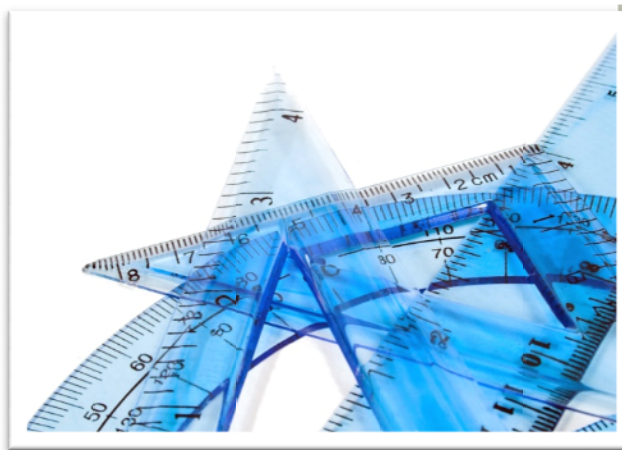


Service Transformation and the New Landscape of Performance-based Contracting: An Executive Briefing



Professor Irene C. L. Ng

Centre for Service Research

University of Exeter Business School

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By Professor Irene Ng

Director, Centre for Service Research and Advanced Institute of Management Research (AIM) Lead Services Fellow

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For more information and reprints, please contact:

Centre for Service Research
University of Exeter Business School
Streatham Court, Rennes Drive, Exeter EX4 4PU
Tel: +44 1392 263200; Fax: +44 1392 263242
Email: cserv@exeter.ac.uk

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Introduction

There is a new world order that is changing industrial business practices. For years, marketing has endeavoured to make organisations more customer focused. Operations management has extolled the virtues of centering their activities on the needs of the customer. Organisational behaviour and HR (human resource) practices have waxed lyrical on employees being the ones who will make the difference in serving customers for greater profitability. The decision sciences will willingly provide measurements and methodologies to enhance and improve organisational excellence and finally, the corporate strategists will knit the business policy and strategic direction for business performance, often by being market- or customer-driven. All this sounds like businesses have really got the answers, and the lessons of business research and business school teaching over the last 100 years or so have been taken to heart and practiced well.

The true test comes now, as customers start to look at performance-based contracting (PBC) as a form of contract that keeps the organisation honest, and making them put their money where their mouth is. PBC is a contracting mechanism that allows the customer to pay only when the firm has performed; it is called 'power-by-the-hour' contracting in logistics. What this means is that if the customer wants a reliable and consistent performance from a piece of equipment such as a photocopier, a fastjet or an MRI scanner, a PBC contract would charge the customer a flat price that either guarantees the performance of the equipment (e.g. 95% availability of use) or allows the customer to pay only when the equipment is used (e.g. a fix dollar per hour of use). Such a contracting mechanism places the responsibility of the equipment's performance on the supplier.

Traditional service support or maintenance, repair and overhaul (MRO) contracts would often benefit the supplier at the expense of the customer, since the supplier earns revenue only when a particular equipment is faulty. This does not align the needs of the customer with the supplier and indeed, the supplier has no incentive to ensure the equipment continues to function well. At its extreme, it may result in the perverse behaviour of a supplier providing low quality equipment just to earn higher revenues from providing services later on.

PBC is designed to put an end to such behaviours. If the supplier is only paid on the basis of performance, it would have an incentive to ensure that the equipment is of high quality and delivering the promise of the performance. Indeed, contracting on performance has the added benefit that the supplier would be incentivised to think of innovative ways (such as better quality spares or parts) to ensure the equipment does not break down. Such contracts are now starting to be of interest to key players in service support and MRO services, particularly in the logistics domain for the defence and the aerospace industries. The idea of PBC derives from the American concept of Performance-Based Logistics (PBL). PBL originated in the late 1990s, and was intended to make US forces more responsive, to channel funds from support to

the arms, and to cut the logistics cost. The US has embraced PBL across the majority of defence procurement which resulted in the award of some very large contracts, particularly for the provision of infrastructure and support activities in support of US deployments.

The idea behind PBC is quite simple: One buys the results of product use, not the parts or repair services required to restore or maintain a product. In official U.S. Department of Defense guidelines, the government gives this definition of performance-based logistics: "The essence of Performance Based Logistics is buying performance outcomes, not the individual parts and repair actions.... Instead of buying set levels of spares, repairs, tools, and data, the new focus is on buying a predetermined level of availability to meet the [buyer's] objectives." (§5.3 in Defense Acquisition University 2005a).

In the UK, PBC has seen development in the military sector with its strong emphasis on availability contracting. *Contracting for Availability (CfA)* is a commercial process which seeks to sustain a system or capability at an agreed level of readiness, over an extended period of time, by building a partnering arrangement between the Ministry of Defence and industry. The result of this process will be a type of performance-based contract called an *Availability Contract*, which should include incentives for both parties to improve efficiency and effectiveness over the life of the agreement. This is similar to a comprehensive Contractor Logistics Support (CLS) arrangement, which uses Availability as its principal metric. CfA can be applied to new capabilities and legacy systems in any environment, at various levels. Fundamentally it must address the Availability of *what, when* and *where*. Availability contracting can be applied to various assets but is particularly useful for vehicles, where availability is relatively simple to define.

Without doubt, this new strategy is fast becoming an important component of the management of after-sales service supply chains, with implications that potentially reach beyond defence and aerospace contracting, and into certain retail sectors. Customers and suppliers of mission-critical products, such as semi-conductor manufacturing equipment, commercial aircraft and military weapon systems, are recognising that the acquisition of world-class products is not sufficient, but rather it is necessary to provide superior, cost-effective maintenance and support services throughout the after-sales phase of the customer-supplier relationship.

PBC by any other name....

While it seems that PBC is limited to logistics and MRO services, there are several parallels to PBC in other service sectors. The concept of PBC is to contract on outcomes, and that outcome could be availability, i.e. the availability of equipment, or it could be usage, in the case of power-by-the-hour. This is not so different from utilities and telecommunication, where customers have always only paid either for availability (such as a contract or subscription fee per month for the availability of

phone lines), or for use (such as a pay-as-you-go mobile phone service or based on meter readings of electricity). The challenge for PBC is to define 'what is success' and to determine if such successful outcomes could be measured.

Indeed, PBC can be extended still further. If a customer chooses to buy a radar, the customer is in effect buying the radar's outcome of *sensing*. It isn't surprising therefore that in a performance-based contractual environment, the customer does not buy the radar, but the availability of sensing. Such a business model has huge implications on the firm's internal structure and organisation. Yet, much of it is already happening. Consider the transformation of a good into a service, such as the Microsoft Windows operating system. The Windows operating system was originally a 'good'; it was a software CD that came in a box and required the client to install and use. Customers had to buy a computer and either have the vendor install the software or installed it themselves. This was by no means an easy task (how many computer users do you know are able to install an operating system?). Today, the Windows operating system is sold as a service (commonly termed *software as service* in the industry), where the CD enables the client to upload a small programme onto a PC that in turn allows Microsoft to communicate and interact with the customer through the internet over time, i.e. delivering the *service* of an operating system. Clearly, Microsoft recognised that the value attached to its operating system, no matter how sophisticated, may not be realised if the customer does not know how to install it, or to gain its benefit. By understanding that *service* is what realises the value, Microsoft will endeavour to engage and understand the customer so that the full benefit of its operating system can be attained. As products become more complex, the *service* to unlock the value becomes crucial and indeed, the customer sometimes values the realising of this value more than the actual product itself.

The Benefits of Performance-based Contracting for the Customer

Efficiency gains from paying for outcomes. The US Department of Defense reported that performance-based logistics benefits them because they only pay for what is operational. This is illustrated by a type of PBC referred to as "power by the hour". In the private sector, the term "power by the hour" was coined by Rolls-Royce over 20 years ago to describe their performance-based contracts for engines and other avionics products that were sold to commercial airlines. The customer pays for the servicing of the engines according to the number of hours the engines were in the air, thus aligning the cost of engine servicing to the customer's operational and revenue generating activities. As Rolls Royce puts it, "These programs provide the operator with a fixed engine maintenance cost over an extended period of time. Operators are assured of an accurate cost projection and avoid the costs associated with unscheduled maintenance actions."

Lower servicing costs. PBC also has the benefit of lowering total contract costs. For example, the contract awarded to Rolls-Royce for the maintenance and upgrade of Tornado engines at RAF Marham, was an availability-based contract. During the pilot for the Tornado Engine project, it was revealed that there was a 35% reduction in the number of repairs needed. The Tornado engine contract is just one of a large number of contracts within the UK which have been outsourced in their entirety to contractors.

Motivation of contractors to provide outcomes. The essential premise of PBC is that contractors are paid in accordance to measurable performance targets. Thus, the contractors are more highly motivated to perform high quality maintenance work in order to achieve the targets. In addition, at the heart of PBC is the notion that risks and incentives should be more equitably aligned between suppliers and customers than has been possible under traditional "fixed-price" or "cost-plus" contracts. According to the recent research conducted by two Wharton professors of operations and information management, Morris A. Cohen and Serguei Netessine, and Sang-Hyun Kim, PBC may also "improve product availability and reduce the cost of ownership by tying a supplier's compensation to the output value of the product generated by the customer."

Lower transaction and monitoring costs. PBC results in lower scrutiny of contractors, since the outcome-based nature of the contract implies that the need of the customer is better aligned with the interest of the contractor. In the case of the UK Ministry of Defence (MoD), contracting on availability means that they could reduce staff numbers and the facilities required to perform tasks related to the purchase and requisition of spares and equipment.

More predictable costs. Fixed contracts based on availability also allow a much more predictable level of expense. The cost of maintenance and repair of assets is now no longer the customer's responsibility, and the customer does not have to forecast repairs nor have to spend on holding inventory. This is popular with the UK MoD because it means that the operational risk for the assets is transferred from them to the contractor.

The Benefits of Performance-based Contracting for the Firm

The transfer of risks in tangible asset-based PBC in cases of performance-based logistics provides the firm with challenges as well as opportunities.

Opportunity for greater control and efficiency. Organisations that are able to contract and deliver on performance will find that PBC allows for more efficiency in delivering outcomes, and give the firm greater control over the delivery of the service. Where previous systems and processes delivered only to the point of handing over to the customer to unlock the value proposition, PBC now brings the

customer into the organisation's sphere, allowing it to optimise its delivery systems with the customer.

Opportunity for a more effective service. Having the customer within the boundaries of the firm would give it the opportunity to better understand the customer's needs, thus developing more sustainable relationships and delivering more effective solutions to the customer's requirements. Indeed, since the organisation is responsible for all aspects of support, it is likely to be committed to a much higher level of performance.

Opportunity for innovation. As the customer environment changes, the firm that contracts on outcomes would have a first-hand experience in how they could innovate to tailor to the customer's changing requirements. Such innovation could be developed and the knowledge transferred to other contracts, hence improving organisational performance.

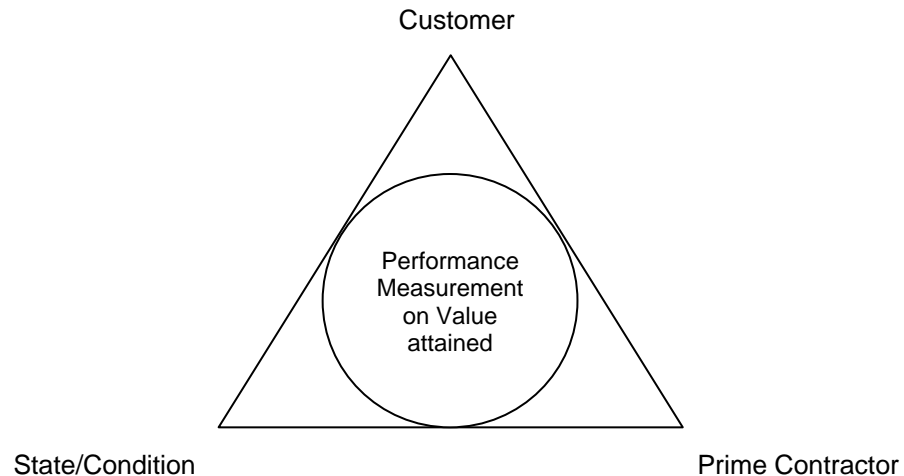
Sustainable competitive advantage. Finally, the ability to deliver on high level performances and outcomes would require the firm to have the capability to manage the customer value co-creation and co-production. Hence, customer management for co-creation and co-production is in itself a service capability. The ability to do it well would result in more opportunities for the firm to win contracts and deliver on the performance-based contracts more effectively to the customer.

Performance definition, proxies and measurements in all states

In PBC, performance is often dependent on three main players. The firm, who is tasked to deliver on the performance; the customer, who has to acknowledge that the performance delivered is truly beneficial; and finally, the state of the world, which could change the nature of the value, despite the firm and the customer's efforts. This point can be quite simply illustrated with the following example.

The value of a phone is often to make a phone call when it's most important to the customer, but that value cannot be realised if the customer isn't able to use the phone for various reasons; for example, if the customer finds the phone too complicated to use, or just simply that the customer has forgotten the number of the person he's trying to call. When the value cannot be realised, that phone is of no use to that customer at that point, regardless of how wonderful its features may be. In addition, the value of the phone is also *state-dependent*, an economic term that means that the value is dependent on the state of the world at a given time. This means that if the customer does not need to make a phone call, the availability of the phone and the customer knowing the numbers to call would be irrelevant. Thus, value co-creation is achieved at a particular state of the world. This means that for performance to be of value, all three players (customer, firm and state) have a role in determining how benefit is delivered.

In PBC, this point has to be taken one step further. If the organisation chooses to contract on performance, it has to be responsible for the customer's role in value co-creation and it has to understand the state-dependent nature of value to be truly able to deliver a successful performance. The most critical question therefore, is 'what is success'? This of course translates to what is a successful performance. Following on from this question is: How is success measured and is 'success' the same across all conditions?



The above highlights the three main factors that impact on performance measures. First, it is necessary to determine what successful performance is and what measures would be in place to provide that definition. Second, the prime contractor that is responsible for the performance must have the capability to do so, within their own internal processes and systems. Too often, contractors are only able to contract on a more traditional basis (i.e. on attributes or resources) and do not have necessary tools and skills to engage with the customer for the delivery of performance. Finally, performance is dependent on the state (condition). Both the customer and the contractor could be in a partnered relationship to deliver the same service at different times, but this could result in lower benefits to the customer or end-users because the state/conditions are different. Within the defence industry, this means the same service delivered in barracks for training may not yield the same benefits as the same service delivered in the operating theatre. Hence, the state or condition is an important factor in the determination of performance outcomes.

Performance ownership

Successful implementation of PBC often requires a prime contractor to be fully responsible for the ownership of the entire performance, including the role of the customer. Customer management remains one of the most challenging aspects of

PBC, and research into this is ongoing. However, since the performance is owned by the prime contractor, this implies that the PBC is on one or more value chains and is fully responsible for the delivery of all attributes and services leading to that stipulated performance. For example, a value chain that leads to currency of a library's fiction collection would develop measures for that currency and would stipulate them as key performance measures. The achievement of the measures would be the responsibility of the contractor, implying that the customer does not need to stipulate any sub-level performance levels such as warehousing, delivering timings etc. as it would be the contractor's responsibility (and ability) to deliver the entire value at the performance level. This often results in substantial risks for the prime contractor, and risk mitigation strategies would need to be in place (usually during the pilot) to ensure that the contract could succeed. Such risk mitigation measures would include having a historical data profile as a benchmark against future performance so that the prime contractor could evaluate its costs of PBC delivery during the pilot, and examine anomalies to be factored as exceptions in the contract.

Contract alignment

PBC allows the incentives of the prime contracting firm to be aligned with the incentive of the customer. Previously, the firm's incentive is to increase requisitions, without needing to bother if such requisitions for repairs or services provided long-term sustainable and reliable solutions. With PBC, the vendor is motivated to achieve KPIs (key performance indicators) that are directly a measurement of success in delivering service value. Thus, what is the traditional 'hole in the wall' strategy of just doing the work and charging for it, PBC would encourage the behaviour of constructing solutions that are effective in ensuring that the customer achieve its service success through pre-determined KPI measures. PBC would therefore reduce transaction and monitoring costs within the system, thus resulting in an overall reduction in the costs of delivering to value.

The prime contractor in a PBC often would need to contract with several other vendors and suppliers, and would require a re-orientation in the way they traditional deliver their products. This would need to be factored into the implementation at pilot level. In other words, a prime contractor may not be able to deliver on a performance-based contract without proper guidance from the customer organisation.

Value co-creation in multiple states

The implementation of PBC requires an understanding by all parties of the processes, competencies and assets required in value co-creation under different conditions.

Co-created value implies the involvement of the customer and the firm e.g. maintaining and servicing equipment and parts on site, integrating systems, providing consulting services. In other words, the client and the service firm co-create the value of the service *together*. Customer value is defined as:

'... a customer's perceived preference for and evaluation of those product attributes, attribute performances, and consequences arising from use that facilitate (or block) achieving the customer's goals and purposes in use situations.' (Woodruff, 1997)

In co-creating value, customers could be partial employees, contributors to their own satisfaction and quality of the service. If customers choose to produce the service by themselves, they can become competitors to firms. Within such thinking, researchers have proposed that firms do not really provide value but merely value propositions; it is the customer who determines value and co-creates it with the firm. Hence, a firm's product offering is merely value unrealized until the customer realizes it through co-creation and gains the benefit.

There is a distinction between **value co-created** and **value co-produced**. Value co-produced is the value of the service produced with the customer, e.g. customer involvement in MRO and logistics, whilst value is co-created when the customer *realises* the value co-produced, such as when an aircraft or equipment is in use. Value co-creation is therefore *value-in-use*.

Understanding value-in-use is essential for the firm's service capability and the price of the contract since *usage* may change the nature of the service delivered, customer satisfaction with the service and even the cost of delivering on the contract by the organization. For example, the employee of the customer organization who persistently brings in virus-ridden disks into his/her computer will result in the need for higher level of maintenance and support, if the firm has contracted on availability of the equipment.

In PBC, both the organisation and the customer have to invest in resources to ensure a systematic approach towards the co-production of value as well as its co-creation for use. Systems modelling and other analytic and process tools may need to be deployed to ensure that the implementation of performance is stable and not ad-hoc, and that the performance is delivered in a systematic and sustainable manner.

Economics of PBC

Performance-based contracts are often a result of an outsourcing decision, where the budget for the outsourced entity initially reflects the amount allocated in the internal budget for the in-house division that had previously delivered on the performance. The decision to outsource the function would then downsize this

division and change its role to one of managing the decisions under the contract. As uncertainties can affect the completion of contracts, the division becomes the 'deciders' to moderate the implementation of the contract to ensure the performance is achieved as intended. Successful implementation of the performance-based outsourced contract should substantially reduce the overall costs while enhancing and stabilising the performance. Contract payments are usually tied to performance measures (KPIs) with pain and gain-share mechanisms in place; if performance is reduced, the prime contractor would have payments withheld, but with the possibility to rectify and achieve the performance level within a time frame. On the other hand, rewards for gains could be shared with the customer. The actual contract is complex, as it includes stipulations of customer obligations (assets, people etc.), usually termed CFX (customer furnished X) to ensure performance. Once the KPIs and CFXs are agreed upon (usually after an agreed pilot period), the measurement of KPIs should be automated without any manual interventions.

All performance-based contracts must include mechanisms that provide a reward to the prime contractor for reducing the cost of delivering to performance (or enhancing performance), as well as impose penalties for failure to deliver. Various mechanisms for failures and rewards such as payment retention, weighting performance payments across KPIs could be put in place.

Challenges of PBC: The Changing Business Model of Performance-based Contracting for the Contractor

While the idea of contracting on performance is intuitively appealing to the customer, it poses a huge challenge for the contractor as it changes the firm's business model. To illustrate the impact of a changing business model, an analogy is required.

Imagine contracting to teach English to a student. The contract would traditionally include perhaps 30 hours of English tuition, textbooks, workbooks etc. The entire course would perhaps cost £1,000. A teacher contracted to teach this would have a good understanding, not merely of the language but of the grammar, syntax and all the necessary understanding skills required to teach an English course. That is the traditional model and the teacher's value proposition is in the way s/he teaches the course, the innovative instruction, pedagogy etc.

Now imagine changing the contract to say that the teacher will be judged based on outcomes. In other words, the payment will be made according to every English word that comes out of the student's mouth for the next year after the course (assuming this is measurable, that is). Contracting on outcomes means that the value co-produced with the student includes the student's value proposition i.e. what s/he brings into the setting. More importantly, since the teacher is being judged on the

outcome of the co-production, the teacher now has to learn a new skill set – that of motivating the student, building rapport with the student, getting the student to co-produce value – skill sets that are not usually part of an English language teacher’s traditional skill sets. In addition, if the contract has been signed based on a fixed payment made in advance to achieve a certain level of performance (set number of words per month perhaps?), the teacher has now to also deliver the outcome at a lower cost. Finally, just to add to the complexity, imagine the student as one who is difficult and culturally different from the teacher.

New Risks

Under the traditional business model where equipment and services were contracted on the basis of resources, service level or input-based contracts, the customer ends up playing the biggest role in value co-creation to realise the benefits from the goods and services rendered by the firm. With PBC, *the firm* now plays a much larger role and moves closer to the end-benefit, often co-existing in the same location. Ideally, this provides cost savings to the customer as well as increases business opportunities for the firm. However, PBC changes the business model of the firm to a large extent. This change poses serious questions:

- First, are the processes, systems, behaviours and activities that were useful in the traditional business model just as *efficient* in the new business model? Inefficiencies could arise from a combination of two local optimums rather than optimising globally across two systems. This then results in an increase in overall system costs which would make the contract more expensive than it has to be.
- Second, are the processes, systems, behaviours and activities that were useful in the traditional business model just as *effective* in the new business model? *Ineffectiveness* could arise from the combination of all elements as well as from both parties’ inability to explicitly build a combined system. And as both parties focus on their individual system efficiencies, the transaction cost increases from the interactions. In other words, as both parties build more efficient individual systems, the overall effectiveness of the contract may suffer (due to more altercations and transactions), leading to sub-optimal outcomes.

Towards True Service Capability: Service Transformation of the Organisation

The biggest challenge of PBC is in terms of the transformation of the organisation itself. It requires the organisation to focus on the service as well as the goods delivered in the contract, a phenomenon we label as *service transformation*. It challenges the firm to break down functional barriers within their own organisation

to ensure more effective value co-production with the customer to achieve the outcomes. Where engineers were previously required, they are now asked to exhibit people management skills, behaviours that encourage cooperation etc. Clearly, these are skill sets required of managers and executives under normal circumstances anyway but the difference is that while previously, they were required to work within the organisation, these same skill sets are now actually *creating service value* for the customer and achieving effective outcomes at lower costs.

PBC puts incredible pressure on the organisation to align its efforts, rather than being good at functional areas. Delivering performance means everyone in the organisation has to point 'true north' i.e. towards the customer. For the first time, the true meaning of customer orientation comes through, and the true impact of a lack of customer orientation (for which a performance is a proxy) is felt. This has the effect of leveling the playing field between the customer and the firm in terms of what is promised and what is delivered. Where the traditional mode of contracting could result in a promise that is delivered less than satisfactorily, some types of PBC (e.g. power-by-the-hour) would ensure that the customer pays only if performance is delivered. This has enormous implication in terms of achieving customer satisfaction. How better to keep an organisation honest to its promise than to suggest a performance-based contract? And how much could be said about the organisation (vs its competition) if it could actually deliver on it?

PBC compels the service provider to co-create the value with the customer. This is based on the service-dominant logic¹ that true capability is about achieving the highest benefits for the customer (which in turn allows the firm to derive potentially higher revenues) through a combination of products and services that are resourced and delivered through the co-creation of both customer and the firm. This point has to be taken one step further. The *customer's* skills and abilities to access its resources is now crucial to the *firm's* capability, as even the best value proposition from only the firm's perspective may not result in the best benefit for the customer, if the customer is not included. Consequently, the firm has to be empowered to think about its own capability as that which *includes* the customers' processes, systems and skills. Particularly in the B2B context (which involves two organisations), the alignment of the two organisations in co-creating value is paramount.

True service capability also comes from an organisation's ability to recognise that customers often forget numbers on the phone, and the firm that develops its capability to ensure that the customer *realises* benefit of the firm's value proposition, is one that would hold on to a considerable and sustainable competitive advantage.

¹ Vargo, S. and R. Lusch (2004), "Evolving to a new dominant logic in Marketing," *Journal of Marketing*, 68, 1-17