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# **Technology and the ‘servicelization’ of labour: from immateriality to innovative uncertainty**

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## **Abstract**

This article discusses the concepts of ‘servicelisation’ of labour and innovation in complex organisational contexts. We consider that, at the present stage of societal development, the expansion of services itself represents the course from one industrial model to another, i.e. to a set of ways or methods of producing that are different. It is thus possible to speak of a ‘configuration of users’. In a ‘service economy’, the service products are global and are not generally decomposable, so that it is the customer/user who assesses the satisfaction involved in consuming them, even being able to intervene in their production. Besides, technology and immateriality are now fundamental to the service logic. This article also proposes some alternative ways for analysing the organisational structures dealing with such new phenomena.

## **About the author**

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## **Keywords**

servicelisation; service economy; immateriality; logic of service; networks

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### **Tertiarisation and ‘servicelisation’: conceptual notes**

We prefer to use the notion of ‘servicelisation’, on the one hand, to draw a line between it and the notion of industrialisation and, on the other, to register the fact that the principle of service cuts across the organisation of a considerable and expanding number of contemporary labour activities (Almeida 2004). Thus we distinguish the notion of ‘service’ from that of ‘services’, associating the latter with the classification of economic activities (strictly economic, as we have argued before) and, at the same time, defending the postulation that the notion of ‘service’ cuts across all the forms of contemporary work as a whole (Almeida 2005a; 2005b; 2005c).

What seems interesting to us – from the point of view of methodological and conceptual advances – is an analysis of recent developments in organisational structures and practices associated with the transition from an ‘industrial model’ (represented by a bureaucratic state rationale and the form of the pyramid) to ‘networked’ organisational models that are imbued with the importance of the ‘mission’ concept (Freire 1998).<sup>1</sup> On the basis of this latter notion, it is possible to put the spotlight on the way people cooperate at work. This may cause us to ask – at a closer level to the organisation of work – what, then, is the meaning of work at present and what does a rise in the number of operations carried out and performed mean in the productive context in which work organisations are at present integrated?

Phillipe Zarifian has written a coherent reply to such questions. On the one hand, for the organisation of work, an increase in sales will certainly mean greater speed in accomplishing operations, thus accelerating the flow of operations on a direct output basis. On the other hand, for the workers, this entails working more and more rapidly as their experience (through the acquisition of work routines), skills and adaptation to the work rhythm and technical instruments all increase (Zarifian 1999). In addition, this accumulated reserve of experience – in tertiarised societies – has become increasingly important, detaching employees’ careers from a linearity that previously took the form of a succession of positions and titles (generally in the same enterprise).

If earlier approaches to the notion of service tended to register a classical opposition between the tertiary and industrial sectors, in this ‘non-economic’ concept of labour that dichotomy loses all sense: the concept of service cuts across all sectors and, therefore, accompanies the transfer of the centre of gravity from the economic processes in the sphere of production – increasingly automated – to the sphere of circulation and physical distribution, and the distribution of information (Freire 1998). Moreover, these dynamics of transversality can be extended to include yet another: an ever smaller proportion of goods belongs to individuals, a phenomenon that helps to transform the idea of property into an illusory concept in 21st century tertiarised and advanced societies (Rifkin 2000; Rubalcaba 2007). With ever shorter productive life cycles, along with an expansion in the number and type of goods available, a fundamental change is taking place: modern societies are characterised by a general expansion of ‘service’ and, according to Rifkin, capitalism is tending to be transformed into a system in which the exchange of goods gives place to an exchange of access to ‘segments of an experience’ (Rifkin 2000).<sup>2</sup>

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<sup>1</sup> In Zarifian’s view, for example, the formulation and application of a competence model presumes that corporate strategic missions are made explicit, in line with the principles of the service economy (Zarifian 2001).

<sup>2</sup> According to this reasoning, capitalism is becoming more temporal than material (Rifkin 2000). Time, then, presents itself as one of the most significant dimensions of modern societies: the dominant concept of

If we focus on work as a productive activity (i.e. momentarily leaving aside other functions such as the identity aspect or the structuring of time and the rhythm of life), we can state that ‘tertiary’ society, or the ‘services’ society, is characterised by greater social indeterminacy in production relationships in comparison to industrial society. Reasoning of this kind leads to a double inference. On the one hand, whereas industrial relationships for production and their economic order used to structure social relationships, it is now cultural norms that set the social significance of service relationships, thus making recognition of the value of work an ever greater social and cultural problem (Lopes and Suleman 2000). On the other hand, complementarily, if the immaterial nature of economic activities allows us to transcend earlier rifts between work and culture, the importance assigned to the competences involved in human interaction reveals some less positive aspects,<sup>3</sup> in particular the aggravation of social exclusion through economic exclusion (Roustang et al. 2000).

In our opinion, another important finding is the fact that most of the work in services takes place in opposition to industrial models: although there are certain constant elements, the speed of operations (which justified exploiting the qualities of systems and machines) is no longer consistent with the demands of initiative, practical intelligence, communication with fellow-workers and dialogue with clients (which represents a large part of contemporary human work activities). It may even be argued that this tertiarisation of economic activities modifies the types of competence demanded of workers: this ‘logic of service’ is often associated with the specific centrality of the ‘competence model’ (Almeida 2004; Gadrey and Zarifian 2002).

### **The logic of service and ‘intelligent’ networks**

According to Zarifian, what is termed the notion of competence is a new unity between work and worker, a unity in which work reincorporates the individual and an attempt is made to mobilise and extend the knowledge and imaginative intelligence that this individual possesses or has co-constructed (Zarifian 1999).<sup>4</sup> In his reasoning, it is a question of recreating the stages of work in service enterprises – which begin with the phase of finding out, recognising and interpreting the client’s needs and end with the actual production of a service (Gadrey and Zarifian 2002).<sup>5</sup> However, for more critical authors, application of the notion of competence tends to favour the fragmentation of work situations, alongside the transformation of the knowledge necessary for their new organisational forms, the segmentation of jobs and the search for flexibility by businesses (Dugué 1994; Everaere 2000). In these accounts, the very notion of competence accompanies the spread of individualised work relationships, a

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quantitative, mechanical and strictly reproducible time (useful for organizing social life, work schedules and productivity measures) is countered by a notion of *temps-devenir* and different alternatives relating to labour productivity and social organization (Zarifian 2001b).

<sup>3</sup> It is especially in the form of work organization – termed ‘the business system’ in Freire’s approach – that technological sophistication allows productive flexibility; work based on strength almost completely disappears, in favour of various combined forms of knowledge-work and machine-work (Freire 1997).

<sup>4</sup> Certain authors criticize the vision of autonomous individuals who free themselves by work and by the freedom to choose the course of their working lives (i.e. by careers created through the development of their competences, free of heteronomic constraints). Gorz, for example, considers Zarifian’s thesis on this subject ‘theoretical delirium’ (Gorz 1997), as the idea of autonomy and self-determination at work should be set against cultural, political and moral autonomy, whose core and foundations lie far from the act of working, which is itself subject to intervention and constraints of this kind.

<sup>5</sup> Understood here by Zarifian as enterprises and work collectives in which the ‘logic of service’ and ‘logic of competence’ prevail.

phenomenon that has always been connected with non-industrial employment, especially that of office workers (Crozier 1965) and executives (Erbès-Seguin 1999). In a certain way, its transferral to work activities would correspond to a kind of group hegemony in the organisation.

Considering all that we have just stated, this transfer to a relational dimension, in the logic of service, has important implications for the nature of work activities.

Until the 1980s, sociological analyses treated workers' capacities and 'qualities' as attributes for which they were recognised on the labour market or, in the case of the de-skilling theses prevailing in the 1970s, as 'knowledge expropriated from the working-class' (Bernoux 1994) that would contribute to the deterioration of the workers' general qualifications. The 1980s saw the emergence of a new profile of the worker, as an 'operator-expert', a profile for which there was a whole new language and technical vocabulary. So it is not surprising that the moment of the passage from skills to competence seems to have coincided with the circumstances in which work systems started to be affected by frequent changes, making it necessary for the staff to adapt to these dynamics. In this sense, the incomplete attempt of the sociology of work to break with technological determinism, before the 1980s, prompts a reading of work organisation methods that, in the most radical theses, appears as machinations directed against the know-how of operative employees.<sup>6</sup> Accordingly, the knowledge copied from the operation of machines (in particular computer equipment) would necessarily be more abstract, a result that may contain an important ambiguity: automation of a process represents a process of abstraction in the sense that the workers 'abstract' themselves from the function now performed by the machine, not in the sense that this disconnection makes the new task more abstract or more 'intellectual'.

It is, therefore, of interest to consider that, at the present stage of societal development, the development of services itself represents the passage from one industrial model to another, i.e. to a set of different ways or methods of producing. In an 'industrial economy', the producer-user relationship results from the decomposition of the product into standardised, primary elements that are accepted or rejected (i.e. bought or not bought) by the customer. It is even possible to speak of a 'configuration of users'. In a 'service economy', the service products are global and are not generally decomposable, so that it is the customer/user who assesses the satisfaction involved in consuming them, even being able to intervene in their production. Some of these service products (particularly information services) only really exist at the moment of the service relationship with the customer, in which case it is possible to talk of 'co-production' (De Bandt 1994; 1999; Turner 2001).

The rejection of a direct analogy between the theories of industrial production and production in services is based, then, on the understanding that service products are fundamentally different from industrial products: they cannot be defined on the basis of specific techniques nor can they be products per se, independent of the consumer or user. For this reason, in our view, the concept of 'the logic of service' includes three main characteristics (Almeida 2003):

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<sup>6</sup> It should be noted that, in the Taylorist phase, the gaining of skills had been turned into one of sociology's central concepts, partly to clarify the social relationships that were being established at the time of the operation to classify workers.

- the structuring of service companies in such a way as to stimulate the construction of relevant and up-to-date information banks on customers and users, which should be usable later to identify their particularities;
- the organisation of work activities in such a way that they contribute to the co-production of responses adapted to customers' 'problems';
- pressure for the re-composition of production technologies and relational logistics, in processes of service co-production, with self-training in competences.

We also know that an enterprise's production system corresponds to the set of interrelated components that guarantee production operations.<sup>7</sup> This set may be represented by four essential elements (Bancel-Charensol 1999): the objectives and support basis of the transformations carried out; the resources used in production operations; the tasks carried out to obtain this type of production; and the production piloting and control system. Information technology (IT) changes information management methods, which, in turn, may cause changes in each of the components in the enterprise's production system. In addition, the increase in the opportunities offered by IT, and the use of telecommunications services and networks, plays an increasingly important role in service activities:

- developments in the organisational structure of service companies are a direct consequence of IT use;
- thanks to IT, customers play an increasingly significant part in certain phases of service production;
- the changes taking place in terms of lower communication costs, greater reliability and increased transmission capacity allow an overall approach to forms of management.

It is generally considered that this overall approach allows substantial alterations in various forms: through a reduction in communication costs; through an increase in transmission capacity, progress in the reliability of telecommunications services and modification of the system's results on the basis of a wider range of services offered; through lower prices for services and the exchange of computerised data (commonly called yield management); and through a change in the interaction modes of processes brought about by substituting capital with work and front-office staff with automatic distribution. An analysis of the production system may, then, provide an overall perspective for characterising different changes in information gathering, processing and transmission.

It is thus important to mention that telecommunication services have an essential role to play in information exchange within organisations. Today their functions depend, as a whole, on an information system that is mostly automated, a phenomenon that is increasingly indispensable with the appearance of networked enterprises whose effectiveness is strictly dependent on their methods of coordinating activities with other enterprises (Schilling and Cassandra 2000). In addition, the concept of an intelligent network allows the info-structure to be separated from the infra-structure, making network management much nimbler and more flexible. This new configuration permits (Turner 2001):

- nimbler management of telecommunication services, such as the 'green line';

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<sup>7</sup> According to a significant number of authors, the notion of an operation/process can be defined as a set of interrelated activities whose goal is to generate material or immaterial output designed for internal and external customers.

- new services based on equipment that is relatively transparent from the network operator's point of view;
- the combining of value-added service flows, which allows new operators to enter the market;
- unification of the physical network in a universal broadband network that progressively substitutes existing telecommunications networks and complements and competes with satellite options.

**‘Servicelisation’ and technology: from immateriality to innovative uncertainty**

The technical systems of large service companies are undergoing an increasingly conspicuous process of concentration and integration. Faced with these circumstances, their branches find themselves between two potentially opposing situations: on the one hand, a movement towards the concentration of powerful technical and computer systems that can capture a greater and greater number of customers and, on the other, the need to intensify the relations and the closest and most direct contact with customers. We shall be dealing, then, with a service company model that – held as the ideal type and extracted from its connections with other models – can be characterised by three fundamental principles (Gadrey and Zarifian 2002).

Firstly, this is a model that combines three universes:<sup>8</sup> the universe covering the conception of the services that are included in research and development activities; the universe of the technical and administrative infrastructure that backs up the production of services, or, the back office; and the universe of contact with the customer-user, or, the front office. Secondly, the service company model is governed by a specific scheme of effectiveness: it starts with the symbolic and virtual definition of the transformation to be carried out in the business activity conditions and the arrangements for the action of a customer (or a specific category of customers), and ends with that actual transformation. It is to be noted that the income generated for the organisation (i.e. its performance) is determined in accordance with the customer's assessment of the service in comparison to the competition's offers or alternative options. This service company model also assumes – this is the third principle – that work is organised in a network or chain of activities. These include a dialogue and permanent relationship between the different professionals in each of the three service production universes (these universes will thus guarantee their reciprocal acceptance via social contact and the sharing of technology).<sup>9</sup>

With regard to work productivity in enterprises operating in the net economy, it is also important to consider that they seek to gain the loyalty of a certain customer capital, i.e. a group of clients, as stable as possible, that represents both a business potential and a resource. Thus work productivity models are often based on situations in which the basic teams carry out the job of supervising a reality that is, in fact, more virtual than real: indeed, the volumetric productivity of Internet economy enterprises is similar to a flexible Fordist model, though with certain particularities (Zarifian 2003):

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<sup>8</sup> The cooperation/coordination between these three universes is fundamental to the successful operation of the activity chains that cut across them, given that this separation tends to go against the traditional concept of the management control function.

<sup>9</sup> Examples are customer help-lines, a paradigm of the connection between technical and commercial specialists, or the shared use of the Intranet or e-mail networks in a particular enterprise.

- in the net economy, the market is still under construction, so it is not only a question of winning market share but of constructing the market and monitoring it as it matures;
- what is to be considered is an application of the ‘time to market’ principle, seeing that not only market share but also the quality of client relationships are considered.

Also in this service company model – and most particularly in the technical system – IT changes the processes of gathering, manipulating and transmitting data. In addition, it allows companies to make cost reductions and offer their services more cheaply, though with the same quality (Figure 1). Afterwards, information is one of the main production resources in services: to make the most of a service, consumers now need information ranging from access instructions for the service to the expected behaviour of customers and access conditions, and information on the way the service is provided or reserved. These two types of information may be supplied in different forms: traditionally, companies have the choice between dissemination using material means (paper, boards and messages) and that using staff, in direct or telephone contact, which represents a large part of the activity of companies.

**Insert Figure 1: Changes brought about by IT in service production systems about here**

It is also important to note that these specificities for IT use – and an analysis of them in contexts of innovation and knowledge – should not be separated from an attempt to understand the structure and operating models of the most complex organisations, in particular service companies in which this mass production requires, simultaneously, service customisation and individualised attention to differentiation among customers (Turner 1999; 2001). Only this way can these companies create value. We do not neglect the fact that for modern organisations – and, specifically, service companies – the operational level has acquired a holistic character in that ‘it is responsible for identifying customers’ needs and expectations and adapting services and products to these references’ (Bilhim 2001). According to the latter author, this situation has led to an inversion of the hierarchical pyramid and an increase in the importance of customer–supplier interdependence and proximity.

For this reason – principally on account of the combined effects of increased competition and IT use – service companies have altered their structure. It is interesting to observe how these structures, which are close to a mechanist bureaucracy, assume characteristics of decentralisation and a shift to flexible management models involving cooperation, in a structure bordering on adhocracy. In concrete terms, at the front-office level of customer contact, the 1980s and 1990s saw a reorganisation of service company activities, which were now oriented towards granting greater autonomy in their relations with customers (Figures 2 and 3).

**Insert Figure 2: Service companies in the Minzberg categories (a mechanist bureaucracy) about here**

**Insert Figure 3: Service companies in the Minzberg categories (the shift to adhocracy) about here**

The growing importance of computers in piloting business networks also changes the nature of breakdowns as they do not originate in the fundamental technology, which has become



fairly stable. The attention to risk becomes, therefore, a complex interpretation of events. But this organisational form creates a specific tension between two levels of professional practice: the first is directed at supervision, with increasing costs, that is anchored in the criterion of specialist staff and manufacturers, and the second at network construction and development, not from the standpoint of the data flow, but the quality of access. Moreover, in two studies that we carried out on a sample of 25 enterprises we ascertained the following needs in the profile required to carry out the various work activities in what we term as business contexts of innovation and knowledge (Table 1).<sup>10</sup>

### **Insert Table 1 about here**

In conclusion, it is important to consider certain specificities in work forms and IT use in 'contexts of information and knowledge', since, in this matter, it is a question of phenomena relating to the 'servicelisation' of work, with particular effects on technological systems:

- In the first place, it is worth considering that, in our view, the service company model is a proposal for a conceptually stimulating paradigm and that its application and principles can be extended to other sectors or subsectors of the economy. It should be stressed that, with regard to the operational interactions in this model, it is possible to observe, often simultaneously, a reduction in certain kinds of interaction (regularly the simplest, those that can be automated) and the intensification of other forms of interaction (generally the most complex on the level of cognitive mechanisms).
- Secondly, it should be remembered that effectively going beyond the merely administrative use of IT in business processes implies – in the most varied markets in which IT enterprises operate (from the public administration to the financial markets, telecommunications, trade, industry and services) – a greater demand with reference to acquisitions carried out electronically. This implies that formal consultations are made, for example, by e-mail and that other procedures are also innovative (making these kinds of tools universal).
- Thirdly, considering that the information society does not represent an end in itself, we also think that the structuring of demand by using IT should take account of two aspects of the provision of a service. On the one hand, that provision is framed within the time in which it takes place; this interval is fundamental in the assessment of service quality and – considering the forms of performance assessment – at this particular point we find an element of tension that is not to be neglected (even in the case of public services). On the other hand, it will also have to be taken into account that the quality of the services provided is often positively perceived in inverse proportion to their standardisation.

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<sup>10</sup> It will be of interest to mention that the data presented relates to two studies covering 25 telecommunications, financial and computing enterprises that operate in an environment that we classify as 'an innovation and knowledge context'. The fieldwork – which was qualitative in nature – concentrated on 25 in-depth interviews. It should also be mentioned that the full transcription of the corpus of results and the later qualitative processing were carried out using *OSR-NVivo* software, with the respective node, attribute and value definitions.

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