Management from the perspective of systems theory

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Abstract

Usual management theories focus on phenomenological aspects of organisations and management. Abstract communication systems theory offers a different approach, which can be used to analyze social systems, uncover their internal logic and structure, and to understand their interactions with other social systems. We show in this paper how to apply the abstract communications systems approach to management. This analysis reveals that the management is a sub-system of the organisation, which deals with memories of the organisation, and organizes as an information sub-system and possibly as an identity sub-system of the organisation. We discuss how the systems theory interpretation helps in understanding some management related issues: the growth of management, charismatic leadership, and the trade-off between complexity and standardisation.
1. Introduction

Modern theoretical analysis of management started in the late 19th century\(^1\). Several management theories were developed mostly in the first half of the 20th century\(^2\). These theories typically consider the process of management and the activities of managers from some particular point of view, and organize the corresponding phenomenological observations into a systematic theory (e.g., the behavioural roles of managers within an organisation in the case of Mintzberg\(^3\)). So far none of these theories became dominant, mainly because the actual relevance of a phenomenological approach changes with the organisational context.

The theory of abstract social communication systems\(^4\) conceptualizes social structures and organisations as systems of inter-human communications. In this interpretation the system is made of these communications, while the humans themselves are ‘communication units’ – in other words, humans produce communications but are not themselves part of the system of communications. According to this theory, every human may produce communications that are part of several different communication systems. Systems theory offers powerful tools to analyze social systems, uncover their underlying logic and structure, and to understand their interactions. We note that Barnard\(^5\) used a similar theory to describe organisations and analyse management. Another similar approach is the social rule system theory of Burns and Flam\(^6\) and similar ideas can be also found in works of Simon\(^7\) and in interpretative theories of organisations\(^8\).

We here propose an application of the theory of abstract social communication systems to analyse processes and phenomena related to management. In our view management is a sub-system of an

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3 Mintzberg *op.cit.* 1973
5 Barnard, CI *The Functions of the Executive* Harvard University Press, Cambridge, MA 1938
organisation when the organization is considered to be an abstract social communication system\(^9\). We describe a systems theoretical interpretation of management and discuss how this interpretation can help to understand some management related phenomena (such as the growth of management, the role of charismatic leaders, standardisation, and the role and meaning of complexity). In Section 2 we give a summary of the phenomenological description of management, considering several well-established management theories. Section 3 provides an introduction to the concepts of abstract communication systems theory. In Section 4 we analyse management by applying the interpretational framework of systems theory. Section 5 discusses some management related phenomena in the context of system theoretical interpretation.

2. Management phenomenology

One of the earliest systematic analyses of management was proposed by Fayol\(^10\). In his view management can be divided into five functional roles performed by managers, which are: (1) planning, (2) organizing, (3) commanding, (4) controlling, and (5) coordinating. This analysis of management focuses the attention on the output of actions of managers, and categorizes these actions into five classes according to the predominant characteristics of the output of these actions. By choosing this particular viewpoint for the analysis of management, the Fayol theory ignores the subtleties of interactions with members of the organisation. Ignoring these matters implies that the Fayol theory is unlikely to be able to handle management problems arising from cultural differences.

Another more recent management theory was proposed by Mintzberg\(^11\). His theory approaches management by analysing and categorising the behavioural roles of managers. He differentiates between leadership roles, informational roles and decisional roles. Within each category he defines several subcategories, like the figurehead role as part of leadership roles, or the information dissemination role as part of informational roles. This approach focuses on behavioural characteristics of the interactions of managers and the members of the organisation. Adopting this viewpoint, Mintzberg’s theory ignores to a good extent the role of structural constraints within the organisation (these are considered at most in implicit terms). By ignoring the role of structural constraints this theory cannot provide much advice on the standardisation of organisational procedures and on the desirable level of standardisation.

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\(^9\) Charlton, BG and Andras, P 'The nature and function of management - a perspective from systems theory’ accepted for publication in *Reason and Practice* 2004

\(^10\) Fayol *op.cit.* 1949

\(^11\) Mintzberg *op.cit.* 1973
A classical example of phenomenological analysis of management is the description of the charismatic leader. The charismatic leader possesses a number of intellectual and cognitive skills and features that make him/her able to empathically communicate with a large group of followers, motivate followers to overcome temporarily their individual limitations, and to find convincing candidate solutions of difficult complex problems in relatively short time. Charismatic leaders are needed and welcomed in organisations struggling with a complex interrelated multitude of problems, while in organisations settled on stable development path charismatic leaders may generate significant deviation form this path and may cause deep troubles for the organisation. Charismatic leaders cross many boundaries, and their actions, behaviours cannot be easily categorized correctly on the basis of phenomenological criteria defined for usual managers in usual organisations. Consequently, phenomenological management theories cannot satisfactorily analyse issues related to charismatic leaders, and cannot provide analytical explanations about charismatic leadership.

Another typical problematic issue for management theories is the complexity of organisations. Early theories (e.g., Fayol) put the emphasis on the need for a reduction of complexity and for increasing standardisation of operations and organisational structures. More recent evolutionary theories highlight the apparently opposed need for increasing complexity in organisations. Generally, phenomenological approaches can describe the complexity of an organisation and the complexity of management in any given case, but they are unable to provide a general advice about when and in what conditions to increase or decrease the complexity of organisation. This is mainly because, depending on the chosen focus of the phenomenological approach, complexity is either a positive or a negative feature of management.

Generally the phenomenological management theories are troubled by inherent problems related to their preferred viewpoint of analysis. This preference imposes a selection of organisational values (those, which support the analysis) and means also the ignoring of management related features and phenomena that does not fit to the imposed values and related analytical categories. More recent management theories based on neutral observation of organisational life achieved some progress.

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12 Weber *op. cit.* 1978


14 Fayol *op. cit.* 1949


compared to traditional phenomenological theories in the sense of capturing a more complete picture of organisations and their management17.

3. Abstract communication systems theory

In this section we introduce fundamental concepts of abstract communication systems theory following the work of Luhmann18. Each introduced concept is explained in theoretical terms supported by practical examples highlighting the relevant features of the concept.

Communications are sequences of symbols communicated between communication units. Abstract communication systems are made of such communications between communication units. The communication units are not part of the system. Communications are not simple atomic units of information since they reference other communications, in the sense that the sequence of symbols contained in a communication is dependent on the contents of other earlier or simultaneous communications and thereby refer to them. A dense cluster of inter-referencing communications surrounded by rare set of communications constitutes a communication system.

For example the system of science contains all communications which reference earlier scientific communications and which follow the rules of scientific communications (e.g., allowing the possibility of falsification, using logical reasoning etc.). A large part of these scientific communications are scientific papers, which explicitly reference other scientific papers, and use the conclusions of earlier papers as premises of the logical reasoning presented in the paper. According to systems theory, the human scientists are not part of the system of science, only their scientific communications are part of this system.

A communication system is defined by the regularities that specify how referenced communications determine the content of a referencing communication. All communications that follow the set of rules defining the system are part of the system. Other communications that do not follow the rules of the system are part of the system’s environment. Therefore from the systems perspective the world is constituted by the system and the environment. The set of regularities of referencing constitutes an abstract grammar, which defines an abstract language, characteristic of the system. For example the sciences of economics and medicine have different specialist languages, and scientific communications belong to one of these sciences according to whether they follow the rules of the specific language.

17 Wollnik op.cit. 1995
18 Luhmann op.cit. 1996
Communication systems reproduce themselves by recruiting new communications, which follow the referencing rules of the system. How successful is the recruitment of new communications depends on earlier communications generated by the system and on the match between the system and its environment. We can view the system as a self-describing system made of communications, which at the same time describes its environment in a complementary sense. (In other words, the system’s only knowledge of its environment is within the system itself – the system models the environment, and that model is the sum of its knowledge of the environment.) Better descriptions of the systems environment lead to higher success in recruiting new communications and more rapid reproduction and expansion of the system.

As an example we may consider an economy where the system of monetary transactions describes the economic environment faithfully, i.e., the right price is paid for goods and services with the right value. This economy grows and it is characterized by small and stable increase of prices. In an economy where the price changes fluctuate more or less independently of the value of goods and services the monetary transactions are characterised by significant inflation. In such economy the system of monetary transactions does not describe the economy faithfully and the economy is shrinking. In both cases the monetary system describes the economic environment through generating new transactions by applying its own rules that define how new monetary transactions follow earlier transactions (e.g., a bank may provide loans if it has enough reserves). If the description fits the economic environment there is little inflation. If there is not so good fit the economy is characterised by high inflation. Economies with low inflation generally grow faster than economies with high inflation.

Systems that reproduce and expand faster than other systems may drive to extinction the slower reproducing and expanding systems. The limits of system expansion are determined by the probabilistic nature of referencing rules. A communication may reference several earlier communications indirectly through other referenced communications constituting referencing sequences of communications. The indeterminacies of referencing rules determine how long can be such referencing sequences of communications before the later communications become a random continuation. Longer referencing sequences of communications (i.e., more detailed descriptions) allow better descriptions of the systems and its environment. The optimal size of the system (i.e., the number of simultaneous communications being part of the system) is also determined by the indeterminacies of referencing rules. Systems that overgrow their optimal size may split into similar systems.

For example we may consider the introduction of electronic storage and management of information in companies. Before this, information was mainly stored on paper. Paper storage of accounting data for example increases the likelihood of making errors in calculations compared to electronic handling of the same data, and also makes it difficult to handle very large amounts of data. Electronic storage and data management decreases the likelihood of calculation errors and allows efficient organisation and
handling of huge amounts of data. In both cases the data describes the environment of the company, but in the case of electronic data it is possible to reliably perform much more complicated operations with the data (i.e., longer sequences of such operations) than in the case of paper based data. This implies according to systems theory that the environment descriptions of companies using electronic data are better than the environment descriptions of companies using paper based data. Indeed, companies adopting electronic data easily out compete companies using paper based data. When companies overgrow their optimal size, they typically split, by creating subsidiaries (e.g., increase of business in a region may trigger the creation of a regional office).

Communication systems may develop sub-systems that are systems within the system, i.e., they constitute a denser inter-referencing cluster within the dense communication cluster of the system. Communications that are part of sub-systems follow system rules with additional constraints that are characteristic of the sub-system. More constrained referencing rules decrease indeterminacies and allow the system to generate better complementary descriptions of the environment and expand itself faster than systems without sub-systems. Systems may also change by simplification of the set of their communication symbols (i.e., reduction of the number of such symbols). This may lead to reduction of indeterminacies in the referencing rules. Consequently systems with simpler sets of communication symbols may expand faster than systems with larger sets of communication symbols.

For example in the case of small companies most activities (e.g., marketing, production, planning) are done by the same people. In larger companies there are specialized groups of people, who are involved in a restricted set of activities (e.g., they work in the marketing department). Small companies are characterized by more indeterminacy and grow slower than large companies, which have specialized sub-systems (this applies when the companies are well below their upper size limit).

Another way of extending reliable descriptions of the environment (i.e., non-random sequences of referencing communications) is by retaining records of earlier communications, i.e., by having memories of earlier communications that can be referenced by later communications. In a sense we can view such memories as the creation of new communication units (or recruitment of communication units) that produce for a certain period a certain communication that can be referenced in place of some other communication (i.e., the one which is represented by the memory). Having memories reduces the indeterminacies in referencing by allowing direct referencing of much earlier communications, instead of referencing them through a chain of references. Systems with memory can expand faster than systems without memory. In the context of human communications such memories of communications are written or otherwise recorded verbal communications and human artefacts that can be seen as memories of human behavioural, verbal and written communications that led to the creation of the artefact.
As an example we may consider the effect of printing on science. Before printing was invented science developed slowly, as it was based on difficult and time consuming reproduction of scientific texts by handwriting. After the invention of printing the system of science was able to expand much faster than before, having more available memory communications (written texts).

Systems with memory may develop a memory or information sub-system (i.e., the memory is information about the past of the system) consisting of communications between communication units generating memory communications. Information system communications reference memory communications and can be seen as representations of information processing operations. The information sub-system emerges if information processing communications constitute a dense cluster of inter-referencing communications determined by a set of characteristic referencing rules. Having an information sub-system allows combination of memories and by this the generation of descriptions of the environment which are better than such descriptions in systems with memory but without information sub-system.

As an example we may consider an individual, who works occasionally providing home repair services besides his regular job. He keeps records of his expenses and his works for later reference. These constitute the memories of the system of his occasional works. When he turns his occasional works into a proper business, he has to analyse his records and make longer term plans about buying and storing consumables, planning jobs well in advance, hiring helpers and subcontractors. The business can be created if he manages to build up the information sub-system of his business that processes information stored in memories of the business. The system of occasional works is likely to grow slowly or to stay constant, while a system of a business will grow fast until it reaches its limits of growth.

The information sub-system of a system may turn into an identity sub-system if communications within the system reference regularly information processing communications in order to check their own validity in the context of the system. Having an identity sub-system decreases the likelihood of generating wrong communications that cannot be referenced according to the rules of the system. Reducing the likelihood of wrong communications helps the expansion of the system by providing guarantees that the system communications are correct and can be referenced by further system communications.

For example in the context of the political system political decisions are formulated as laws or regulations, which are codified using a well-defined legal language and are preserved in many printed copies. These laws are referenced later in future political communications in order to guarantee that the laws are respected and the new political communications can be referenced without causing contradictions with the existing legislation. Laws may be changed, but this happens usually rarely, and
only when the political environment is changed significantly, such that the law does not describe the environment properly anymore. Countries characterised by stable laws, which are in force for long periods, have well developed political systems with many stable political institutions. In countries where laws are changed frequently, i.e., they are not effective in guaranteeing that new political decisions are compatible with earlier political decisions, the political system remains small and political institutions are unstable.

Systems compete with each other for communications. Systems which have better complementary descriptions of the environment can generate communications that fit better their environment and make easier the recruitment of new communications. Systems with better environment descriptions out compete systems with less good descriptions of the environment. Systems having sub-systems, simple communication symbol set, memory, information sub-system, and identity sub-system can generate better descriptions of their environment than systems which lack any of these features.

4. Management systems

Following the foundations laid by Barnard\textsuperscript{19} and later by Luhmann\textsuperscript{20} we view the organisation as the system of communications between members of the organisation. In particular we consider the organisation the cluster of such communications, which reference other communications between members of the organisation, and which follow the referencing rules of the organisation. We include in the organisation all verbal, behavioural, written or otherwise registered communications or behaviours. The communication units of the organisation system are humans who are member of the organisation and memories of earlier organisational communications. Such memories are artefacts produced as the effect of organisational communications (e.g., objects produced by executing behaviours described in handbooks and regulations of the organisation), services produced within the organisation (i.e., these provide summary symbolic terms to refer a multitude of interrelated communications, which reference each other according to well specified rules), written text or other types of recordings of organisational communications (e.g., regulations, memos, electronic databases). The memories reproduce the communications that they memorize and allow direct referencing of them.

Phenomenological descriptions of management typically highlight its intimate relation to power within the organisation, where power means essentially the power of decision over regulations, resources, and solutions of disputes\textsuperscript{21}. In the context of interpretation of organisations as abstract communication systems this power corresponds to the set of communications, which reference memories of the

\textsuperscript{19} Barnard \textit{op.cit.} 1938
\textsuperscript{20} Luhmann \textit{op.cit.} 1996
\textsuperscript{21} Kieser \textit{op.cit} 1995
organisation. Such communications are about how to produce and use object and service memories, how to change written memories like regulations, and how create and use other written and electronic memories. These communications constitute the set of communications referencing memories of the organisation. In our view the management in a general sense is this memory referencing part of the organisation.

The memory referencing communications organize into an information sub-system as they form a dense network of inter-referencing communications. By forming an information sub-system a specialized internal language is developed. In small simple organisation (i.e., system of communications between humans) the management is simply the set of communications that reference objects, rituals, and generally communications representing material and procedural resources (e.g., occasional group of loosely connected people). In larger, more structured organisations the management constitutes an information sub-system of the organisation, having its own rules of referencing and forming a dense cluster within the cluster of communications constituting the organisation.

The management as information sub-system of the organisation is made of communications following the rules of a specialist language. Management communications reference memories of the organisation and also other management communications. Management communications which reference other management communications perform information processing within the organisation, i.e., they evaluate sets of memory communications and related management communications, and select management communications, which by referencing memory communications and other management communications prepare the organisation for further reproduction and expansion. In phenomenological terms the information sub-system collects information about the organisation and its environment, processes this information, and generates information about the organisation for internal and external use.

The management sub-system of an organisation may turn from information sub-system into an identity sub-system, which provides reference for organisational communications in order to check their correctness. An organisation in which the management sub-system works as an information sub-system and also as an identity sub-system is likely to expand faster than organisations which have more primitive management components (i.e., set of communications referencing memories, or information sub-system that does not act also as an identity sub-system). From a phenomenological point of view the identity sub-system is seen as management that: (1) defines the identity of the organisation by setting rules and regulations, (2) checks the identity of the system by collecting information about the organisation and implicitly about its environment, and (3) enforces the identity of the organisation by deciding which components of the organisation should stay unchanged and which needs to be changed, eliminated or expanded.
Advanced management sub-systems of organisations contain many specialized inner sub-systems. These inner sub-systems contain management communications that deal with some particular aspect of the organisation, like human resources, finances, marketing and others. These inner sub-systems have their own specialist language that is simpler than the language of general management communications. Management sub-systems, which have specialized inner sub-systems can build better representations of the organisational environment and help the faster expansion of the organisation.

The management sub-system of the organisation describes the organisation and also in a complementary sense describes the environment of the organisation. If the description of the environment matches well the actual environment of the organisation the recruitment of new communications is likely and the organisation will expand successfully. Otherwise the communications within the organisation will be less successful in providing reference for the recruitment of new communications for the organisations, and the organisation will not expand. Mismatches between the actual environment and management predictions about the environment (i.e., management communications that lead to organisational expansion if a set of underlying predictions about the environment are true) lead to problems in finding new communications that can reference earlier communications. Such problems trigger innovations within the management sub-system in form of changing the referencing rules of management communications (e.g., new analysis and evaluation procedures).

In our view the management is a sub-system of the organisation perceived as an abstract social communication system. The management is constituted by organisational communications that reference memory communications or other management communications. The management sub-system works as an information sub-system of the organisation collecting information about the organisation, processing this information and making decisions about the organisation using the analysed information. More developed management systems are also identity sub-systems of the organisation providing reference for organisational communications to help the assessment of their correctness according to the referencing rules of the organisation. Advanced management sub-systems have also inner sub-systems specialised to deal with particular aspects of the organisation. Organisations with more advanced management sub-systems are more likely to reproduce and expand faster than other organisations with less advanced management sub-systems.
5. Discussion

A. Growing management

An interesting problem related to management is that typically the management of organisations will grow, and grow faster than the rest of the organisation. Phenomenological theories cannot adequately explain the frequency of this phenomenon, because phenomenological analysis suggests that slower or proportional growth of management (compared with the overall organisational rate of growth) should be more efficient than the actually observed managerial growth.

By contrast, the systems theory approach suggests that management is a key sub-system of organisations perceived as communication systems, and that the growth of the organisation is often actually triggered by the disproportionate growth of management precisely because is often the most efficient way to grow an organisation. Systems theory analysis also suggests that if the management sub-system is shrunk without changing the management language, the likely effect is that the organisation will shrink as well. In a similar manner, if the management sub-system is not growing sufficiently then this limits the growth potential of the whole organisation. To summarize, differential growth of management is usually essential for organizations to grow.

Of course, systems theory does not suggest that all instances of management growth are good for organisations. In some cases a short-term shrinking of management may be beneficial for the growth of the organisation. For example, a new simplified management communication language may be introduced in the management sub-system, which enables management to be more efficient. This kind of appropriate simplification typically triggers faster growth of the management in the longer-term, and also growth of the organisation, so that short-term efficiency-enhancing simplification ultimately leads to a proportionately larger management sub-system. An example would be changes in organizational financial management since the early 20th century.

Systems theoretical analysis shows that organisations under stress (i.e., organizations suffering a lack of growth) tend to respond by growing their management sub-system (i.e., growing more information-processing complexity and more identity-defining/checking/enforcing components). Such growing of management may be maladaptive if no significant and benign innovation happens within the language of the management sub-system. Overgrowing inefficient management does not contribute to the growing of the organisation, and indeed may worsen the shrinking of the rest of the organisation by diverting resources from other more useful activities. In competitive organisational environments, those organisations with maladaptive overgrowing management lose space and may become extinct. However, in organisational environments with reduced competition – such as the public sector or
nationalized industries - maladaptive growing management may survive together with the organisation for long time.

The general implication is that organization growth is usually promoted by differentially greater growth of management, so long as the organization is in a competitive environment which weeds-out the instances of inefficient managerial expansion.

**B. Charismatic leadership**

Charismatic leaders are welcomed in various organisations time to time. Major features of charismatic leaders are easily captured in phenomenological terms as discussed above. Nevertheless, understanding of the appropriateness of charismatic leaders and their effect on organisations is very speculative\(^{22}\).

The systems theory approach shows that organisations of which environment description shows a major mismatch between the organization and its actual environment require a major overhaul of their communication systems. Management is an organizational sub-system that acts as the information and identity sub-system, and provides the informational model required for major communication changes. The question is how such major changes may emerge in a consistent manner without tearing the organisation into disconnected parts.

Charismatic leaders are natural leaders in natural human environment\(^{23}\). Their key feature is that they can quickly make sense of complex situations, and can communicate their views in a way that is convincing and motivating for other people. They can create order out of disorder, although it may be that the order that such leaders are able to create is only slightly less complex than the original disorder. In the context of communication systems, charismatic leaders are communication units that can generate innovative new rules which may increase the likelihood of recruiting new communications into the system. These new rules are likely to be complex, implying high level of indeterminacies.

Charismatic leaders are a good choice for organisations needing major changes, perhaps because they are failing to grow. Such leaders will provide the innovation needed for the system’s language to fit better to their environment. As the innovations by charismatic leaders are likely to be complex, they are likely to reduce the expansion capacity of the system in the short term (compared to the expansion capacity before the troubles). Complex new referencing rules are also likely to transcend the boundaries of higher management and they may interfere directly with non-managerial communications (e.g., public culture shock actions of charismatic leaders). Therefore changes induced by charismatic leaders

\(^{22}\) Goleman *op.cit.* 2004; Zaleznik *op.cit.* 2004

\(^{23}\) Weber *op.cit.* 1978
are likely to lead to an immediate shrinking of the organisation, but one that may plausibly be followed by new expansion – for example sacking a large proportion of the workforce, but in ways that increase organizational efficiency and the capacity for future growth. Considering the complex nature of new referencing rules it is also possible that they fit only particular small niches of the environment, and do not lead to a general better fit between the actual environment and the organisation’s model about this environment.

Systems theoretic analysis suggests that charismatic leaders may pull an organisation out from a troubled period, but they are likely to inject new innovations into the referencing rules even when the organisation found a new good fit with its environment. They cannot stop making big changes, even when big changes are more likely to do harm than good. This means that charismatic leadership is likely to be useful on the short-term as ‘sharp shock therapy’, but it should be followed by unperturbed expansion of the renewed organisation and its management sub-system by a more impersonal, ‘rule-following’ and ‘bureaucratic’ style of leadership. This analysis also implies that long-term charismatic leadership might work in organisations in an environment which is constantly radically changing.

**C. Standardisation and complexity**

An important issue in the context of various management theories is the optimal level of complexity and standardisation within the management of organisations. Most phenomenological theories argue for a less complex system of management and support standardisation. Some newer theories inspired by recent advances in social sciences argue the benefits of greater complexity of management but are against standardisation\(^{24}\). However, neither type of theory can provide a well balanced view with respect to these issues.

In the context of systems theory the complexity of the environment is defined to be infinite. Any system builds a complementary description of its environment and this description models selective aspects of the environment. The complexity of management is measured by the match between management system and the environment, and in particular by the complexity of the effectively describable environment. In general, sequences of system communications can be seen as *descriptions* of some part of the environment. Such information sequences are limited in length by indeterminacies contained in the referencing rules of the system – since each step in the sequence is somewhat imprecise, with increasing numbers of steps the ‘noise’ of imprecision will eventually come to outweigh the ‘signal’ of information (like making long sequences of analog videotape recordings – eventually the picture becomes invisible).

\(^{24}\) Kieser *op.cit.* 1995
In principle the complexity of the environment described by such limited-length information descriptions is a measure of the complexity of the system. Although in practice this measurement of complexity may not be exactly computable, a surrogate measure of complexity is provided by the size of the system. *The larger a system, the greater the complexity of that system.*

System languages may go through simplification in order to produce better descriptions of the environment and to increase the expansion of the system. An example of language simplification may be the conversion of information into a numerical form and its processing using mathematical models. Such simplifications can be seen as the equivalents of phenomenological standardisation of processes within the organisation. If a standardisation leads to a more efficient system language, then the system models its environment better and will tend to expand. It is not necessary that standardisation leads to beneficial effects, if the simplified system language does *not* generate better modelling of the environment descriptions, then expansion will not happen.

Systems theory analysis of management shows that adaptive standardisation of processes may lead to a shrinking of the system in the short-term, but in the long term adaptive standardization leads to further and faster expansion. This implies that standardisation reduces the complexity of some procedural language used within the organisation, locally reducing complexity; but if this simplification is successful, it will increase efficiency, liberate resources, and lead to a general increase of the complexity of the system.

Viewing management as a communication system indicates that both standardization and complexity are broadly beneficial to organizations. The complexity of systems is typically reduced only locally and temporally while in the long-term and overall organizational complexity tends to increase. If the organisation continues to grow after the simplification the general complexity of the organisation will be greater than its complexity before the simplification. Simplifications in the form of standardisation are therefore generally ‘a good thing’ and will help the longer term expansion of the organisation – so long as the simplified procedural language increases the fit between descriptions of the environment and the actual organisational environment. In such cases the standardisation will lead to organisational growth and increasing organisational complexity.

6. Conclusions

We have shown in this paper that abstract communication systems theory can be applied to analyse management. This approach is not linked to a fixed phenomenological point of view like most of the usual management theories, and our belief is that this can help significantly the understanding of how management works in organisations.
The systems theory analysis shows that the management is a sub-system of the organisation perceived as an abstract communication system, and the management sub-system contains communications referencing memories of the organisation system. The management constitutes the information sub-system of organisations, including communications that reference memories and process information contained in these memories. The management also may act as an identity sub-system of the organisation, which defines, checks, and enforces the identity of the organisation.

The brief analyses of management growth, charismatic leadership, and the trade-off between complexity and standardisation, in the context of the systems theory interpretation of management, show that the proposed approach can lead to new insights and can provide good explanations of management related phenomena. The abstract nature of the systems theory brings the hope that this approach may lead to a rigorous analytical theory of management, which will be able at the same time to capture the natural complexity of management.