



The Phenomenon of Globalization

A Collection of Interdisciplinary
Globalization Research Essays

Philipp Strobl / Manfred Kohler (eds.)

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strongly supported us over the last years.

the fields of philosophy, architecture, economics, sociology, political science, journalism, anthropology, and law.

A special feature of the volume is that all contributions were written by scientists who worked on their dissertation projects at the time of the publication of this book. Every single article hence reflects state of the art of scientific globalization research. The insights of the contributions are highly up-to-date and most of them have not yet been published and will only be published when the dissertation theses of the individual contributors are finalized. This volume thus provides an insight into future research results.

In order to enable a better overview of the variety of different topics, we divided the volume into three sections. The first part (“Definitions and Measurements”) deals with theoretical questions on the phenomenon of globalization and discusses different possibilities of defining and measuring the term. The second part gives an insight into the functioning and understanding of the phenomenon (“Functioning and Understanding”). The main part of the book contains case studies of the phenomenon’s impact in different parts of the world. Here again, special emphasis is put on a preferably global approach.

The realization of this comprehensive project would not have been possible without the support of many individuals and institutions. We owe thanks to the Austrian National Union of Students (ÖH) and the office of the Vice Rector for Research of the University of Innsbruck. Both institutions provided the financial means for the project. We particularly want to thank our team of volunteers who did a tremendous job and eventually were responsible for the success of this volume. Manfred Kohler and Natalia Marczewska spent many hours proofreading the articles of this volume. Daniel Holzer was responsible for the graphic design and the layout, and Doris Stauder took care of organizational issues. Furthermore, we want to thank Andreas Exenberger for his friendly support and his introductory words.

Last but not least we want to thank you, the reader, for being interested in the topic of globalization and for buying this collective volume. We hope you will enjoy reading it.

Philipp Strobl

Bratislava, November 2012

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Introduction

The Phenomenon of Globalization: A First Orientation

Andreas Exenberger

Globalization is a catch-word, albeit a much used one.¹ This becomes clearer and clearer, the deeper one digs into the abundance of texts about globalization and different aspects of this phenomenon. As Jürgen Osterhammel and Niels Peterson phrased it in the introduction to their small book about the history of globalization, one already needs “pathfinder literature” to master this intellectual cornucopia.² Those who talk or write about globalization often do not talk or write about what it is – and consequently do not really enter communication about this phenomenon. Consequently, whenever the term globalization is used, categories become confused, concepts are mixed, a general meaning is presumed or a very specific applied more or less uncommented (particularly the last point is rather conspicuous in the economic debate about globalization). Sometimes the usage of the term is similar to the re-labelling of perishables, when “globalization” – maybe for marketing reasons – is simply affixed to something already known and differently named. The most prominent example of this strategy is the mix-up of “globalization” with free trade, liberalization or even progress. But the contrary is also true, of course, and some critiques of globalization equate it with the increasing destructive power of trans-national co-operations or with nothing less than all the evil in the world.

Given all these caveats, is the term “globalization” at all suitable as a scientific category? I propose a clear “Yes” as an answer to that question, for a simple reason: it is a “macro concept” (and as such comparable to concepts like “industrialization” or “modernization”). This refers to Osterhammel and Peterson and is consistent – for example – with the concepts of David Held (and others), editors of the *Global Transformations Reader*, one of the seminal publications in

1 The word as such originated in the mid-20th-century (it first appeared in English dictionaries in the early 1960s), but did not become academically popular before the 1980s, when it was applied in business research (its first use there is ascribed to an article by Theodore Levitt in 1984), and generally in the 1990s, when it became the catch-word it has been until today.

2 This book – interestingly enough – is one of the rare examples of a text originally published in German as *Geschichte der Globalisierung* (2003) and later translated into English as *Globalization* (2005).

From System of Exchange to Globalization

María G. Navarro

This paper analyses, from a philosophical perspective, the 16th and 17th century models of currency, as well as their influence on the types of society in which the models developed. To this end, we evaluate the study by the French philosopher Michael Foucault *Words and Things* on this subject and the principal foundations of Ludwig von Bertalanffy's systems theory. The 17th century model of currency is based on the notion of a system of exchange. The notion of a system of exchange represents a transformation of great significance, upon which the principal characteristics of our current globalised era are founded, not only in economic life, but also in relation to an understanding of the world that it implies. Furthermore, the notion of a system of exchange was the step before the current model of electronic payments of the digital era, in which large transactions (and also large data transfers) take place by pressing a button. As we will see these economic practices hold the key for a deepening of our philosophical and historical comprehension of concepts such as globalisation.

In the sixteenth century Davanzatti imagines and describes what point of view would be required to be able to contrast, according to known proportions, the reality of a precious metal and all existing things one might wish to compare it with before making an exchange. That is, its exchange; not its purchase.¹

"Nature made all terrestrial things good; the sum of these, by virtue of the agreement concluded by men, is worth all the gold that is worked; all men therefore desire everything in order to acquire all things ... In order to ascertain each day the rule and mathematical proportions that exist between things and between them and gold, we should have to be able to contemplate, from the height of heaven or some very tall observatory, all the things that exist or are done on earth, or rather their images reproduced and reflected in the sky as in a faithful mirror. We would then abandon all our calculations and we would say: there is upon earth so much gold, so many things, so many men, so many needs; and to the degree that each thing satisfies needs, its value shall be so many things, or so much gold".²

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- 1 Davanzatti. "Leçon sur les monnaies," in *Ecrits notables sur la monnaie de Copernic* à Davanzati, ed. and trans. by Jean- Yves Le Branchu (Paris: Librairie Félix Alcan, 1934).
 - 2 Davanzatti cited in Michael Foucault, *The Order of Things* (London: Routledge, 2002), 187.

The question Davanzatti poses is whether there exists something like a global point of view from which to measure physical reality and its actual value. However, the author seems to want to suggest to us that there is a prior question: what would be the actual material conditions that would allow us to make such a hypothesis? During the Renaissance, investigation into the material conditions that would allow human beings to find the appropriate economic criterion to accurately value objects in the world dominated the controversy over the function and nature of currency. Davanzatti's question is topical today: both the modern and the Renaissance controversies regarding the function and meaning of currency amid the totality of economic life are old witnesses to the astonishing phenomenon of so-called economic globalisation.

In an age such as ours, in which electronic currency is associated with plasma screens or even with acoustic waves, which we use to make commercial transactions, it may seem unlikely that electronic money should be associated with exchange and its elements. Nevertheless, for all periods and cultures, and despite scant evidence, currency is a form of materiality that involves uses, appropriations and knowledge that make it possible to differentiate among periods. In order to demonstrate the difference to which I refer I shall set out the differences between the 16th century currency model and that of the 17th and 18th centuries. After that description I shall offer a reflection upon economic globalisation.

1. From Renaissance gold to the modern function of exchange

In Davanzatti's text we find a cogent reason for doubting whether it is possible for the human being to establish a total equivalence among all things, all needs and/or all work. The fundamental reason is that neither all these things nor their equivalent in gold may be considered in their entirety. However, one thing seems clear. Gold, a rare metal, highly-prized and hidden under the ground, seems to carry in itself the mark of what is appropriate to the need to exchange everything that is likewise incommensurably diverse, precious with an extension and a signification equivalent to that of the sky where its true magnitude is reflected – as if to give our amazement an idea.

The power and the reality of currency stem from its materiality, from gold's rarity and wonder, from the unanimity of how strongly it is desired, which is equivalent to the effort of extracting it. But the gold coin – to put it briefly – is not an instrument of representation of any function of exchange. A proof of this is that the coin (gold) is one more object of exchange. Gold is desired for its own sake. The coins that circulate more quickly are those that have less weight in gold, because their intrinsic value is an object of value in itself. Coins are put

away, treasured jealously and protected from the vicissitudes of loss and circulation. My aim here is not to analyse how this model of currency accompanies a certain form of development – one that is extremely fragile due to the fact that the currency is subject to the same fluctuations in the exchange system as other goods. That fragility is evidenced by the fact that the abundance of gold brought back by the Spanish expeditions and circulated throughout Europe led to an immediate rise in prices. This was the price the Renaissance *episteme* had to pay as a result of the notion of currency understood as a kind of mark with an intrinsic similarity of that which designates and signifies. But there was something interesting in that mark: the spirit of the Renaissance *episteme* could not grasp that the mark of wealth (its splendour) was not vouchsafed by an element prized as the wealth of the world. And if, as Davanzatti suggested, that world could be contemplated in its entirety from some privileged vantage point, it would guarantee an exact and prior equivalence among all things.

The 17th and 18th centuries saw money considered as to whether it was fundamentally appropriate to replace what had a price, and the sovereignty of the language enshrined in the book of the world was, in a certain way, abandoned. Therefore what was being considered was whether it was appropriate for money to occupy the place of a fixed and universally legible characteristic. That appropriateness was no longer a question of splendour, but rather the immutable *function of exchange* in the instrument of currency. Consequently, currency became a mere instrument of representation of wealth: the only wealth in the world is what is minted. The advantage of gold or silver is that it favours the immediate representation of value that every transaction demands: both metals are materials that shine, are unchangeable and difficult to divide or break. These qualities are not the foundation of the exchange function; they favour it only from a psychological point of view. Nonetheless, coins only have a cash value when we succeed in replacing them with goods. Currency is therefore a sign; it represents a distinct identity in each case. Being a sign, it is not surprising that it can return to the hand that let it go, just as the same word can be uttered many times. The speed with which currency, as it is exchanged, serves its purpose of representing wealth and the speed with which it changes hands are what give rise to the generation of wealth. This was one of the great issues of mercantilism of the period. However, it is not intuitively clear how the conception of currency-sign was able to conquer an *immutable truth* by virtue of the exchange function. The circuits in which currency, by definition, circulates are governed, positively, by the rhythm of the harvests. Therefore the wealth that can be transformed into currency is, finally, as variable as the amount of gold coined in earlier times. The advantage, in economic terms, is that it is no longer necessary to hypothesise contemplation of the world in its entirety or the total amount of gold hidden in the mines *in or-*

der to daily verify the rule, since ultimately the development of money as an instrument of representation of the wealth of societies freed from the yoke of agricultural labour stems from the power to represent a speculation.

2. The value of representation

In modern times the value of things proceeds by means of the *so well distributed* faculty of estimation. That implies that any object may be used as a sign in the bustling panorama created by exchange functions, in a world where desire and need are all around us. Despite this, we find a profound contradiction in that model. There is a profound contradiction between the supposed purity of the function of value (as a form of representing promoted by money amid potentially infinite exchanges) and the individualised forms of wealth that make the sign have no value in itself but only by virtue of the wealth that is its referent: gold was cursed, but money is just as bad!

The gold of modern times is not found deposited in a mine deep under the ground, where one could dig and dig until at last it was all brought up, but rather in the length and breadth of the world, throughout space. In modern times one goes from sign to referent and from referent to sign in an infinite game of representation and supposed exchange. There is another consequence associated with the contradiction with which modernity experiences wealth. Currency does not obtain its value thanks to the Renaissance gold it was made from, but in virtue of the function of value. And that fact gives rise to a deep fear. Since wealth is no longer gold qua gold, but rather the plural forms in which our desires and needs are manifested and transformed, it may be said that there is as much gold on earth as there are human beings. That fear is implicit in the well-known expression *each nation has its gold*.³ This was one of the great themes of mercantilism. Once more the image Davanzatti spoke of appears, that of the world in its entirety, but this time from the standpoint of the chain of relations established by the tyranny of an exchange system. How could money escape the dilemma of the sign without value?

3 The evocation of 'black gold' (or oil) is inevitable, as is the crisis of capitalism in the mid 1970s and the rise in price of that 'cursed gold'. We should also remember the exhaustion of the economic model of the Industrial Revolution understood as a separation between the product and the process of work. The new technological revolution will consist of integrating the product and the productive process. These changes make the grandiose manufacturing groups unnecessary: once they are segmented and fragmented they make the dynamics of a system more flexible. The restructuring of the productive apparatus has its counterpart in the changes in social structure. It is not surprising that economic globalisation should be added to socio-political globalisation.

In the 16th century the increase in metal entailed an immediate increase in the price of goods, as there was a devaluation of the gold that currency placed its stamp upon. But in the 17th century the devaluation mechanism was defined by a function that was also variable, although in a sense unknown until then: because the gold of the modern era no longer has to be sought under the ground; it is above ground and it is called *commerce*. The value of currency is in its relation to the globalised totality of commerce. The old Renaissance model has been radically transformed in the modern era. In modern times it is no longer believed that proportion may be observed in the entirety of things, in that form of totality reflected in the language of mathematics that assured humankind that proportion is present everywhere. On the contrary, in modern times we think that goods bear no objective mark to vouchsafe the amount of money to be demanded. So, as Foucault suggests, modernity's dilemma is that if something's value does not lie in itself - and the need to exchange seems to support this - neither does it lie directly, in a pure and precise way, in a value function or in the totality of commerce, but rather in the originary *interior* of a *representation*. Contemporary philosophy, psychology and sociology have had a lot to say about mechanisms, impurities, paradoxes, *desires*, etc., that are present in the very body of the representation, and the economic and advertising practices of our time seem already to have learnt a lot about them. But let us address the subject of *desire*.

3. The value of desires themselves

In 1983, in *Harvard Business Review*, Theodore Levitt published an article, later reprinted with the title "Globalization of Markets".⁴ That article sets out two fundamental ideas: technology exerts a homogenising force after a prior homogenisation of desires - desires for technology, presumably; and secondly, this situation is indispensable to the development of a form of production called 'economies of scale'. The article mounts a virulent and yet reserved defence - notwithstanding the contradictoriness of this description - of the economy of scale, for the sake of what Levitt called 'the globalised company'. With this term he wished to supplant 'multinational company', which was the fashionable term in the 1980s.

A multinational company contemplates the indigenous differences of the area where it is located, whether in its internal organisation or in the products with which it enters into a specific relation with its exterior or *environment*. But a globalised company does not in any sense abandon the aim of standardising its

4 Theodore Levitt, "Globalization of Markets," *Harvard Deusto Business Review* 61 (1983): 92-102.

products, because the customer does not govern her *desires*. I believe that this assertion, put forward by Levitt and many others, should not seem strange when we remember that the value function in the modern age forces upon currency a relation of abstract representation in which it measures according to a pattern. The object for which currency is exchanged does not endow itself with value but acquires it eventually within the entire apparatus of a more or less unstable system of commerce – as unstable as the desire for the products of that commerce. So it seems reasonable for globalised companies to have as one of their most important goals the manipulation of those desires that motivate a purchase. Even in the case of a model buyer who will clinically change one for the other (desire for product) we can ask: Does his desire really belong to him in the same way as that into which it is transformed? The model buyer seeks to fulfil his desire by exchanging it for the product, which is almost identical to his desire. But if many products are presented to him answering equally well to his desire or to his original need, it may be said, following Levitt, that for practical purposes the customer does not *achieve* his desire. In some way, this *interior* in each person rather resembles Renaissance gold in the sense that for an instant it relieves us of the wearisome effort of mentally representing the world's riches in their entirety.

Economies of scale represent a bid for the power of uniform desire in a world from which the former customs houses have been eliminated. The standardised construction of desire ensures the elimination of considerable production costs. This is precisely one of the differences between economies of scale and economies of focus. The latter are doomed to be eliminated by the former.⁵ The economies of focus relate to an excessively complex environment; whereas the way economies of scale relate to the environment is governed by a strict principle of simplification.

The fact that the value function made the image of commerce in its entirety appear as one of the causes of price determination and that, therefore, currency went from being a good to an instrument of measurement and arbitration of the value relation, revealed a number of difficulties. To express it with Renaissance nostalgia, value is a relation and not a mark written in a friendly fashion on the flank of the world's signs. Embracing the world as a whole does not resolve the

5 The economies of focus involve a high degree of specificity, but this requires, from the point of view of production, a matching specificity: flexible automation of production processes without thereby foregoing the need to produce sufficient quantities to generate a profit margin. Specificity is subject to change, and this demands not only high costs of production, design, market placement, marketing, etc., but also a constant policy of product differentiation, since products are often fatally absorbed by rivals and their originators consequently have difficulty in profiting from them.

enigma of the ultimate truth about the function of exchange, because that function is intertwined with the urgency of the desires to be fulfilled in the face of such and such finite and available goods, but not its ideal whole. Both the dynamic of unfulfilled desire and the limitation of information, that is, the dynamic inherent in the partial availability of what is real in one and for one (what is available to one as a reflective individual is also partial) make this consideration immediately relevant: that the delay in transmission of information acts upon the relations of exchange. But this important factor is also an essential part of commercial activity in its entirety. The following imaginary scenario will help us to appreciate how much is at stake for a company that fails to take risks with energy and determination in the global struggle to represent reality and purport to inform afterwards:

“Let us suppose that at a given moment the price of a product in the marketplace - apples for example - falls significantly. The number of apples sold will rise as a result of this decrease in price. However, the number of apples sold will not respond instantaneously to the price variation [...] the buyers' perception of the price drop of the apples requires a certain time, which means that there is a delay between the decrease in price of the apples and the increase in apple sales”.⁶

To sum up, we have seen that the transformation of the sign of currency includes a series of changes that accompany it to the point that currency (to put it in a Deleuzean way) can be understood as the surface of a practice. One of the polemics that runs through the spirit of mercantilism is precisely whether commerce as a whole is the most important referent in determining the shifting and variable value of the currency-sign. We have also wondered how to understand one of the most powerful forms of production, namely, large-scale production. After the economic impact of the transport revolution, together with large-scale production, an ostensible difference was established in the possible forms of commercial exchange at both national and international levels. Theodore Levitt said it in an affirmatory tone when he asserted that there was an association between economies of scale and globalisation. At the time Levitt asserted this the amazing effort that went into publishing and disseminating books on the term 'globalisation' was still in its gestation period, but perhaps for this very reason some things could be seen with a less standardised clarity. Not all forms of production or all types of commercial exchange have had equivalent effects on the

6 Javier Aracil, *Introducción a la dinámica de sistemas* (Madrid: Alianza, 1992), 129.

forms of social organisation. We shall now deal with the most important features of large-scale production.⁷

4. Scaling towards indiscrimination

Economists understand *economies of scale* to be the multiple ways, according to the product in question, of achieving the reduction (this is not plural, since there is only one ideal solution) of a product's unit cost by means of producing it in great quantity. Following Charles W.-L. Hill we may say: The economies of scale have a number of sources/resources, one of the most important apparently being the ability to distribute fixed costs throughout a large volume. Fixed costs are those required to establish a certain ease of production and to develop a new product that may be economically substantial. The nature of the practice contains the main themes of the idea of a globalised world.

"For example, the fixed cost of establishing a new production line to manufacture semiconductor chips now exceeds \$1 billion. Similarly, according to one estimate, developing a new drug and bringing it to market about \$800 million and takes about 12 years. The only way to recoup such high fixed costs may be to sell the product worldwide, which reduces average unit costs by spreading fixed costs over a larger volume. The more rapidly that cumulative sales volume is built up, the more rapidly fixed costs can be amortized over a large production volume, and the more rapidly unit costs will fall."⁸

The consequences of a satisfactory recouping of costs give rise to investment (never optional, but always necessary), especially technological investment, which is absolutely necessary and ensures the possibility of the large-scale production line. Speed is essential in carrying out the process. A further consequence of this is to create difficulties for the survival of other companies in the sector with different forms of production. Large-scale production yields comparative advantages in relation to prices. Naturally, the claim that the comparative advantage gained from an economy of scale affects the market cannot be

7 The phenomenon of globalisation – as a reality and as an idea – surrounds itself with so many dominant and conflicting themes that the development of each one gives rise to a different definition of a mistaken reality by definition and according to that definition, as a reality and/or as an idea. The word evokes a world in transformation. One of those dominant themes is the economic reality and its huge power over the socio-political order. That power has been increasing to the point where commerce involves forms of expansion system dynamics that provide it with feedback. It may be said that the world was destined for globalisation.

8 Charles W.-L. Hill, *Global business today* (New York: Irwin Mc Graw-Hill, 2007), 374.

maintained without a certain margin of confidence in the basic principle of economic rationality, which states that every agent seeks to maximise his profits and minimise costs.

One of the immediate effects of these economies of scale was the need for integration and co-ordination both at production and management levels. The aim of recouping costs in itself exceeds the restriction on enrichment imposed by nation states. Is this enrichment perhaps assured by the model of domestic and protectionist economies? No. The forms of large-scale production and indiscriminate – and thus global – selling demand new forms of management in order to direct processes with a life that goes beyond national borders. This is why the large companies are the first to earmark funds to pay for the work of researchers who investigate the transfer of large sets of signs, ways of life, products, etc. so as to install organisations subsequently in new settings.

The emphasis on organisational aspects (over and above those concerned with mere accounting, which in itself is blind) is one of the factors of change in today's companies. There are two reasons for this. Firstly, organisations are interested in achieving full adaptation to a globalised world; secondly, it is important to display a clear mastery of the medium in which adaptation to change takes place. The success with which both these things are done is a measure of the difficulty rivals will face when they try to adapt. The old patronising ideology of national corporatism, protectionism and social welfare is no longer profitable in this new panorama.⁹

Among the many descriptions found during a quick plunge into texts that reflect the new business scene, I shall offer here some of the distinguishing features of the *episteme* of our age. But meanwhile, the transformations in the sphere of business organisation are a perfect embodiment of what the German biologist Ludwig von Bertalanffy, in the 1960s, called *general system theory*. Bertalanffy coined the term with a certain degree of consistency from the 1930s onwards. The term gave rise to important research societies after the Second World War.

9 Many forms of company organisation and economic practices that these ideologies served have ceased to be effective in the world we live in. Thus, for example, the market economies in the 1960s were dominated by monopolised firms using mass production, which were protecting national markets and often at the same time operating as transnational corporations. There were also forms of production with a more centralised basic ideology because they produced for domestic markets. We find a good description of this in the article by Malcolm Waters, *Globalization* (London/ New York: Routledge, 1995 2nd ed.), 60-93.

Many authors agree in affirming that this change of organisational paradigm represents a transformation that might be called *toyotism* (from Toyota). The Japanese example has obliged many sectors to develop certain practices, above all those related to flexible accumulation and specialisation. An example of this type is, for example, the practice of flexible accumulation called *just-in-time*, which consists of minimising the inventory volume at each stage of the production process, since too large an inventory means a non-realised value. It may seem an irony of fate that this technique in the production process is the one employed by the Ford factory in Michigan where, avoiding every kind of unnecessary accumulation of stock, the components arrive only an hour before they are needed, and very seldom do they remain in the factory more than a week. The components are compulsorily stored somewhere – in case old Henry Ford should raise his head and ask for the inevitable – but not there, in the place where production occurs, which involves a high risk in itself. Rather they are stored in more than six hundred companies or subcontracted *sub-systems* in, apparently, more than thirty countries, whose purpose is to supply components to the Ford factory.¹⁰

This flexible accumulation may involve a flexible specialisation: each division of production into stages necessarily has its team of workers. This practice does not have the aim of speeding up manufacturing processes, but rather that of producing on the safe basis of an existing demand. First sell, then produce: this is the secret of the technique economists, for this very reason, call *just-in-time*. The reduction of the greatest elements of risk – always unnecessary in this sector – has as its counterpart the unnecessary accumulation of goods. The risk of producing components – derived from the success achieved in persuading economic agents to take up the option of buying – is partially assumed, since the other subcontracted sub-systems also assume it.

10 The data on the Ford factory in the USA can be found in Richard J. Barnet, *Global dreams. Imperial corporations and the new world order* (New York: Touchstone, 1994). One might ask which countries these are: thirty countries are producing components for a factory in Michigan! In 1991 the Levi-Strauss company subcontracted employees in Chinese prisons for its production. In Guatemala there are 250 companies that supply companies such as Sears, Gap or Kmart, where: “[...] In order to go to the bathroom, a woman needs a pass from her supervisor, which may involve sexual favours. Many women have been beaten and sexually abused. One factory [foreman] regularly beats women on the stomach every 15 days to weed out those who may be pregnant...” Barnet, *Global dreams*, 43.

5. The reduction of what is diverse in the economic system

The Japanese system of quality control depends on all the workers involved in production. This is the phenomenon alluded to above with the expression *flexible specialisation*, which is also commonly called *total quality management*. Concepts such as *teamwork* point towards the same reality. What it means is that a small number of workers share a specific stage in the production process that others will take charge of in the same temporary fashion. This means that knowledge of the techniques and strategies employed will predictably be transmitted by the workers among themselves, according to the requirement of maximum competence in multiple tasks as an organisational principle. The dominant feature is therefore decentralised management: let the rigid reality of centralised control give way to the image of a multi-layered hierarchy surrounded by a floating scaffold of flexible changes and practices arising in response to variations in demand on the part of consumers in the grip of an infinite and cyclical assignation.

It would be extraordinarily complex (and, in fact, of doubtful usefulness) to chronicle how these practices originated in the framework of the business organisation of production. However, to show the connection and assimilation between, on the one hand, what Levitt called ‘the globalised company’ and, on the other, the development of general system theory and system dynamics, would require us to point out the conceptual isomorphism between the most important concepts of general system theory and those that surreptitiously arrive at the above-mentioned practices.¹¹ I shall mention this briefly here.

To implement and manage in an organised way economic processes that go beyond national borders makes it necessary to invest in research and technology in order to transfer large sets of signs, ways of life, products, etc. This is because when a system is open, that is, when there is an exchange of information between a system and its surroundings, the only way of interrupting the inexorable progress of entropy is by increasing negative entropy with a process of information transfer. This is something that is present in the far from ingenuous disposi-

11 In the mid 1950s, a company called Sprage Electric, which manufactured electronic components and had, in turn, electronics companies as customers, realised that there were considerable fluctuations in its number of orders. This was rather strange when we consider that being a highly specialised market with very strong customers it was assured of a flow of orders. However, this did not happen. It was then that the company commissioned J. W. Forrester to conduct a study of the problem. Forrester’s conclusions gave rise to the first work in system dynamics. His conclusion was that the combination of a series of delays in the transfer of information generates the fluctuations observed. Javier Aracil, *Introducción a la dinámica*, 32.

tion of the workers in what was called *total quality management*. The workers have to explain to each other the knowledge acquired during their respective assignments in designated jobs, as the various jobs are shared by everyone. But we may also observe here the presence of what R. Ashby called the *law of requisite variety*.¹² The law of requisite variety states that the variety generated in a medium – here, *medium* is not that to which the *output* of the system in question is related, but rather the medium of work in itself – must be equal to the system's capacity to absorb it. Absorption is brought about by *reduction* of semantic variety, that is, the communication among workers with interchangeable jobs. Indeed, if that reduction of variety in opinions (resulting from each individual in their fixed and untransferable job having a different opinion) did not exist, no reduction could be achieved, because the pragmatic group impulse would fail to take place since it would be acting in accordance with a common transfer of information. However, the accumulated information avoids entropy in a predictably creative way. This fact means a benefit for the system as a whole, as an excess in effectiveness or automation of information transfer reduces the ultimate effectiveness of the organisation.

Now, with regard to the description of Ashby's law in terms of a medium, which is in effect the environment that receives the system's output – this world that is us, the medium we comprise as consumers – it may be said that the *reduction* of requisite varieties becomes a simple mechanism for standardising our desires.

The importance of approaches such as this lies only in their attempt to understand the nature of the mechanisms, or rather, the systems that dominate the world. But we should not forget that there is no immanent rationality at all in the relations of production. That is why the most important questions demanded by economic globalisation are those concerned with its rationality and its justice.

12 William Ross Ashby, *Design for a Brain* (London: Chapman & Hall, 1952). We also find a classic study of the question in Oscar Johansen Bertoglio, *Introducción a la teoría de sistemas* (México: Editorial Limusa, 1982).