderly care is the fragmentation of the service system into different professional "silos" that do not communicate well with each others and thereby cause avoidable costs, such as unnecessary emergency care and hospitalization. It is the interface to end-users and provides case management services, through which the needs of customers, their socio-economic situation, and the alternative service options are integrated into a care plan accounting for whole-person needs.

The Integrator-model, however, faces practical and administrative limitations. It is applicable only in larger cities where there is a market for services and several competing providers. In small municipalities the direct outsourcing model (2) is still feasible. Further, if services are publicly funded, it is a public task to decide about entitlements that may become costly. Therefore the Kotitori VMO-Integrator model can be used only in home care and other light services, where the needs assessment can be done by competent professionals and does not require public administrative decisions. Therefore the Kotitori model is used parallel to the traditional model (1) of City production services where administrative fiat is applied to entitlement decisions.

This is one possible reason why the Kotitori model, despite demonstrated performance and a lot of publicity, has not been widely adopted in Finland. The basic ideas, however, have been widely diffused and several municipalities have been developing their own versions. The thinking behind the Kotitori model has also had a

wider impact on the public policy debate in Finland.

In 2015 the government announced its intention to implement a thorough reform of the current health and welfare system². While the details are still under construction, it appears that the integrator –function will be a core element of the new system. According to plans, the country will be divided into eighteen health and welfare districts (HWD). Each of them will receive funding from the central government in one installment that should cover all costs for the respective populations. Thus financial integration is aimed at the regional level. All current public producers will be organized as limited liability companies (Ltd.). Each HWD then needs to establish an Integration Authority that oversees the market using authorization of providers, and financial instruments, such as population –based capitation for primary care services, vouchers and fee-for-service billing of specialist care.

Given the fact that in all developed countries health care costs are rising in an unsustainable way without corresponding benefits in public health, there is a dire need of administrative and organizational innovations related to care integration.

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² The author is working on this reformation as a government committee member.

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