



*University of Palermo*

D.E.M.S.

# **A Clientelistic Perspective of Managing Municipal Solid Waste System: An Analysis of the Social Impact of clientelism on the Municipality of Palermo**

PhD Candidate

**Federico Papa**

Supervisor

**Prof. Carmine Bianchi**

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## **LIST OF ABBREVIATIONS**

- ATO Optimal Territorial Authorities
- BPEO Best practicable environmental option
- CLD Causal Loop Diagram
- DPM Dynamic Performance Management
- EPA Environmental protection agency
- KPI Key performance indicators
- IWM Integrated waste management
- GPP Green public procurement
- NIMBY Not in my backyards
- NIMTO Not in my terms of offices
- MSWMS Municipal solid waste management system
- P&C Planning and Control Systems
- PMS Performance Management System
- PP Proximity principle
- PU Public utility
- SD System Dynamics
- SFD Stock and Flow Diagram
- SWM Sustainable waste management

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## ABSTRACT

This thesis aims to analyse the impact that clientelistic political pressures produces on the performance of Amia S.p.A., namely the public utility responsible of managing the solid waste management system of the municipality of Palermo, by making particular reference to the phenomenon of overstaffing. Synthetically, clientelism consists in a series of reciprocal convenience-based relationships between politicians and citizens, commanding unequal resources and involving mutually beneficial transactions in terms of economic, social and political consequences. The motivation of this research arise from the conviction that a deep analysis of this phenomenon, on one hand, could offer a greater contribution to improve the quality of electoral strategies and the consequential public policies and, on the other hand, to facilitate public managers in managing the performance of public organizations according to a perspective of sustainability. Therefore, the major issues of this research can be synthesized into three key questions: which are the main causes that led to the failure of the company Amia SpA? Which are the most remarkable managerial and organizational consequences that clientelistic political interferences have produced in respect of the performance of Amia S.p.A? Which policies could be implemented in order to mitigate the negative effects of clientelism thus maintaining a satisfying standard in the provision of the public service considered herein? Is clientelism a sustainable mechanism to expand significantly the electoral base of a given political party? Due to the high level of dynamic complexity that characterizes the system under observation the author believe that the combination between a dynamic performance management approach based on the so-called instrumental view and the system dynamic methodology may

represent a powerful instrument in the hand of policy makers to frame a complex system and understand its development over time. Therefore in order to answer the above questions, firstly, a qualitative model showing which are the key variables of the system and the dynamic produced from their interactions will be elaborated and, secondly, will be identified the performance drivers on which public managers can leverage in order to drive the performance of Amia S.p.A. according to a perspective of sustainability. To conclude, the innovative aspect of this work is the attempt to apply the dynamic performance management approach, combined with the System Dynamics methodology, to assess the impact that clientelistic political interferences produces on the performance of a public utility. Therefore, the usefulness of this study is precisely to provide decision makers with a conceptual map that can enable them to promptly perceive and evaluate the causes and consequences of this phenomenon and, in addition, which policies can be implemented to mitigate the distortive effects that clientelistic political interferences may produces on the performance of a given public utility.

# CHAPTER ONE

## INTRODUCTION

### **1.1. Background of the study**

Over the past few years, the municipality of Palermo has been the center of the attention of national and international chronicle due to what is commonly called waste emergency. However, this definition is improper since the term “emergency” normally is used to indicate contingent and exceptional situations. More specifically, according to the Oxford Dictionary the term emergency indicates any “Sudden, unexpected, or impending situation that may cause injury, loss of life, damage to the property, and/or interference with the normal activities of a person or institution and which, therefore, requires immediate attention and remedial action”<sup>1</sup>. Therefore, as can be seen, the two main features of a emergency situation are that the event in question is unexpected and sudden. Both of these requirements are lacking in the case of Palermo. In fact, the current situation, with entire neighborhoods of the city that are periodically submerged by waste, causing enormous problems of public order and serious risks to public health , is far from being unexpected and sudden being instead a disaster announced for several years already. More in particular, every day in the municipality households produces more than 700 tons of waste. A considerable amount of waste that for the 92% end up in landfills. In fact, have to be considered that the percentage of waste that is actually recycled stands at a paltry 8,3% of the waste produced, recording one of the worst performances at the national level. Over the years, this situation has led to the overloading of Bellolampo, the main

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<sup>1</sup> For further information checks <http://oxforddictionaries.com/words/the-oxford-english-dictionary>

landfill in the province of Palermo, which is currently at the point of approaching its carrying capacity. This situation, already in itself highly problematical to solve, is further aggravated from the presence of organized crime that in recent years has considerably increased its infiltration into the municipal solid waste management system of Palermo. More specifically, the involvement of organized crime in the management of municipal solid waste, as well as in the infiltrations in public procurement for the construction of infrastructure or the acquisition of equipment and vehicles, is realized through the illegal trafficking of waste. More in particular, the illegal trafficking of waste is characterized by the continued and indiscriminate disposal of waste in illegal landfills particularly located in abandoned mines and in caves, which were excavated to extract materials for construction on the black market and then filled back with garbage. Furthermore, another critical element that characterizes the scenario under analysis and which constitutes the specific object of this study is constituted by the recent failure of the public company responsible for managing the system of municipal solid waste of the city of Palermo, namely Amia S.p.A. In fact, after years of mismanagement that resulted in a overall deficit of over 150 million euro, largely due to the progressive increase in the cost of staff that over the past few years rose dramatically to the point of becoming unsustainable, Amia was declared insolvent and placed in liquidation. More specifically, the staff of Amia increased from 1657 units in 2006 to the current 1972 existing units, although since 2008 the company was in serious financial difficulties. This mechanism was also replicated in respect of Amiaesemme, a subsidiary company of Amia, in charge of the service of road sweeping for the municipality of Palermo, that with its 944 employees contributed considerably to aggravate the economic situation. In this regard, a recent survey of Confindustria

Palermo on the state of the Palermo's municipal companies pointed out that "the production value of Amia and Amiaesemme amounted to approximately 125 million euro against a total cost of the services provided of around 200 million euro, which nearly 96 million constitute the only expenditure for personnel"<sup>2</sup>. As can be seen, that for the personnel represent the heavier expenditure for the company. A cost that is completely unjustified given that Palermo recording the highest average of workers employed in the waste management sector of the whole country: one employee every 279 inhabitants compared to the national average of 547. Furthermore, an additional critical element is represented by the methods through which these new workers was recruited. In fact, based on what can be deduced from the report of Confindustria Palermo, over the last few years more than 120 employees have been hired through direct call, in a non-transparent way and without any public procedure, and 400 employees were recruited on the basis of the exchange father/son. What has been said testifies that such recruitment procedures have not been motivated by real needs of the company but rather from other kinds of pressures that have nothing in common with the necessity of delivering public services in a economic, efficient and effective manner. In fact, today is not disputed that such distortions have to be charged to the infiltration of the political bodies of government that, in proximity of the elections, have used municipal companies as a mere instrument to increase their pool of votes in exchange for workplaces in public companies. In fact, the phenomenon of the proliferation of patronage networks in the public sector is a well known and widespread phenomenon in the Sicilian scenario, representing one of the principal causes responsible for the poor economic performance of the region and of the growing sense of political distrust of

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<sup>2</sup> Confindustria Palermo. 2012. "I disservizi pubblici locali". Palermo, pag. 23-46.

recent years. Therefore, this research project, shall have the main objective of understanding and measure the impact that clientelistic political pressures have produced on Amia S.p.A., thus compromising its performance. For this purpose, in order to give suggestions for improvement company's performance, and foster decision makers strategic learning process, will be made use of the System Dynamics methodology. The author thinks that System Dynamics is a great instrument to display causal relationships underlying business results, and could be greatly useful and valuable regarding Amia case. In fact, as pointed out by Sterman and Oliva, SD methodology is "well suited to dynamic environments in which human behavior interacts with the physics of an operation, and in which there are multiple feedbacks connecting employees, managers, customers, and other actors"<sup>3</sup>. More in particular, through a Causal Loop Diagram (CLD), firstly, will be highlighted and reconstructed the system of governance responsible for the poor performance of Amia and, secondly, will be identified the key variables of the system which interactions have produced the problematic behavior under analysis. During the review of existing literature, very little were found on the use and application of System Dynamics regarding the assessment of the impact that clientelistic political pressures produces on the performance of a municipal company. As a result, this current research has a certain degree of novelty. Therefore, the results of this work may be used as food for thought and as a way to learn from past decisions by testing different policy levers within the simulation model.

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<sup>3</sup> Oliva, R., Sterman, J. 2009. "Death Spirals and Virtuous Cycles: Human Resource Dynamics in Knowledge-Based Services". The Handbook of Service Science. P. Maglio, J. Spohrer & C. Kieliszewski. London. Springer.

## **1.2. Research objectives and motivation**

This research project aims to analyze the impact that clientelistic political pressures have produced on the performance of the municipal company responsible for managing the solid waste system of the city of Palermo, namely Amia S.p.A. In recent years, the introduction of performance management systems in the public sector have become more significant since “managers, be they in the public or private sector, are under constant pressure to improve the performance of their organizations”<sup>4</sup>. Nowadays, the lack of Planning & Control (P&C) systems is one of the crucial internal complexity factors in public companies, leading to a much-bounded set of relevant information for decision-making. In fact, the need to ensure the efficiency and effectiveness of essential public services represent one of the elements of greatest relevance concerning the quality of life of citizens, as well as an element of capital importance for the competitiveness of modern states. Therefore, if on the one hand, public services must have the widest possible dissemination among the collectivity, on the other hand, they require a satisfactory level of quality. Hence, public services must be usable by all citizens, and, in such a way as to ensure a homogeneous territorial development. However, it is not enough that these services are accessible to the whole community, but rather, it is also essential to make sure that they are actually able to meet the changing needs of the different stakeholders existing in the community. In fact, an external environment strongly perturbed, both at the national and international level, such as that of recent years imposes the constant realignment between the needs of the community and the services provided. Furthermore, in the current scenario of economic crisis, it is most felt the necessity of not dissipate the scarce

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<sup>4</sup> Holloway, J., Francis, G., & Hinton, M. (1999). A vehicle for change?: A case study of performance improvement in the “new” public sector. *International Journal of Public Sector Management*, Vol. 12, pag. 351-365.

financial resources provided by citizens through taxation while maintaining high levels of services provided. Therefore, quantitative and qualitative adequacy and provision according to criteria of efficiency, effectiveness and economy, in a context of scarce resources, represent the challenge that the present and the future pose to the local institutions responsible to provide public services. Inevitably, these needs end up being sacrificed and compromised in the event that the management of a public service is not intended to satisfy the interests of the whole community, but rather that of a limited group of stakeholders. More specifically, this is what occurs when public utilities are used by politicians as a mere instrument to increase their electoral support. As pointed out by Cosenz, “Clientelism consist in a series of reciprocal convenience based relationships between politicians and individuals, commanding unequal resources and involving mutual beneficial transactions in terms of economic, social and political consequences”<sup>5</sup>. More in particular, in Sicily, due to high unemployment rates and decades of economic assistance policies by the central governments, the issue of increasing the levels of employment has been intercepted and used by the local political class as a means to control the electorate. In fact, clientelism is a mechanism that allow politicians to create a gratitude-based relations with the electorate, thus increasing and maintaining their electoral consensus, by assigning jobs and offices in municipal companies. Obviously, in the long run, such practice has determined the insurgence of tremendous problems of overstaffing inside municipal companies compromising the possibility of these of effectively and efficiently deliver the services for which they are responsible. Traditionally, the mechanisms used to restore the financial

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<sup>5</sup> Cosenz F. 2010. “A System Dynamics Approach to Analysing the Effect of Clientelism on Public Organizations Performance in Italy”. *Review of International Comparative Management* Vol. 11, pag. 325-337.



equilibrium of these companies in order to allow them to continue to survive has been that of increase taxation and/or shifting public monetary resources destined for other sectors. Obviously, such expedients are not sustainable in the long-run and have ended determining a poor standard in the delivery of essential services such as education, health and transport and hence an overall worsening of the socio-economic development of the region. Consequently, once that this negative performance is perceived by the community, ends to determine an overall decrease in the level of citizen satisfaction that results, in the long run, in a decrease of the electoral consensus. In this regard, is sufficient to recall that Sicily is second only to Campania in the list of Italian regions whose population is less satisfied by the services provided by public institutions<sup>6</sup>. Therefore, in order to recover their electoral support, politicians increase the level of clientelistic pressures by using municipal utilities to achieve a short-term electoral consensus, thus creating a negative spiral that feeds itself over time.

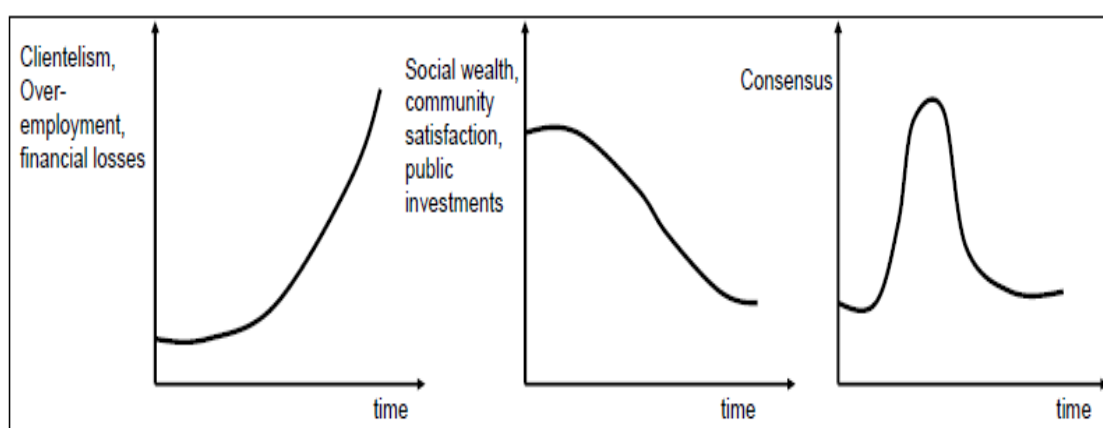


Figure 1

The evolving trends of the key variables that compose the system under analysis (Source: Cosenz, 2010)

<sup>6</sup> For further information, check *"Rapporto Bes 2013"*, Istat, 2013.

As stated, the impact of clientelistic political interferences on the performance of Amia S.p.A. is investigated in this research. In fact, the case of Amia S.p.A. can indeed be considered as a paradigmatic example of how such kind of political interference in the management of a public company may lead to their complete failure. Therefore, the motivation to the realization of this research lies in the conviction that by analyzing in depth the effects of clientelism in this specific case, will be possible to gain a greater awareness regarding the impact that this phenomenon is able to produce on the performance of a municipal company. Moreover, this research aims to facilitate a process of cultural and organizational change aimed at improving the quality of electoral strategies and the resulting public policies. More analytically, this study identifies and tends to give an exhaustive answer to three specific issues:

1. In which way clientelistic practices have produced distorting effects on the organization of Amia S.p.A., de facto compromising its performance?
2. Which strategies can be implemented in order to limit the effect of clientelism thus maintaining a satisfactory level of quality of the service provided to citizens and a high standards of Amia's performance results?
3. Is clientelism an effective, durable and sustainable mechanism to ensure to politicians the opportunity to increase significantly their electoral consensus?

Therefore, in order to answer the above questions, firstly, this study reconstructs and analyzes the system of governance that characterizes the socio-political context in which Amia operates, secondly, identifies the

causal relationships existing between the key variables that compose the system itself and, thirdly, underlines the effects of such clientelistic practices by using System Dynamics methodology (SD). In fact, SD is a powerful tool to frame a complex system and understand its development over time. Therefore, the principal objective of this research is to build a System Dynamics qualitative model that is capable of providing the readers with powerful lenses able to offer a deep understanding of the dynamics that characterizes the system under analysis and to evaluate the effects of the corrective policies suggested.

### **1.3. Research methodology**

Performance Management is a field of scientific interest oriented to study and analyze complex and dynamic systems that do not respond to universal and generalized rules and necessarily require a precise examination and consideration of their own characteristics. On this concern, the case study method is particularly suited to the needs of this approach because, from the observation of specific organizations and phenomena, enables one to draw meaningful insights regarding the ways through which an organization operates and organizes its activities. More specifically, according to Yin the expression case study refers to “an empirical study that investigates a contemporary phenomenon in its real-life context, especially in cases where the boundary between the analyzed phenomenon and the external environment are not particularly evident”<sup>7</sup>. Notwithstanding, the adoption of case studies as a research methodology is not universally recognized. In fact, many authors believe that due to the lack of comparability and non-replicability of the results obtained, this method lacks of the character of scientificity given its inability to provide

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<sup>7</sup> Yin R. 2005. “*Lo studio di caso nella ricerca scientifica*”. Armando, Roma, pag. 23-57.

generalizable elements of analysis<sup>8</sup>. However, although it is true that this method of research is primarily directed to identify and highlight specific outcomes rather than generally applicable theories, this does not mean that the results obtained through it are devoid of external validity. In fact, the method of case study analysis, rather than to the theory building, is able to make a greater scientific contribution in the field of theory testing, that is the empirical control regarding the validity of a given theory. In this respect, it is useful to recall the classification of the case study analysis proposed by Yin, which distinguishes the case study method in:

1. Descriptive studies of the phenomenon observed within the context in which it has occurred. More specifically, this typology allows to analyze a given phenomenon in order to placing it within existing categories and classifications;
2. Explanatory studies aimed at identifying and analyzing causal relationships that allow you to connect with each other observed phenomena in a given context;
3. Exploratory studies through which you can proceed to making assumptions about the possibility of intervening on the phenomena observed<sup>9</sup>.

The quality of a research based on the method of case study can be evaluated on the basis of four parameters commonly used to assess the quality of empirical social investigations. More specifically, these parameters are:

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<sup>8</sup> Read more in Eisenhardt K. 1989. "*Building theories from case study research*". *Academy of management review*, Vol. 14, pag. 532-550; Smith C. 1995. "*The case study: a vital yet misunderstood research method for management*". Cranfield school of management, pag. 1-22; Stake R. 1995. "*The art of case study research*". Sage, London; Jensen J. L., Rodgers R. 2001. "*Cumulating the intellectual gold of case study research*". *Public administration review*, Vol. 61, pag. 235-246.

<sup>9</sup> Yin R. 2005. "*Lo studio di caso nella ricerca scientifica*". Armando, Roma, pag. 64-81.

1. Construct validity. This parameter relates to the selection of measures to be adopted for the observation and analysis of the phenomenon under investigation.
2. Internal validity. Internal validity is primarily concerned with the need to ensure that In the study conducted have been considered all the possible causal relationships between the variables of the phenomenon observed
3. External validity. External validity concerns the possibility to extend to other contexts, the results obtained through the analysis conducted using the method of the case study.
4. Reliability. The requirement of reliability requires that the results obtained and the conclusions drawn from the research can also be achieved through additional and different studies that, at different times, follow the same procedures in the analysis of the same case.

The above-mentioned evaluation parameters of the quality of a research, are undoubtedly satisfied by the methodology used for the purposes of the present study, the System Dynamics methodology. System Dynamics is a relatively young methodology, introduced in the early 1960's by Jay Forrester in his book, *Industrial Dynamics*. Prior to the arrival of computers, solving analytically even the simplest of models was an enormous challenge. According to Wolstenholme, System Dynamics it is a "rigorous method for qualitative description, exploration of complex systems in terms of their processes, information, organizational boundaries and strategies; which facilitates quantitative simulation modeling and analysis for the design of system structure and control"<sup>10</sup>. After years of application regarding the most varied sectors, SD is now considered as a

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<sup>10</sup> Wolstenholme et al. 1993. "*The Evaluation of Management Informational Systems - A Dynamic and Holistic Approach*". John Wiley & Sons, pag. 22-36.

well founded methodology to investigate the nonlinear behavior of complex systems and for deciphering the mental models of decision makers. In fact, in systems characterized by: dynamic complexity, a plurality of causal links between the key variables and a high degree of uncertainty the mental models interferes with the ability of decision-makers to understand objectively the phenomena observed. Therefore, in order to govern the complexity of the system under observation, it is useful to elaborate conceptual maps aimed at identifying the key variables that compose the system and the way in which they interact between them in order to create models that allow decision makers to implement a process of strategic learning. System Dynamics is composed of two different modeling approaches, the qualitative and the quantitative. More in particular, qualitative system dynamics models are called also causal loop diagrams or influence diagrams. They are used to represent feedback processes around the central topic of interest and they are not numerically expressed. Therefore, they are not used for simulations and policy testing. Quantitative system dynamics models, on the other hand, are fully numerically supported, and aim to run the simulation and test different policies, consequently. More in particular quantitative models are realized by making use of software that allow, once placed the quantitative values of reference and have reconstructed the relationships between the variables of the system, to obtain a graphical simulation of their behavior long a well defined time horizon. Therefore, on the basis of the comparison made between the simulations and the reality, decision makers are enabled to continuously review the assumptions previously made in order to extrapolate keys of interpretation that allow them to understand and deal suitably with the complexity of the phenomenon observed. More specifically, simulations aims at showing how the key variables respond

over time to the policies adopted and enable decision makers to be aware of the delays and of the exogenous constraints which characterizes the system under analysis. What has been said testifies that the contribution of the system dynamics is not reduced to the mere identification and suggestions of policies to be applied but rather in the understanding of the relevant components of the system and of the dynamics that may occur over time. For all these reasons, SD can be applied to the phase of strategic planning in order to promptly perceive and assess the changing requests coming from the external reference environment and to evaluate through simulations the impact of different policy alternatives. Moreover, through the combination of SD methodology with the so-called instrumental view of Dynamic Performance Management approach, it is possible to identify the key variables of the reference system and their relationships of interdependence, the initial stock of resources and their processes of accumulation and depletion and the performance drivers on which decision makers can leverage to drive the organization towards a learning-oriented strategic process of change aimed at ensuring the sustainable growth of the organization. In fact, the main purpose of this research project is to evaluate the impact that clientelistic pressures have produced on the organizational structure and on the effective functioning of the public company responsible for managing the service of collection of municipal solid waste the municipality of Palermo. More specifically, the MWMS of Palermo is characterized by an high level of dynamic complexity due to the presence of non-linear relationships among the several key variables composing the system under analysis. Non-linearity, combined with the bounded rationality of decision makers have affected the ability to understand which are the real causes of a given problematic behavior and, therefore, the opportunity to undertake a process of change directed at

reversing the negative trend. For all these reasons, the methodological approach adopted for the purposes of this analysis constituted by the combination of the SD methodology and the so-called instrumental view of the DPM approach reveals itself particularly suitable for the analysis of the specific object of this study. In conclusion as remarked by Grobler “Learning takes place when people use the formal model and—by simulation experiments—gain insights into the relation between structure and behavior of the system. With the help of this understanding, they can design new structures of the real system. Through enriched policies and reduced structural complexity, this could lead to a decrease of negative effects of bounded rationality”<sup>11</sup>.

#### **1.4. Thesis structure**

As has been already mentioned, the main objective of this study is to utilize the methodology of System Dynamics in order to evaluate the impact that clientelistic pressures coming from the Sicilian political system have produced on Amia S.p.A, the municipal company responsible of the municipal solid waste management system of the city of Palermo. This research project can be ideally divided into three main parts. The first part of the study starts with a deep analysis of the concept of clientelism and its evolution over time. In fact, the incidence of patronage networks on the government of local authorities and, more generally, on the level of democratization and social cohesion of modern societies is a topic widely debated in the current literature. More specifically, in order to offer a comprehensive understanding of this phenomenon, firstly, will be analyzed the most authoritative scientific contributions on this topic, considering

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<sup>11</sup> Grobler, A. 2004. “A Content and Process View on Bounded Rationality in System Dynamics”. Systems Research and Behavioral Science Syst. Res. Vol. 21, pag. 319-330.



also the point of view of those authors who have focused on the positive effects of clientelism. Secondly, the same level of attention has been accorded to the definition of the concepts of waste and of waste management. Thirdly, the waste emergency of the city of Palermo is analyzed in detail giving ample consideration to all the social and political factors that have played a crucial role in the progressive worsening of this situation and in the declaration of the state of emergency. Lastly, the clientelistic network system which has led to the failure of Amia, is analyzed in depth. This study also aims to contribute to the dissemination of the methodology of SD in the strategic definition and evaluation of public policies. Therefore, the second part of the study is mainly devoted to the presentation of the potential that the integration between Dynamic Performance Management and system dynamics methodology can offer in order to acquire a comprehensive understanding of the dynamic complexity that characterize the waste emergency of the city of Palermo. Lastly, in the third part of the thesis, will be presented the specific case study of Amia S.p.A. More precisely, will be presented a causal loop diagram that highlight the main key variables of the system under consideration and the way in which they interact in order to allow a broad understanding of the causal relationships responsible for the problematic behavior investigated in this research. More schematically, the framework of this thesis is organized as follows:

Chapter 1. In this chapter an introduction and the background of the critical issues, together with the research questions, objectives and methods are stated.

Chapter 2. A deep analysis of the concepts of clientelism and of waste management is elaborated. Subsequently, the municipal waste management

system of Palermo will be analyzed in detail together with the examination of the effects that clientelistic political pressures have produced on Amia S.p.A., thus compromising a sustainable management of the company.

Chapter 3. This chapter is principally focused on highlighting the potential that the combination between DPM approach and SD methodology could offer to policy makers in the understanding of the dynamics that governs a complex system. More specifically, will be highlighted the contribution that this approach is able to offer in the clear identification of proper levers of intervention through which is possible to correct and drive the performance of a public company towards a path of sustainable growth and development.

Chapter 4. In this chapter, the System Dynamics qualitative model of Amia is presented in order to describes the causal relations that governs the system under observation. Here the modeling process and its results are shown. Lastly, in this chapter the three research questions identified previously are answered.

Chapter 5. In chapter five, both conclusions and recommendations can be found, together with some suggestions for further research and a short reflection on the limitations of the study.

## CHAPTER TWO

### THE ANALYSIS OF CLIENTELISM ON THE MUNICIPAL WASTE MANAGEMENT SYSTEM OF PALERMO

#### 2.1. Introduction

The interest of both scientific community and policy makers for the issues of management of municipal solid waste, has increased significantly in the recent years. From a conceptual point of view, the waste is considered as “an inevitable byproduct of consumption”<sup>12</sup> that needs to be collected and disposed of. These activities will inevitably generate negative externalities for human beings both in terms of emissions of pollutants that in terms of disfigurement of the environment (illegal landfills). For these reasons, in recent years copious literature devoted to find tools which show on one hand, how to internalize these negative externalities and, on the other hand, to minimize their negative effects on the environment it has gradually been developed.<sup>13</sup> However, the analysis of the waste cycle is not limited only to this aspects but it appears far more complicated in concrete terms. In fact, the management of municipal solid waste implies the succession of many stages, each of which corresponds to a different

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<sup>12</sup> European Environment Agency (EEA), 2013, EEA Report No 2/2013, “*Managing solid waste-a review of achievements in 32 European countries*” pag. 18.

<sup>13</sup> Ascari S., Di Marzio T., Massarutto A., 1992, “*L’igiene urbana: economia e politica ambientale*”, Franco Angeli, Milano; Bertossi P., Kaulard A., Massarutto A., 2000, “*Municipal waste management in Italy*”, Kluwer, Amsterdam; Scanlan J., 2005, “*On Garbage*”, University of Chicago Press, Chicago; Braungart M., McDonough W., 2006, “*Cradle to Cradle: Remaking the Way We Make Things*”, North point press, New York; Massarutto A., 2009, “*I rifiuti. Come e perché sono diventati un problema*”, Il Mulino, Bologna; Corona G., Fortini D., 2011, “*Rifiuti*”, XL, Roma.

number of actors involved with different competencies and different kinds of policy goals. More specifically, in the first stage, the generation, the goal is typically to reduce the amount of waste produced. Subsequently, in the collection phase, the goal is to promote the recycling or composting of residual materials. Lastly, in the disposal phase, the goal might be that of discouraging the use of landfills in favor of wastes incineration and/or recycling. Furthermore, should be noted that these objectives do not depend only to economic assessments but also from social assessments which in this area plays a very important role. Moreover, another factor that contributes to further complicate the issue lies in the plurality of different actors and stakeholders involved in the various phases. In fact, if in the first and second phases are mainly involved the households in the third a key role is played by municipal local authorities and/or public and private companies that operates in the waste sector. Therefore, an efficient system of waste management must take into account all these elements in order to create a political and operational environment capable of modeling the rules in such a way that they fit best to the specific geographical and socioeconomic context investigated. Consequently, currently the debate on the issue of waste management has been mainly focused on two directions: on the one hand to identify solutions that are able to reduce the amount of waste at source and, on the other, to identify the possible combinations able to maximize the optimization of the phases of collection and disposal.<sup>14</sup> As previously pointed out, the issue of implementing an efficient system of management of municipal waste is a global challenge. More specifically, a challenge that requires a continuous effort on the part of public institutions directed to constantly raise the quality of services ensuring at the same time the containment of costs. Despite in Italy, as elsewhere, ensure an efficient

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<sup>14</sup> Reddy PJ., 2011, "*Municipal Solid Waste Management*", CRC, London, pag. 47-48.

management of municipal solid waste is a matter of strategic interest both from a national that from a local perspective, the recent waste crisis of Campania and Sicily have showed in a dramatic way “the limits of the Italian institutions and of the Italian ruling class to find some answers able to resolve in a lasting and efficient manner this thorny issue”<sup>15</sup>. In fact, these situations have highlighted, a system that, despite the large sums of public money spent, served only to distribute benefits, to foster political consensus and patronage networks, to enhance the penetration of organized crime in this sector thus contributing to increase the level of discontent and frustration of citizens. It is therefore not an overstatement defining the problem of waste management as “a privileged viewpoint to observe the relationships between the quality of local institutions and that of the welfare system enjoyed by Italian citizens”.<sup>16</sup> All the more so, in recent years the scope of the management of municipal solid waste is one in which more is felt the need to redefines the boundaries between public and private or, more in general, between the state and the market. In conclusion, this chapter arises first of all to briefly summarize the most relevant literature on clientelism in order to clarify the characteristics of this phenomenon and its potential consequences at the level of governance system. Subsequently, the focus will be shifted on the theme of waste management. More specifically, the concept of waste will be analyzed through different perspectives in order to highlight all the different dimensions that involves and integrates. Furthermore, a detailed analysis of the most significant Italian and European regulatory instruments in the field of waste management will be carried out. This analysis is of great

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<sup>15</sup> Pasotti E., 2010, *“Sorting through the Trash: The Waste Management Crisis in Southern Italy”*, Routledge, London pag. 293-298.

<sup>16</sup> Massarutto A., 2007, *“Waste management as a public utility: options for competition in an environmentally-regulated industry”*, Utilities Policy, Milano, pag. 9-19.

importance as it allows to clearly identify the objectives and standards that should guide the implementation of an efficient system of waste management as well as all the different actors involved and their respective competences. Lastly, will be conducted an analysis of the current situation of the system of waste management of the municipality of Palermo in order to highlight all its criticalities and, specifically, the impact that clientelistic networks produces on it.

## **2.2. Historical overview of the evolution of the concept of clientelism**

All nations have both formal and informal governance systems. The issue of governance includes both public decision making and public administration. Formal systems characteristics are easily observable through written documents (constitutions, codes, administrative regulations and laws), physical structures (ministry buildings, legislatures, courthouses), and public events (elections, parliamentary hearings, city council meetings). Informal systems, on the contrary, are based on implicit and unwritten understandings. Informal system reflects “socio-cultural norms and custom, and underlying patterns of interactions among socioeconomic classes and ethnic groups”.<sup>17</sup> Their manifestations are more difficulty to notice and to identify. Therefore, governance systems enclose a dual dimension, a formal and an informal one that are intimately connected in different and not immediately understandable ways. For that reason, the identification and the analysis of informal systems appear crucial in order to acquire a deep knowledge of certain public behaviors and be able to explain their institutional outcomes. Furthermore, it should be noted that informal structures influence the performance of formal institutions in a pervasive and often unpredictable way. Thus, a meaningful

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<sup>17</sup> Piattoni S., 2005, “*Il clientelismo. L'Italia in prospettiva comparata*”, Carocci, Roma, pag. 18-22.

analysis of the institution under observation requires rigorous attention to both formal and informal rules. Assign a careful attention to informal institutions is critical to understanding which are the incentives that enable and/or constrain political behavior. In fact, institutional actors are subject to a mix of formal and informal stimulus, and in some cases, the informal preponderate the formal ones. In postwar Italy, for example, norms of corruption were “more powerful than the laws of the state: the latter could be violated with impunity, while anyone who challenged the conventions of the illicit market would meet with certain punishment”<sup>18</sup>. Following the definition given by Ellickson, informal institutions are described as “socially shared rules, usually unwritten, that are created, communicated, and enforced outside of officially sanctioned channels. By contrast, formal institutions are rules and procedures that are created, communicated, and enforced through channels widely accepted as official. This includes state institutions, state-enforced rules and organization rules of political parties, and interest groups”<sup>19</sup>. As pointed out by Douglass, culture is a crucial factor in order to make a distinction between formal and informal institutions and to be able to identify these last. More precisely, establish a clear frontier between the two is a critical area for research and a fundamental prerequisite for the functioning of any organization<sup>20</sup>. In this regard, distinguishing between shared values and shared expectations allows to analyze potential causal relationships between culture and informal institutions, such as whether societal values reinforce or undermine particular informal institutions. In order to get closer to the specific object of this research, an informal institution often mentioned is

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<sup>18</sup> Read more in Banfield, E. C., 1958. “*The Moral Basis of a Backward Society*”. Glencoe, Free Press.

<sup>19</sup> Ellickson C., 1991. “*Order without law: How neighbors settle disputes*”. Cambridge, Harvard University Press pag. 81-83.

<sup>20</sup> Douglass C., 1990. “*Institutions, institutional change, and economic performance*”. New York, Cambridge University Press pag. 36-38.

clientelism. Following Carl Landé, clientelism, stating a position “of central importance in the social and political scenes”<sup>21</sup>. More specifically, clientelism is a social relationship based on informal rules. Some authors, in the tradition of rational choice approaches, emphasize the exchange character of this relationship, others, in the Weberian perspective, stress the vertical aspects of authority and dominance, while others highlight the social aspects of loyalty and reciprocity <sup>22</sup>. The term clientelism derive from the latin term “cluere”, the meaning of which is “to listen, to obey”. In ancient Rome a client was a person who had a lawyer speaking for him in a trial. At the same time, “clientele” was a group of persons who had someone speaking for them in public, the “patronus”. The clients were the followers of the upper classes members and both were connected through a sacral code of ethics and conduct. Usually the clients offered work, and political support to the patron in exchange for his protection. Even though the concept of clientelism has undergone a dramatic evolution over the centuries, the reference to its original meaning is still useful to understand actual forms and definitions of this phenomenon. Despite a generally accepted definition of clientelism is still missing, there are elements and characteristics which probably allow identifying a core concept of it. According to Scott “clientelism is an instrumental friendship in which an individual of higher socioeconomic status (patron) uses his own influence and resources to provide protection or benefits, or both, for a person of lower status (client) who, for his part, reciprocates by offering general support and assistance, including personal services, to the patron”<sup>23</sup>. As has been pointed out by numerous authors who have conducted studies on this

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<sup>21</sup> Landé C., 1983. “*Political Clientelism in Political Studies: Retrospect and Prospects*”. International Political Science Vol 3, pag. 435-454.

<sup>22</sup> Stokes S., 2007. “*Political Clientelism*”. The Oxford Handbook of Comparative Politics, Oxford, Oxford University Press, pag. 604-627.

<sup>23</sup>,Samuel P. 1968. “*Political Order in Changing Societies*”. New Haven: Yale University Press, pag 22-23.



subject, it is possible to distinguish certain key characteristics that allow to identify the most important and distinctive elements of a clientelistic relationship. Specifically, any clientelistic relationship is:

- Dyadic;
- Asymmetrical;
- Reciprocal;
- Voluntary;
- Personal;
- Enduring.

These are the key characteristics that will be analyzed in detail in this paragraph. The relationship is dyadic because clientelism is a social relationship that at least requires two persons, the patron and the client. As has been already mentioned, a patron is someone who controls certain resources that are available for the client under certain circumstances. It may happen that in the relationship between patron and client may intervene a broker as a mediator between them. This often occur when the patron has many clients<sup>24</sup>. In that case, usually the direct relationship is not between patron and client but between patron and broker on the one hand, and between broker and clients, on the other hand. Despite this, the role of brokers does not overlap with that of the patrons. In fact, the difference between a patron and a broker is that the broker has no any direct control over the resources of the patron. In fact, his task is only to mediate between patron and clients and facilitate the execution of the mutual obligations. According to Jansen, this trilateral relation may can assumes different forms and cover several levels, resulting in “a clientelistic

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<sup>24</sup> Kitschelt H. 2000. “Linkages Between Citizens and Politicians in Democratic Polities”. *Comparative Political Studies*, Vol 6, pag. 845-879.

pyramid, a complex hierarchical organization, a hierarchical network system”<sup>25</sup>. Usually, clients have no relationship among each other even if in some cases may happen that entire families/clans are clients of a same patron. The second characteristic identified of clientelistic relations is the asymmetry. In fact, the relation between patron and client is always asymmetric, resulting in a vertical or hierarchical relationship. Indeed, it is always the patron that has the direct control over the resources that facilitate the creation of the clientelistic relationship, never the client. Moreover, the asymmetric character of the relationship can be also evidenced by the different social rank or status between patrons and clients. In fact, thanks to its higher societal rank the patron has a position of supremacy over the clients and because of this is socially legitimized to exercise his authority over the clients. As mentioned above, the reciprocal exchange of material or immaterial goods is an essential characteristic of clientelism. According to Robinson and Verdier, the element of the exchange is a crucial aspect for identify a clientelistic relationship in accordance with the economic approach<sup>26</sup>. More precisely, the patron control some resources that utilize as a bargaining tool to attract the clients, to ensure their dependency and increase his position of power. As pointed out by Lauth “The exchange relation underlying the vertical relationship does not require synchronicity to a large extent like the market logic. Instead, obligations may, and will be in general, satisfied only with a time lag”<sup>27</sup>. Another key aspect that it is crucial in order to identifying a clientelistic relationship is the mutual awareness about the durable character of the relationship. According to Kitschelt and Wilkinson, the

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<sup>25</sup> Archer R. 1990. “*The Transition From Traditional To Broker Clientelism In Colombia: Political Stability And Social Unrest*”. The Hellen Kellog Institutes for International studies, Working Paper, ag 50-55.

<sup>26</sup> Robinson J., Verdier T. 2002. “*The Political Economy of Clientelism*”. CEPR, Working Paper, pag. 320-326.

<sup>27</sup> Lauth, H., 2000. “*Informal institutions and democracy*”. Democratization, Vol 7, 21-50.

actors in a clientelist relationship have to be confident about the reciprocity of the exchange<sup>28</sup>. Kitschelt and Wilkinson describes this element of the clientelistic relationship as a “self-reinforcing group equilibrium”<sup>29</sup>. Lastly, voluntary compliance is another factors that allow the identification of a clientelistic relationship. In fact, this is the “shadow of the future”<sup>30</sup> that drives both patrons and clients to build voluntary rational relations in order to gain reciprocal benefit. In recent years it has been possible to observe a resurgence of the debate around the concept of clientelism encouraged by the fact that clientelism was not crushed by democracy and programmatic platforms, but rather forced to evolve into a more complex and sophisticated form of “mass party clientelism”<sup>31</sup>. More specifically, as Hopkins claims, this form of clientelism is focused on the activity of political parties on distributing state resources to groups, areas or individuals in exchange for their votes. This form of clientelism determine the insurgence of a more explicitly materialistic, less unequal and less personalized relationship compared to that of the original form of clientelism. On this regard, Kitschelt and Wilkinson have developed a new definition of clientelism that is more capable of reflecting the most relevant characteristics of the current days manifestation of this phenomenon. According to their analysis clientelism can be defined as the “direct exchange of a citizen’s vote in return for direct payments or continuing access to employment, goods and services”<sup>32</sup>. More specifically, this form of clientelism is realized through a particularistic management of public

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<sup>28</sup> Kitschelt, H., Wilkinson S. 2007. *“Patrons, Clients, and Policies. Patterns of Democratic Accountability and Political Competition”*. Cambridge, Cambridge University Press, pag 35-49.

<sup>29</sup> Ibidem, pag. 55.

<sup>30</sup> Munoz W. 2010. “Conceptualizing and Measuring Clientelism”. Paper presented at the workshop “Neopatrimonialism in Various World Regions”, GIGA German Institute of Global and Area Studies, Hamburg, pag. 10-12.

<sup>31</sup> Read more in Hopkin, J., 2006. “Clientelism and Party Politics”. In Richard Katz and William Crotty Handbook of Party Politics. Sage Publications.

<sup>32</sup> Kitschelt, H., Wilkonson S. 2007. *“Patrons, Clients, and Policies. Patterns of Democratic Accountability and Political Competition”*. Cambridge, Cambridge University Press, pag 35-49.

resources aimed at increasing the political consensus and the power of party oriented civil servants . Therefore, rather than simply “party-oriented” clientelism, it seems more appropriate to talk about “bureaucratic” clientelism having regard to the importance of the role of the entire political structure in the process of distribution of favors. In fact, a political oriented allocation of workplaces in the public sector is one of the most typical and most useful resources in the hands of the political parties in order to increase their influences and reinforce their foothold for electoral competition. According to Fernandez and Pierskalla, the employment in the public bodies “inevitably raises the stakes under the ever-tightening conditions of labor market”<sup>33</sup>. Therefore. “If such political appointments become common in the public sector, the possibility of the partisan bias deviation might be increased in the area of policy implementation such as public works contracts, licensing and authorizing”<sup>34</sup>. Hence, the deepening of collusive relation between the parties and the state would lead to an expansion of opportunities only for particular stakeholders to intervene in the policy process. In this new form of “mass party” clientelism, patrons have to buy votes by distributing concrete benefits and favors to individual voters or groups of voters. This practice in the Italian context is referred to the so called “vote of exchange”. As can be seen, in this new and more rooted form of clientelism, the figure of the patron is replaced by that of the political parties rather than any individual within it. Clientelistic favors are distributed by members of the party organization, who in turn receive authorization for carrying out this activity from the upper levels of the party hierarchy. Clientelism therefore becomes bureaucratized, and less

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<sup>33</sup> Fernandez M., Pierskalla J. 2009. “*Partisan Strategies and Political Economic Performance. Do Modes of Democratic Accountability Affect Economic Fortunes?*” Cambridge, Cambridge University Press, pag. 63-78.

<sup>34</sup> Ibidem, pag. 82-85.

personalized, although the personal contact between party representatives and individual voters remains important for maintaining the relationship over time. As Kitschelt and Wilkinson claims, “the higher the bureaucratization of the public sector, the higher will be the level of political penetration in the allocation of public places and benefits to some group of stakeholders”<sup>35</sup>. Recently, some authors have highlighted some positive aspects about the creation of clientelistic networks in the public sector. According to these authors clientelism can be enlightened and even virtuous “when it offers a way of moving closer to the generalized benefits of the welfare systems”<sup>36</sup>. As Zuckerman argues, if clientelistic leaders control a dominant party “the absence of faction conflicts within the party allow clientelistic politics to merge with welfare politics”<sup>37</sup>. Following Piattoni “clientelism often allocates benefits to the least privileged, and since these clients often have little more than their vote to trade, the redistributive consequences of any specific clientelistic exchange will tend to be less significant”<sup>38</sup>. According to her analysis, clientelism may “strengthening the relationship between state and citizens, allowing the possibility of integrating minorities that otherwise will be excluded and ensuring the balance of the systems itself”<sup>39</sup>. Some authors instead are less indulgent with the phenomenon of clientelistic political relationships, coming to define it as “the antechamber of corruption in public institutions”. In fact, as pointed out by Kurer, although patronage and corruption are two concept that must be kept separate, it is evident the connection elapsing between these two phenomena. According to this

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<sup>35</sup> Kitschelt, H., Wilkinson S. 2007. “*Citizen-Politician Linkages: An Introduction. Patrons, Clients, and Policies. Patterns of Democratic Accountability and Political Competition*”. Cambridge, Cambridge University Press, pag 153-167.

<sup>36</sup> Zuckerman A. 1977 “*Clientelistic Politics in Italy*” Duckworth & Co., London, pag 72-74.

<sup>37</sup> Ibidem, pag 85-87.

<sup>38</sup> Piattoni S., 2007, “*Le virtù del clientelismo. Una critica non convenzionale*”, Laterza, Bari, pag. 64-68.

<sup>39</sup> Ibidem, pag. 72-77.

author, patronage networks “may create a political structure in which corruption can flourish”<sup>40</sup>. Both involve political actors manipulating public resources for personal gain and usually proliferates in countries with high levels of poverty, weak democratic institutions, short democratic histories and a large state economic presence. To sum up, clientelism is essentially a mechanism through which political parties and their representatives can obtain political support in exchange for selective assignment of benefits through state institutions. Mass party clientelism on a large scale is ultimately both inegalitarian and economically unsustainable. In conclusion, clientelism is a long-term phenomenon whose contrast implies necessarily a deep structural reform of the institutional system as well as a profound change of the mental models and systems of values of the community to govern.

### **2.3. The definition of waste and its classification**

Find a precise definition of the term waste is the first issue that has to face the scholar who approaches the study of this phenomenon. The reason for this problem lies in the different perspectives through which waste is studied and analyzed, each of which focuses on one rather than another of the important implications and aspects that characterizes this phenomenon. As pointed out by Palmer “the term is frequently left as an undefined primitive in spite of its critical importance. Frequently, a list of types of waste is substituted for the underlying definition”<sup>41</sup>. The Longman Dictionary of Contemporary English defines waste as “the unwanted material or substance that is left after you have used something” while the New Shorter Oxford English Dictionary defines it as “the unusable material

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<sup>40</sup> Kurer O. 1993. “*Clientelism, Corruption and the allocation of resources*”. Kluwer, Amsterdam, pag. 259-273.

<sup>41</sup> Palmer P. 2005. “*Getting to zero waste*”. North point press, New York, pag. 6-9.

left over from a process of manufacture, the use of consumer goods etc, or the useless by-products of a process”. A more elaborate definition of the term waste is elaborated by Gilpin. According to him, the term waste serves to indicate “all unwanted and economically unusable byproducts or residuals at any given place and time, and any other matter that may be discarded accidentally or otherwise into the environment”<sup>42</sup>. Furthermore, Gilpin states that, in order to distinguish precisely what is waste from what is not, it is necessary to focus also on the volumes of material flows object of the processes of production and/or consumption. More precisely, according to his analysis what constitutes waste must “occur in such a volume, concentration, constituency or manner as to cause a significant alteration in the environment”<sup>43</sup>. As can be seen, this perspective emphasizes also the amount of waste produced and the impact it makes on the environment besides the fact that waste is an unwanted substance that is discarded after consumption. Other authors, in order to define precisely the concept of waste have focused their attention on other aspects. More specifically, according to Martensson “waste is human creation”, focusing on the necessary implication of human activity in the production process of the waste<sup>44</sup>. This notion of waste as a natural consequence of human activity is also corroborated by Chalmin and Gaillochet that have defined waste as the “unwanted materials arising entirely from human activities which are discarded into the environment”<sup>45</sup>. As pointed out by Palmer the question of the identification of waste necessarily brings with it that of responsibility. More specifically, Palmer argues that “any substance that is without an owner is waste” and consequently that “an item becomes waste

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<sup>42</sup> Gilpin, A. 1996. *“Dictionary of Environment and Development”*. John Wiley and Sons, New York, pag. 4-18.

<sup>43</sup> Ibidem, pag. 28-33.

<sup>44</sup> Martensson P. 2012. *“What is waste”*. Paper presented at the Iswa World Conference 2012 in Florence. Pag. 8-12.

<sup>45</sup> Chalmin P. Gaillochet C. 2009. *“From waste to resource: world waste survey 2009”*. Economica, Paris, pag. 44-60.

when the holder or owner does not wish to take further responsibility for it”. Another definition that includes additional elements useful to identify more precisely what is waste is given by Davies. More precisely, Davies focuses on the physical composition of the materials under consideration. According to her analysis waste is all the “unwanted or unusable materials that emanate from numerous sources from industry and agriculture as well as businesses and households and can be liquid, solid or gaseous in nature, and hazardous or non-hazardous depending on its location and concentration”<sup>46</sup>. Furthermore, as Davies claims, when we refer to the concept of waste, it is important to refer to the concept of relative value. In fact, according to her analysis “what some people consider waste materials or substances are considered a source of value by others”. According to this line of reasoning, the concept of waste appears to be more easily linkable to that of “resource”. In fact, if we commonly identify as a “resource” a material that has use-value, once that a material loses its use-value can be considered as waste. Furthermore, like the concept of resource, waste is a “relative concept or human appraisal because what constitutes waste can vary from one person to another, one society to another and over time”<sup>47</sup>. To sum up, after taking into consideration all these different perspectives related to the concept of waste, it is possible to elaborate a definition of waste that encompass all the different elements previously examined. In fact, understanding what counts as waste is essential to analyzing waste management policies. More specifically, for the purposes of this research project, the term waste will be used to identify “any substance discarded into the environment because it is unwanted, which causes significant nuisance or adverse impact to the environment”. In addition, several

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<sup>46</sup> Davies A.R. 2005. “*Incineration politics and the geographies of waste governance: a burning issue for Ireland?*”. *Journal of Environmental Governance*, Vol XII, Dublin pag. 375-398.

<sup>47</sup> *Ibidem*, pag. 385-388.



criteria's are employed to classify wastes into different types including their sources, physical state, material composition and the level of risk associated with waste substances. Such classifications of waste provides a conceptual basis for the development of appropriate waste management practices. More precisely, one of the most common ways to classify waste is dividing it in: special, urban and toxic waste. According to Pasotti, Special waste is "waste that derives from commercial activities such as agriculture, construction and demolition activities, urban waste is domestic waste from civilian use and toxic waste is derived dangerous industrial process"<sup>48</sup>. Each of the three categories listed above requires a specific legislation aimed at regulating specific aspects of each of them and each category implies different disposal treatments with different costs. Make a classification of wastes based on their sources is particularly useful in order to identify precisely which are the major sources of waste and to determine the relative contributions of the different sectors of society to the waste stream. Another way of classifying waste, connected to the potential health or pollution risk descendant from waste materials, is between hazardous or non-hazardous waste. More specifically, according to the United States Environmental Protection Agency (EPA) "hazardous waste refers to wastes with properties that make them potentially harmful to human health or the environment because of their potential pollution danger, hazardous waste materials require rigorous and cautions means of disposal . On the other hand, non-hazardous waste does not pose a danger and can be dealt with easily, examples being inert materials such as uncontaminated earth and excavated waste such as bricks, sand, gravel and concrete slates"<sup>49</sup>. Lastly,

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<sup>48</sup> Pasotti E. 2010. *"Sorting through the trash: the waste management crisis in southern Italy"*. Routledge, London, pag 291-295.

<sup>49</sup> See Resource Conservation and Recovery Act (RCRA) title C on Hazardous Waste. For more details, check <http://www.epa.gov/tp/laws/rcra.htm>

waste can also be classified by whether it is biodegradable or non-biodegradable waste. Biodegradable waste is commonly found in municipal solid waste as food waste, yard waste and paper. In contrast with biodegradable waste, non-biodegradable waste, which includes most plastics, metals and ceramics, are waste substances that cannot be broken down by natural processes or living organisms . To conclude, the classification of waste into types is very important for waste management planning. Among other things, it provides useful information that enables municipal authorities and policy makers to find the most appropriate disposal methods and organize waste management operations including the frequency and means of collection. In fact, numerous examples demonstrate that the municipalities that over the past few years have made great advances in waste data generation and analysis have seen significant improvement in the performance of their municipal waste management systems. In fact, these activities of reporting and data collection facilitates the generation of feed forward and feedback mechanisms which enables local authorities to improve significantly waste management practices over the years. Once explained in detail what have to be considered as waste and classified it into different categories based on the composition of the materials involved or the potential risk for the environment and human health, it is time to shed some light on what is generally intended with the expression “waste management”. According to Usher, the business of “keeping our environment free from the contaminating effects of waste materials it is a complex activity that encompass different phases. More precisely, waste management can be divided into: collection, transport, treatment and disposal of waste including after care of disposal sites”<sup>50</sup>. A

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<sup>50</sup> Usher M. 2009. *“Conserving european biodiversity in the context of climate change”*. Council of Europe, Strasbourg, pag. 78-86.

more precise and comprehensive definition of waste management is provided by Bianchi that has defined waste management as “purposeful, systematic control of the generation, storage, collection, transportation, separation, processing, recycling, recovery and disposal of solid waste in a sanitary, aesthetically acceptable and economical manner<sup>51</sup>. Furthermore, as Bianchi argues “waste management is the practice of protecting the environment from the polluting effects of waste materials in order to protect public health and the natural environment”<sup>52</sup>. For this reason, the main objective of a municipal system is to manage the production cycle of waste in such a way as to minimize any potential risk to the environment and people's health. Other authors have made reference to waste management as a professional practice which goes beyond the physical aspects of handling waste. More specifically, following Gilpin waste management “involves preparing policies, determining the environmental standards, fixing emission rates, enforcing regulations, monitoring air, water and soil quality and offering advice to government, industry and land developers, planners and the public”<sup>53</sup>. In addition, numerous scholars in relating to this subject, have preferred to focus on the sociological implications of waste management. More precisely, Worster argues that “Waste management must promote inclusion, cohesion and responsible local, regional and global citizenship through safe, just and acceptable participation and governance from citizens, businesses and the government”<sup>54</sup>. Other writers agree with these objectives of waste management. For example, Pulselli have stated that the goals of municipal solid waste management are “protecting environmental health, protecting

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<sup>51</sup> Bianchi D. 2008. *“Il riciclo ecoefficiente”*. Edizioni Ambiente. Milano, pag. 38-54.

<sup>52</sup> Ibidem, pag. 58-60.

<sup>53</sup> Gilpin, A. 1996. *“Dictionary of Environment and Development”*. John Wiley and Sons, New York, pag. 27-36.

<sup>54</sup> Worster D. 1994. *“Storia delle idee ecologiche”*. Il Mulino, Bologna, pag. 58-66.

the quality of the environment, supporting the efficiency and productivity of the economy and the generation of employment and income for people”<sup>55</sup>. According to Viale “the overall goal of urban solid waste management is to collect, treat and dispose of solid waste generated by all urban population groups in an environmentally and socially satisfactory manner, using the most economical means available”<sup>56</sup>. Waste management, therefore, involves a wide range of stakeholders each of which play a crucial role in creating and maintaining a clean, safe and pleasant environment in human settlements in order to protect the health and well-being of the population and promote the sustainable exploitation of the environment. Therefore, it can be concluded that the main objective of waste management is to “protect public health against waste-related hazards and risks, and to maintain ecosystem services by preventing the pollution of the natural environment and its resources such as land, water and air as well as the aesthetic quality of the environment”<sup>57</sup>. As can be noticed, the objectives of waste management includes almost entirely the goals of the Millennium Ecosystems Assessment of the United Nations on the consequences of ecosystem change for human wellbeing. According to this report it is necessary “to establish sustainable systems of solid waste management at local, national and global scales which will meet the needs of the entire urban population in order to protect and conserve the world’s ecosystems and their resources”<sup>58</sup>. This means, firstly, that a sustainable waste management must be specifically tailored to the particular characteristics and needs of the municipality to which it relates. Secondly that an adequate waste management system have to connect all the different

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<sup>55</sup> Pulselli F. 2007. “*La soglia della sostenibilità*”. Donzelli, Roma, pag. 83-90.

<sup>56</sup> Viale G. 1995. “*Un mondo usa e getta*”. Feltrinelli, Milano, pag.32-47.

<sup>57</sup> Corona G., Fortini D., 2011, “*Rifiuti*”, XL, Roma.

<sup>58</sup> Millennium Assessment Report. 2005. “*Living Beyond Our Means: Natural Assets and Human Well-being*”. Accessed at: <http://www.millenniumassessment.org/en/Reports.aspx>.

stakeholders in the waste sector such as private sector waste companies, government and non-governmental agencies and representatives of civil society of a given territory. In fact, in the field of waste management, as generally in the field of public policy, is inconceivable to achieve durable solutions without “the involvement, the active participation and the social acceptance of the community to govern”<sup>59</sup>. In fact, increasing public participation produces: social, human, cultural, institutional and economic benefits. More specifically, creates a sense of belonging of the citizens to the process of government of their community and promotes a greater awareness of stakeholders on the environmental problems and on their possible solutions in a sustainable development” perspective.

### **2.3.1. From sustainable development to integrated waste management**

The accelerating pace of technological innovation and concern for protecting our limited natural resources are encouraging governments to consider with increasing attention the issue of sustainability in the provision of essential public services. Therefore, in order to clearly understand the concept of sustainable waste management, it is important to briefly consider and discuss that of sustainable development. In fact, it is important that the concept of sustainable waste management is incorporated and examined in the light of the more comprehensive one of sustainable development. The concept of sustainable development is frequently mentioned in the most varied contexts, but rarely clearly defined. The definition of sustainable development was introduced in the World Conservation Strategy in 1980, but made well-known by the so called Brundtland commission. More in particular, this report define sustainable

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<sup>59</sup> Garmendia E., Stagl S. 2010 “Public participation for sustainability and social learning: concepts and lessons from three case studies in Europe”. Ecological Economics Journal, Vol. 6, pag. 1712-1722.

development as “the needs of the present generation are met without compromising the ability of future generations to meet their own needs”<sup>60</sup>. Although, several scholars consider that this definition meets the core aspects of sustainability in its wide interpretation (Dale, 2001, Adams, 2001), other authors consider it unclear and problematic (Lélé 1991; Taylor 2002; Buclet 2002; Jabareen 2008). More precisely, Buclet, in his critic of the definition given in the above mentioned Report, argued that “it is often difficult to determine the future needs of people in the next generation which may be different from the needs of people today”<sup>61</sup>. Furthermore, he added that “the way the developed countries view the concept of needs, is completely different from the views of that of the developing countries”<sup>62</sup>. However, even though the UN definition of sustainability may have raised some controversies, it still covers the two fundamental issues regarding sustainable development: the urgent problem of environmental degradation resulting from an uncontrolled economic growth, and the need that such economic growth might be addressed to reduce the level of poverty. Recently, sustainable development has become an important international and national concept since it allows to integrate economic, environmental and social considerations in sustainable planning to ensure that both the present and future generations can enjoy a good quality of life. This means that the concept of sustainable development is not a static concept but that on the contrary its meaning continues to evolve over time, and express different emphasis depending on the point of view from which is analyzed. More specifically, the concept of sustainable development are identified three main pillars of it: the environmental, the economic and the social

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<sup>60</sup>Report of the World Commission on Environment and Development. 1987. “*Our Common Future*”. Accessed at: [http://conspect.nl/pdf/Our\\_Common\\_Future-Brundtland\\_Report\\_1987.pdf](http://conspect.nl/pdf/Our_Common_Future-Brundtland_Report_1987.pdf)

<sup>61</sup> Buclet N. 2002 “*Municipal Waste Management in Europe. European Policy between Harmonisation and Subsidiarity*”. Kluwer Academic Publishers, Amsterdam, pag. 52-75.

<sup>62</sup> Ibidem, pag. 69-71.

sustainability. According to this perspective of analysis, the concept of sustainable development is understood as the possibility of achieving economic growth, environmental protection, and social progress at the same time. In fact, environmentalists consider resource conservation as the most important issue in sustainability. More specifically, according to the environmental perspective, the economic development cannot occur at the expense of the environment compromising resource availability for subsequent generations. This implies that any human activity, such as waste management, be practiced in a way that takes into consideration long-term effects and incorporates the protection of the natural environment. Therefore, according to this perspective, policy makers are now exhorted “to take the lead as the managers of sustainability; to see that technological applications incorporate sustainable development concepts; to be innovative in planning so as to design policies that enhance the natural environment; and to protect natural resources; and restore natural systems”<sup>63</sup>. As can be seen, a pragmatic approach in sustainable development requires to find a balance between the needs of the natural environment and that of human activities by providing a set of actions aimed at alleviating the negative trends caused by overpopulation, uncontrolled urbanization and overuse of natural resources. More specifically, environmental sustainability can simply be defined as “maintaining the factors and practices that contribute to the quality of environment on a long-term basis while still ensuring the same availability for coming generations”<sup>64</sup>. With regard to the economic perspective of sustainability, this concept deal with the optimization of resources. More appropriately, we can define economic sustainability “the use of

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<sup>63</sup> Sinsha R. et al. 2011. “*Earthworms - the Waste Managers: Their Role in Sustainable Waste Management Converting Waste into Resource While Reducing Greenhouse Gases*”. Novinka, New York. Pag. 183-198.

<sup>64</sup> Tiezzi E., and Marchettini N. 1999. “*Che cos'è lo sviluppo sostenibile?*”. Donzelli Editore, Roma, pp. 39-41

various strategies for employing existing resources optimally so that a responsible and beneficial balance can be achieved over the longer term<sup>65</sup>. In fact, an economic system that is environmentally stable will increase the quality of life of the humans it serves by increasing the efficiency of overall resource. Lastly, social sustainability supports “interaction among people and nature to satisfy human needs, enhances protection and security of life, health and communities and ensures fairness and equity within society and between current and future generations”<sup>66</sup>. In this regard, the specific objectives of social sustainability are: empowerment, participation, equity, social cohesion, institutional development, poverty alleviation and population stability. As Herman Daly claims, social sustainability is a “progressive social improvement without growing beyond ecological carrying capacity”<sup>67</sup>.

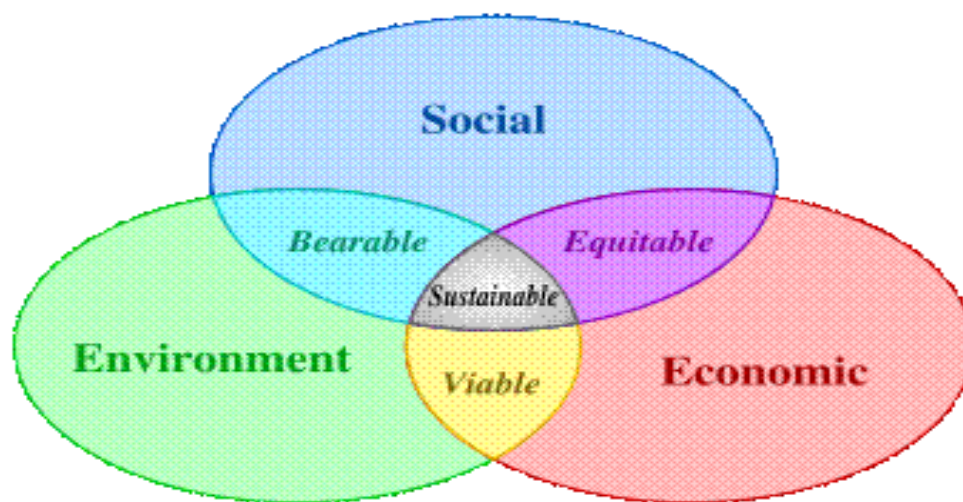


Figure 2

<sup>65</sup> Godet M. 2004. “Creating futures scenarios planning as a strategic management tool”. Economica, London, pag. 67-74

<sup>66</sup> Tiezzi E., and Marchettini N. 1999. “Che cos’è lo sviluppo sostenibile?”. Donzelli Editore, Roma, pp. 44-53

<sup>67</sup> Daly H. 1998. “Beyond Growth: The Economics of Sustainable Development”. Beacon press, Boston, pag. 121-132.



## Sustainable development in the perspective of the integration of the three diverse characterizations of the development

As discussed above, one of the most important aspects of sustainable development is to try to balance the interaction between the natural environment and human activities. This need is strongly felt in the field of waste management which is a sector in which public health, economic growth and environmental degradation are elements deeply connected between themselves. In fact, the way through which a community manage their own resources and the waste produced constitutes an important indicator in order to establish if this community is growing sustainably or not. However, as already mentioned above, the issue of waste management can not be regarded as a matter of local character. In fact, nowadays because of the phenomenon of market globalization, all kinds of manufactured products are transported all over the world, finally ending up as waste, and therefore contributing to negative impacts on the environment and on public health if they are not properly handled. In this respect, is sufficient to recall the case of the region Campania where, thanks to the connections between politicians and organized crime, it was possible to bury a huge amount of toxic waste from all over the world without observing all necessary precautions thus leading to a dramatic increase of mortality rates<sup>68</sup>. On the contrary, there are numerous examples of regions and municipalities that have successfully accepted the challenge of

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<sup>68</sup> Read more in: Najem R. et al. 1985. "Clusters of Cancer Mortality in New Jersey Municipalities; With Special Reference to Chemical Toxic Waste Disposal Sites and Per Capita Income". *International Journal of Epidemiology*, Oxford, Vol. 5, pag. 528-537; Griffith J. et al. 1989. "Cancer Mortality in U.S. Counties with Hazardous Waste Sites and Ground Water Pollution". *International Journal Environmental Health*, New York, Vol. 4, pag.732-745; Fazzo L., et al. 2008. "Cluster analysis of mortality and malformations in the Provinces of Naples and Caserta (Campania Region)". *Annali Istituto Superiore di Sanità*, Roma, Vol. 4, pag. 99-111; Martuzzi M., et al. 2009. "Cancer mortality and congenital anomalies in a region of Italy with intense environmental pressure due to waste". *Occupational and Environmental Medicine*, London, Vol. 9, pag. 725-732.

reorganizing more effectively and efficiently their waste management systems, making it an opportunity of development able to increase significantly employment rates<sup>69</sup>. Therefore, on the basis of what has been said, a well-managed solid waste management system represent a useful indicator in order to evaluate the standard of public health, the quality of life and the level of economic well-being of a given community. Neither an economic nor an ecological indicator can by itself be a sustainability indicator, because “economic sustainability has an ecological cost and ecological sustainability has an economic cost”<sup>70</sup>. In fact, it is necessary to integrate this criteria in order to measure properly the level of sustainable development of a given territory. For all these reasons, it is very important to analyze the concept of sustainable waste management (SWM) in the light of that of sustainable development. In fact, SWM can be considered as an essential part of sustainable development because the amount of waste generated and the way in which it is managed has profound implications for the quality of the environment and for the prospects of future generations. Therefore, in observance with the objectives of sustainable development, sustainable waste management can be regarded as an approach to waste management that, in addition to protecting human health and the environment, ensures that the scarce resources of the earth are conserved for both present and future generations of humanity. Therefore becomes important to minimize natural resource extraction and consumption by recycling waste materials, and conduct waste management efficiently to curtail the environmental impacts of waste disposal and protect ecosystem services for both current and future generations. Some

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<sup>69</sup> For further information, checks Davies G. 2013. “Counting (green) jobs in Queensland's waste and recycling sector”. *Waste Management Research*, Vol. 2, pag. 234-245; Wilsons C. 2006 “Role of informal sector recycling in waste management in developing countries”. *Habitat International*, Vol. 30, pag. 797-808.

<sup>70</sup> Munda G. 2005. “Measuring Sustainability: A Multi-Criterion Framework”. *Environment, Development and Sustainability*, Vol 7, pag 117-134.

authors have argued that in concrete terms there are some difficulties in the practical application of the sustainability principles described above in the waste management strategic planning (Fortini and Corona, 2010; Connet, 2012; Ruocco and Valente 2013). Firstly, because of several trade-offs between alternative uses of limited resources. In fact, land and budgets are the key elements that has to be considered in waste management planning, and both of these are often in short supply and their availability changes over time. Secondly, the waste issues such as waste generation and waste disposal usually have long term impacts on the environment. Those impacts need to be involved in the planning of the waste management system. Therefore, it is preferable that the planning methods be able to adapt the plans to changing circumstances. Thirdly, comparing planning alternatives according to sustainability involves environmental, economic and social aspects each of which expressed through a variety of factors and indicators. According to Morrisey the principle goal of sustainable waste management is “to minimize waste generation, maximize waste recycling and reuse, and ensure the safe and environmentally sound disposal of waste”<sup>71</sup>. This means that waste management should be approached from the perspective of the entire cycle of material use which includes production, distribution and consumption as well as waste collection and disposal. According to Holmberg, “a waste management plan requires consideration of many issues, ranging from policy issues on standards of pollution, health and promotion of waste recycling, to planning issues like the location of waste facilities and the allocation of waste streams to facilities. Limited resources and long-term sustainability necessitate the use

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<sup>71</sup> Morrisey AJ. 2004. “*Waste management models and their application to sustainable waste management*”. Landfill process modeling, Vol. 4, pag. 297-308

of a rational planning methodology that minimizes the use of resources and that is able to consider long term effects”<sup>72</sup>. This statement inevitably recalls the attention on the concept of Integrated Waste Management (IWM). In fact, in recent years, the concept of IWM has become popular as a new approach to waste management. IWM can be described as an optimized system of one or more waste management practices, based on site specific considerations. According to Hughes, IWM systems “combine waste streams, waste collection, treatment and disposal methods, environmental benefits, economic optimization and societal acceptability into a practical waste management system for any specific region”<sup>73</sup>. As defined by the World Resource Institute IWM refers to “the use of a range of different waste management options rather than using a single option”<sup>74</sup>. In other words, IWM is an approach which relies not only on technical solutions to the waste problem, but on a wide range of complementary techniques in a holistic approach. The approach involves the selection and application of appropriate technologies, techniques and management practices to design a programme that achieves the objectives of waste management. The concept of IWM seems to have emerged from the realization that technical solutions alone do not adequately address the complex issue of waste management and that there is the need to employ a more holistic approach to waste management. As pointed out by Rhyner, “a single choice of methods for waste management is frequently unsatisfactory, inadequate, and not economical”<sup>75</sup>. The use of an integrated approach to managing solid waste has therefore evolved in response to the

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<sup>72</sup> Holmberg MA. 2010. “*Waste as a Social Dilemma*”. Verlag Dr. Müller, Berlin, pag. 56-60

<sup>73</sup> Hughes R., et al. 2008. “The international handbook on environmental technology management”. Elgar, London, pag. 405-421”.

<sup>74</sup> More in particular, The World Resources Institute (WRI) and the United Nations Environment Programme (UNEP) released a study that showcases simple, low-cost solutions for reducing food loss and waste that are already delivering significant environmental and economic benefits to communities around the globe. For any further information, check <http://www.wri.org/publication/reducing-food-loss-and-waste>

<sup>75</sup> Rhyner et al. 1995. “*Waste Management and Recovery Resources*”. CRC press, London, pag. 286-311.

need for a more holistic approach to the waste problem. In this approach, all stakeholders that are affected by the waste management regime are brought on board to participate in improving waste management system. Therefore, as many authors argued, different although strictly interrelated social, cultural, economic and environmental factors are considered in the design of an IWM project (Tchobanoglous et al., 1993; Rhyner et al., 1995; Martuzzi et al., 2010). These elements of IWM are frequently formulated into a waste hierarchy model which Girling has described as “a penny-plain piece of common sense that places the various strategies for waste management in order of environmental friendliness, from best to worst”<sup>76</sup>. As shown in figure 3 waste prevention and reduction are placed at the top to show that the best way to deal with waste is to prevent its production and, where this is not possible, to produce less of it. At the other extreme, disposal is placed at the bottom to show that it should be the last resort among the strategies for waste management.

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<sup>76</sup> Girling, R. 2005. “*Rubbish! Dirt on Our Hands and Crisis Ahead*”. Eden Project Books, London, Transworld Publishers Ltd, pag. 137-145.



Figure 3

The pyramidal scheme of the principle of hierarchy of waste management

(Source: EPA, 2010)

The waste hierarchy was originally set out in the EC Framework Directive on Waste and is a useful guiding principle for waste management planning. Intergraded waste management and the waste hierarchy both inspire sustainable waste management and can reduce the environmental hazards associated with waste disposal. It is therefore important for all the stakeholders involved in the waste sector to understand that an integrated approach which constantly strives to move up the waste hierarchy can be a useful tool for sustainable waste management. Other instruments aiming at encouraging the implementation of sustainable waste management systems are the proximity principle (PP)<sup>77</sup> and the best practicable environmental

<sup>77</sup> According to Phillips the proximity principle “advocates that wastes should be managed as close as practicable to their point of origin. The principle is therefore aimed at ensuring efficient waste management practices, by minimizing the cost, resource use and emissions of transporting waste”. Phillips P.S. et al. 2001. “An analysis of UK waste minimization clubs: key requirements for future cost effective developments”. Waste Management, Vol. IV, pag 389-404.

option (BPEO)<sup>78</sup> (Environment Council, 2000). More specifically, the proximity principles calls for the disposal of waste as close to its source as possible. Among other advantages, this practice reduces the time, energy and expenses involved in the transportation of waste to disposal sites, and also minimizes the possibility of accidents associated with the transportation of waste. With regard to the BPEO, it encourages the use of waste management strategies that achieve the most benefits in terms of cost, energy and time, and that also cause the least damage to the environment. In conclusion, as can be seen, there are numerous instruments that policy makers have to take into account and that are able to guide them once they have to implement waste management strategies. This review of the recent developments regarding the integration of the concept of IWM and that of sustainable development, has served to show how it is unthinkable to approaching an issue so complicated such as that of waste management without taking into proper consideration all the different perspectives that this phenomenon encompass.

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<sup>78</sup> The Royal Commission on Environmental Pollution define the BPEO principle as “the outcome of a systematic and consultative decision making procedure which emphasizes the protection and conservation of the environment across air, land and water. The BPEO procedure establishes, for a given set of objectives, the option that provides the most benefit or least damage to the environment as a whole, at acceptable cost, in the long term as well as the short term”. Royal Commission on Environmental Pollution. 1988. “Twelfth Report, Best Practicable Environmental Option”. London.

## **2.4. The EU and national legislative framework on Solid Waste Management**

Over the last twenty years, environmental pollution phenomena have attracted increasing attention and worries. Therefore, in order to deal effectively with these issues, increasingly severe legislative instruments have been developed to protect the environment and the health of citizens. The transition from the perspective of local interventions to forms of environmental policy extended to entire countries took place in 1989 with the UN resolutions no. 44/228. This resolution made it possible to perceive the effective dimensions of the problem of environmental pollution on a global scale and turned out crucial for the common decision to organize the “First World Conference on Environment and Development - Earth Summit” of Rio de Janeiro in 1992. More precisely, the main objective of this conference was to compare the specific environmental issues of each country and develop a first and significant transfer of technologies to improve local conditions. The Rio conference played a decisive role for the formulation of the “Declaration on the state of the environment and development”, which, divided into 27 principles of action, can be considered the document promoter of the concept of sustainable development. Among the various innovative elements of the Declaration is necessary to highlight the “Agenda 21” programme. More precisely, Agenda 21 is a programmatic and operational programme, aimed at identifying methods and strategies that the signatory countries committed themselves to adopt in order to promote sustainable development and reduce environmental problems. It is with Agenda 21 that the issue of sustainability beginning to be analyzed through different perspectives and, more specifically, from the perspective of the necessary integration of the



economic dimension with the social and environmental ones. Regarding specifically the issue of waste, at the European level this perspective has been concretely translated in a series of directives on waste. In fact, since the early nineties the EU institutions has identified the reduction of the wastes produced and of their hazardousness one of the key actions for environmental improvement. During those years has emerged the strategy for waste management based on prevention, promotion of recycling, and reduction of the use of landfills. However, the turning point in European environmental policy has taken place with the Treaty of Amsterdam of the 17 June 1997, which introduced for the first time the principle of sustainable development in the EU environmental policies. More specifically, this principle express the consciousness that only with an integrated approach to the environmental issues it is possible to achieve a sustainable realization of the economic, social and environmental objectives within the EU territories. In recent years, solid waste management systems in Europe have “involved complex and multifaceted trade-offs among a plethora of technological alternatives, economic instruments, and regulatory frameworks. These changes resulted in various environmental, economic, social, and regulatory impacts in waste management practices which not only complicate regional policy analysis, but also reshape the paradigm of global sustainable development”<sup>79</sup>. The European Union, in order to limit the growth of the waste produced, provides a legal framework to control the entire waste cycle, from production to disposal, focusing on the recovery and recycling. In fact, it has been developing the consciousness that the issue of waste cannot be faced only in terms of disposal technologies, but needs to be addressed with

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<sup>79</sup> Pires et al. 2010. “*Solid waste management in European countries: A review of systems analysis techniques*”. Journal of Environmental Management, Vol. 8, pag. 1033-1050.

suitable systems and intervening with appropriate management initiatives at every stage of the process. Gradually, these regulatory developments have been transposed also in Italy, determining the penetration into the Italian legal system of these revolutionary principles. More specifically, the transposition of EU directives into the Italian legislation has forced the municipalities to revolutionize their approach to waste management by imposing a number of challenges and targets aimed at achieving environmental sustainability. Therefore, the specific goal of the municipality of Palermo can be identified in the resolution of the situation of emergency through the implementation of a more efficient system of waste management which is in line with the objectives set out by both the European and national legislation. That is, changing the current system based almost exclusively on the landfilling of waste materials and realizing a municipal waste management system that takes into consideration the prevention, the recycling and recovery of municipal waste and that relegate the landfilling to a mere residual role. It therefore seems appropriate to recall the main regulatory instruments currently in force and outline the system for the allocation of competencies of public institutions in the field of municipal solid waste management.

#### **2.4.1. The EU legislation**

The most important framework Directives of the present EU waste legislation are the Waste Framework Directive and the Landfill of Waste Directive. With regard to the Waste Framework Directive, it is important to underline that this Directive obliges Member States to ensure that waste is recovered or disposed of without endangering human health and without using processes and methods that would harm the environment. For the

purpose of achieving self-sufficiency in waste disposal both at European and national level, the Directive attribute to member states the task of undertake appropriate measures to establish an integrated and adequate network of disposal installations. The Directive also promotes environmental protection through the so called Waste Hierarchy principle that seeks to prioritize prevention before recycling and disposal. It has to be noted that the Directive contains a precise definition of the concept of waste management in order to prevent possible misunderstandings about the hierarchy of activities that has to be undertaken. More specifically, waste management is defined as “the collection, transport recovery and disposal of waste including the supervision of such operations and after-care of disposal sites”. In the context of this Directive, a better use of resources is promoted by encouraging the use of waste for beneficial purposes, hence recovery operations. More in particular, recovery operations consists in the re-use of waste materials instead of primary sources with the aim to conserve natural resources, while, disposal operations deals with safely discarding of wastes. In the Directive, punctual requirements are set for all the waste operations in order to make sure that waste is managed without jeopardizing human health and without the adoption of processes and methods which could harm the environment. To be more precise the Directive establish that all the above mentioned operation have to be carried out more “without risk to water, air, soil plants or animals, without causing nuisance through noise or odours or without adversely affecting the countryside or places of special interest”. Regarding the European Landfill of Waste Directive is arguably “one of the most dominant documents of the portfolio of the EU waste management regulations”<sup>80</sup>. The overall objective of this legislative act is to supplement

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<sup>80</sup> European Environment Agency (EEA). 2009. *“Diverting waste from landfill. Effectiveness of waste management*

the requirements of the Waste Framework Directive and prevent or reduce as far as possible the negative effects of landfilling on the environment as well as any resultant risk to human health. This Directive seeks to achieve this objectives by specifying uniform technical conditions and standards for landfilling at the EU level and precise requirements for the location, management and monitoring of landfills. In the Directive, a landfill is defined as “a waste disposal site for the deposit of waste onto or into land”. Hence, the directive can be applied only with specific regard to disposal activities and not also to recovery operations. Furthermore, in the Landfill Directive it is mentioned that only waste that has been treated can be landfilled. As a treatment it has to be considered “every physical, thermal, chemical or biological process that changes the characteristics of waste in order to reduce its volume or hazardous nature, facilitate its handling or enhance recovery”. More precisely, the diversion of the bio-degradable fraction of municipal solid waste “constitutes quite a challenge for all Member States that did not divert a large part of their waste before implementing the Landfill Direction and Italy is one of them”<sup>81</sup>. In fact, the Landfill Direction requires by year 2006 a reduction of biodegradable municipal waste going to landfills of 75% respect their 1995 levels, of 50% by year 2009 and 35% by 2016. However, for countries that currently heavily depend on landfilling for more than 80% such as Italy, the deadline for reaching the targets may be postponed for 4 years maximum. It should be noted that despite undoubted progress made over the past few years, the directives have not yet been fully implemented in all areas of the country (Especially in Southern Italy Regions) and therefore it is essential to continue to increase the efforts in order to be sanctioned by the EU bodies

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*policies in the EU*”. EEA Report n. 7/2009, pag 15-20

<sup>81</sup> Massarutto A., 2009, “*I rifiuti. Come e perché sono diventati un problema*”, Il Mulino, Bologna, pag. 121-126.

as has already happened for Lazio Sicily and Campania. A scenario that seems destined to further complicate if one considers that recently EU institutions has established to impose to Italy heavy fines for the delay in the resolution of the waste crisis in the above mentioned regions.

Furthermore, according to an analysis published by Althesys, in the last three years “the missed benefits from recycling have produced a shortfall of nearly 200 million Euros in terms of economic benefits. In fact, not have properly organized the separate collection of waste determines a costs of around d 187.8 million of euro per year for Sicily”<sup>82</sup>.

#### **2.4.2. The Italian Legislation**

The Italian legislation on waste is mainly based on two legislative acts, The “Ronchi” Decree and on the “Testo Unico Ambientale”. Before these two legislative measures, the Italian legal system was equipped with a relatively poor legislation regarding the waste management sector. In fact, with the Presidential Decree n. 915 of 10 September 1982, the Italian legislator only established a form of management of urban waste that after the phase of collection merely provides that of disposal. Following this scheme, urban waste was conceived as a mere residue of the economic activity and, consequently, the Italian legislator dealt with the issue of municipal solid waste only at the time of the occurrence of an environmental damage. The situation changed dramatically with the introduction of Legislative Decree n.22/97, better known as “Ronchi” Decree. Motivated by the need to transpose the package of EU directives approved in the nineties, through this decree were introduced in the Italian legislation the cornerstones of EU MWM strategy such as the extended

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<sup>82</sup> Read More in <http://www.althesys.com/info-block/irex-annual-report-2013/>

producer responsibility (EPR)<sup>83</sup> and the polluter pays principles (PPP)<sup>84</sup>. Furthermore, through the Dlgs 22/97 has been introduced: the prohibition of landfilling untreated waste, mandatory targets for separate collection (35%, later elevated to 50% and 65%) and a collective responsibility for municipalities within each district (Provincia) to achieve self-sufficiency. Thanks to this Decree, was also introduced in the Italian legislation a further stage in the cycle of waste management, that of the recovery, that was placed in between those of collection and disposal. In addition, thanks to the Ronchi decree was “completely reorganized the system of competences of local authorities in the waste sector”<sup>85</sup> and introduced a new public entity responsible of the management of municipal solid waste, the Optimal Territorial Authorities (ATO’s). The creation of the ATO was justified by the fact of ensuring a unified management of municipal waste that would allow to optimize the management cycle. More specifically, in the intentions of the legislator these objectives should have be realized through a precise delimitation of the territory and, consequently of the different competencies of political and administrative bodies involved in the procedures. According to the intentions of the legislator, ATO’s would have to allow adequate assessment of the waste-related transportation systems in order to optimize them, to enhance the common needs of the various authorities included in their scope of operations, and optimize the utilization of waste management infrastructures already in function.

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<sup>83</sup> Regarding the EPR principle, Lindhqvist states that can be defined as “An environmental protection strategy to reach a goal of decrease the total environmental impact of a product, through the load of charges concerning the entire life cycle, and especially the take-back product on the manufacturer. The Extended Producer Responsibility is implemented through administrative, economic and informative instruments. The composition of these instruments determines the precise shape of the Extended Liability on the Manufacturer”. In Thomas Lindhqvist, “Extended Producer Responsibility in Cleaner Production”, 2000, <http://www.lub.lu.se/luft/diss/tec355.pdf>.

<sup>84</sup> According to Montero, the proximity principle establish that “the costs of pollution should be borne by the entity which profits from the process that causes pollution. Strictly speaking, it requires that any agent (firm or consumer) compensates all agents who suffer from his pollution emissions for the damage he causes”. Montero JP. 2008. “*A Simple Auction Mechanism for the Optimal Allocation of the Commons*”. American Economic Review Vol. 3, pag. 496-518.

<sup>85</sup> Massarutto A., 2009, “*I rifiuti. Come e perché sono diventati un problema*”, Il Mulino, Bologna, pag. 69-80.

However, in many regions of southern Italy the system of ATO failed because their management, headed by managers appointed merely on the basis of their political affiliation, in many cases, “has been characterized by substantial waste of public money and the proliferation of patronage networks”<sup>86</sup>. More specifically, according to Pasotti, “Atos, leading to a costly proliferation of offices and personnel. For example, the Ato from municipalities in Enna contracted services to a second company, Sicilia Ambiente, controlled by exactly the same set of municipalities. The doubling fed clientelism and inefficiencies. Some Atos are consortia, others stock companies, but in both cases they employ consultants and boards. They offer avenues for clientelistic employment by offering longer-term contracts to those chronically unemployed workers who have obtained training or short-term contracts through political support. The wide differences in organizational structure among Sicilian Atos provides an indication of how they are instrumentalized by local political entrepreneurs. For example, an investigation at the end of 2006 found that the Ato Palermo 4 had 347 employees because it managed waste disposal on its own, while the Ato Catania 4 had no employees at all but spent 272,400 euro per year for its board and trade union council, because it contracted out waste collection. In Sicily, the introduction of Atos increased waste tariffs without a clear service improvement. Yet, over the years, the tax was increased until it became the highest per capita in the country, while it still only covers 64 per cent of costs, the rest burdening municipal budgets. Financial distress was palpable”<sup>87</sup>. For all these reasons, recently, the actual national government has considered such institutions unnecessary and costly and has ordered the gradual abolition of them in order to reduce

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<sup>86</sup> Pasotti E. 2010. *“Sorting through the trash: the waste management crisis in southern Italy”*. Routledge, London, pag 289-293.

<sup>87</sup> Ibidem, pag 299-230.

public spending and to promote economic stability and efficiency in the delivery of public services. Another regulatory intervention of considerable importance in the waste sector is represented by the Legislative Decree 152/06, better known as “Testo Unico Ambientale”. Through this legislative bill has been largely redefined and expanded the competencies of local authorities in the management of municipal solid waste. More specifically, new economic instruments such as eco-balances or Green Public Procurement (GPP) systems and new environmental certification systems, such as the analysis of the life cycle of products was introduced and ascribed to local authorities. The power of initiative of the public administration for the prevention and recovery of waste was extended to the point of promoting consumer awareness initiatives aimed at incentivizing the participation of the citizen-user to the municipal waste management system. With regard to the disposal activities through this decree has been attributed to the local authorities the responsibility of verifying the cases of technical and economic impossibility of recovering materials from wastes and, more in general, to ensure the application of the principles of least hazard, cost-effectiveness and efficiency of the integrated waste management system within their area of competence. Furthermore, in the field of recycling the decree stated that is a precise responsibility of local authorities to arrange appropriate separate collection systems in order to guarantee homogenous coverage of the territory in each ATO's. To conclude this analysis, the most relevant aspect of this Decree is the fully restructuration of the system of respective competencies of each local authorities in the waste management sector. In fact, this has allowed to identify more precisely which are the different actors involved in the management of municipal solid waste and their respective powers. On the basis of what has been said it can be



concluded that, although the legislative instruments that has been analyzed have transposed the principles contained into the EU directives into the Italian legal system, adapting this to the European standards, at local level the excessive bureaucratization of the processes of government of Italian local authorities has prevented to achieve significant concretes progress in this direction. Therefore, the next paragraph will be dedicated to the analysis of the most important regulatory instruments adopted by the Regional government of Sicily in the field of waste management in order to understand whether the instruments adopted and the concrete actions undertaken are able to overcome the current emergency situation and to promote the implementation of a sustainable government of the waste sector.

### **2.4.3. The Regional Legislation**

The regional law n. 9 of 2009 is one of the most remarkable legal instrument of the Sicilian region related to waste management. Through this law in fact has been reformulated the failed system based on the Atos, firstly reducing considerably their number, and secondly by imposing to the municipalities included in each ATO to establish a consortium company with share capital for the exercise of the functions of integrated waste management. According to the law, the statute of these companies, denominated as “society for the regulation of waste management service” (SRR), will be defined by a decree of the regional department for the protection of the environment that it also responsible of managing the recruitment processes of this societies. This with the clear intention of avoiding the recurrence of problems of overstaffing. Article 9 of this law identifies the objectives of recycling and recovery of materials c he should be prosecuted. More precisely, these objectives are:

- 20% of separate collection and 15% of material recovery by the end of 2010;
- 40% of separate collection and 30% material recovery by the end of 2012;
- 65% Separate collection and 50% material recovery by the end of 2015.

The law delegates to the definitive approval of the regional waste management plan the task of defining how to achieve these goals of recycling and recovery of materials. More specifically, according to this law, the regional plan will have to define a number of critical issues related to the achievement of these objectives in order to ensure an appropriate waste management system. Among these issues should be highlighted the elaboration of :

- precise criteria for the estimation of the costs of the recovery and disposal operations of municipal waste;
- initiatives aimed at reducing the amount of waste produced and at promoting the reuse, recycling and recovery of waste;
- criteria for identifying where to locate the plants and the infrastructures related to the integrated waste management system;
- plans for the expansion of the existing landfilling capacity of the Region in order to ensure that the landfilling of waste occurs without endangering the health of the communities in which the landfills are constructed;
- criteria and methods to be adopted in the whole territory of the region, for the determination of the rates of landfilling, in order to avoid an escalation of costs.

In summary, the most significant elements of this law are:

1. the reduction of the number of Atos;
2. the definition of ambitious targets on the recovery of materials;
3. the introduction of a set of criteria and tools for the control of the Atos;
4. the elaboration of initiatives aiming at encouraging recycling and reuse of recovered materials.

Nevertheless, the most important limitation of this law is that its application has been postponed to the final approval of the regional plan for waste management. Unfortunately, the regional plan for waste management is still in course of approval, thus emptying from an operational point of view the prescriptions of the regional law n. 9 of 2009.

#### **2.4.4. The distribution of competencies in the Italian waste management system**

The articles ranging from 195 to 198 of the Legislative Decree 152/06, as amended by Legislative Decree 205/10, lay down the system of competencies of public administrations in the field of waste management. More specifically, the competences of the state in the field of waste management are set out in art. 195. According to this article, to the State is attributed a general power guidance and coordination in the definition of the strategic guidelines in the field of waste management. More in particular, firstly the State has to proceed to the definition of general policies and methodologies for integrated waste management. Secondly, the State has to define strategic industrial plans to promote the reduction, recycling and recovery of waste flows. Thirdly, it is a responsibility of the State to identify measures aimed at encouraging the rationalization of the

collection and to create a market for the materials recovered from waste and their use by the public Administration. From the analysis of the State competences appear clearly that the legislator intended limit the attributions of the State essentially to the definition of general principles and objectives (including that of predispose the economic measures aimed at expanding the markets for recovered materials) and leaving to the Regions and to the other local authorities the remaining administrative and management tasks. The competences of the Regions in the sector of integrated waste management are disciplined by art. 196 of the Decree. More specifically, the major duty of the Regions is to prepare, adopt and update the regional plans for waste management. Through those plans, the Regions must regulate the recycling of municipal waste according to a general principle of separation of organic waste from the remaining typologies of waste. In addition, Regions are the competent authorities to draw up plans for the remediation of polluted areas and for the construction or modifications of waste management infrastructures under their jurisdiction. Furthermore, regional plans must includes the precise definition of the operational scope of each ATO's within the region and all the activities and needs of the plants whose activity it is necessary to ensure the management of municipal waste according to the transparency, effectiveness, efficiency, and self-sufficiency principles. The regional plans shall indicate the types, quantities and origin of waste to be recovered or disposed of by each ATO's and dictate the provisions on the modalities for handling special wastes in compliance with the EU legislation. Therefore, on the basis of what has been said, regions has the principal planning and organizational powers, thus constituting the backbone for the concrete implementation of integrated waste management systems within the Italian territory. The competencies of the provinces (recently abolished in Sicily, and also object

of a reorganization projects at national level) in the waste management sector are indicated in the art. 197 of the Decree. More specifically, the provinces are entrusted of “the administrative functions relating to the planning and organization of the recovery and disposal of waste at Provincial level, competencies that have to be exercised making use of the human, instrumental and financial resources available under current legislation”. According to this article to the provinces is recognized a general power of control (through periodic inspection) of all the activities of management, brokerage and trade of waste realized within their territorial area of competence. Moreover, Provinces have the task of identifying those areas that are suitable for the location of disposal and recovery waste plants, thus preventing any menaces to human health. In order to realize these activities and achieve these objectives, as the Regions, also the provinces can have available the Regional Agencies for Environmental Protection (ARPA), specific public bodies with appropriate expertise and technical competencies in the field of waste management. Finally, with regard to the competences of the municipalities in the waste management sector, these are indicated in art. 198 of Decree 152/06. More specifically, article 198 establishes that municipalities must regulate the management of waste with appropriate regulatory instruments accordingly to the principles of transparency, efficiency and effectiveness in the provision of any public service. More in particular, the municipal regulations shall establish measures to ensure the protection of health and hygiene at all stages of the management of municipal waste and the precise modalities of collection and transportation of municipal waste. More precisely municipalities has to adopt the all the necessary measures to optimize the processes of collection and transportation of urban waste and setting minimum standards to be met in order to measure their performance

in the waste sector. Municipalities must also indicate accurate standards in order to ensure a proper management of hazardous waste. To conclude, the approval of the “Ronchi” Decree and the Decree 152/06 have led to a profound renewal of the Italian environmental system in the management of waste. As mentioned earlier, thanks to these regulatory instruments has been given rise to a new phase in the overall governance of the waste cycle with the central objective to move from the system of landfills, polluting and dissipative, to an integrated system for the management and disposal of waste based on prevention, reduction, reuse and recycle.

## **2.5. Actual Waste Management Situation in the Municipality of Palermo**

Waste management represents one of the most critical issues in the public agenda of the municipality of Palermo. In fact, its complexity is also due to the emergency of disposing a huge amount of waste that grows incessantly. In many areas of the city waste is not even disposed of in landfills but is simply abandoned in the streets, causing tremendous problems to human health and the environment. Nevertheless the emergency also concerns the system of landfills, which are on the brink of approaching their carrying capacity<sup>88</sup>. More specifically, the municipality of Palermo, with a system of landfills close to collapse and no technological infrastructure able to extract energy derived from waste, faces additional impediments in implementing the EU and the national legislation. Furthermore, the municipal governments have been suffering from lack of coordination and lack of in-house expertise in facing the

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<sup>88</sup> Read more in Meadows D. et al. 2004. *“Limits to Growth: The 30-year Update”*. Chelsea Green Publishing Co., White River Junction, Vermont; Rees W. 1995. *“Revisiting Carrying Capacity: Area-Based Indicators of Sustainability”*. University of British Columbia press, Vancouver; Campbell D. 1998. *“Energy analysis of Human Carrying Capacity and Regional Sustainability”*. Kluwer Academic publisher Amsterdam; Daly CG. Et al. 1992. *“Population, sustainability and Earth’s carrying capacity”*. University of California press, Los Angeles.

waste emergency, thus exacerbating the situation. Moreover, at municipal level, the “Not In My Back Yard” (NIMBY)<sup>89</sup> attitude is amplified and expressed at the local policy-making process as a “Not In My Term of Office” (NIMTO)<sup>90</sup> syndrome determined by the fact that the political bodies, in order to not decrease their electoral consensus, do not adopt any serious initiatives to implement a more efficient waste management system. More analytically, the municipality of Palermo, in the North-West part of Sicily, covers 158,9 square Kilometers, 687.855 inhabitants with a population density of 4.321,72 inhabitants per square kilometer. From an operational point of view, the system of waste management in the province of Palermo is pivoted on six Atos (Optimal Area Authorities). More precisely, the Atos are constituted by groups of municipalities that have transferred to them the exercise of their competencies in the field of waste management. Due to the progressive increase in the operational costs, this management model centered on the Atos it ended up constituting one of the main critical elements of the waste management system of the entire region. The reasons that have led to the current situation of financial distress of the Atos are numerous and can be summarized in an opaque management, characterized by the proliferation of clientelistic procedures for staff recruitment, and a lack of accountability of the municipalities. The economic crisis of the system based on the Atos have produced serious consequences in the management of the waste cycle in the whole Sicilian region, determining situations of severe harm to the environment, and consequently, to the health of citizens. In fact, every day

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<sup>89</sup> According to Dear, the NIMBY phenomenon can be defined as “the protectionist attitudes of and oppositional tactics adopted by community groups facing an unwelcome development in their neighborhood”. Dear M. 1992. *Understanding and Overcoming the NIMBY Syndrome*. Journal of the American Planning Association, Vol. 4, pag 288-296.

<sup>90</sup> NIMTO syndrome can be identified as the tendency of politicians “to postpone controversial decisions to the next lot in order to not to lose votes and decrease their electoral consensus”. Read more in Ganapini W. 2004. *Ambiente Made in Italy*. Aliberti, Reggio Emilia, pag. 48-50;

in the municipality of Palermo households produces more than 700 tons of waste which are for the largest part disposed of in both legal and illegal landfills. That of the involvement of organized crime in the management of municipal solid waste is another crucial element that should be taken into account to better understand the criticalities of the system. More precisely, according to the “Rapporto Ecomafie 2013”, the illegal trafficking of waste, characterized by the continued and indiscriminate disposal of waste in illegal landfills, “is a sector continually expanding and from which organized crime huge profits at the expense of environmental protection and public health”<sup>91</sup>. On the basis of the above mentioned report it is estimated that, together with the system of official landfills, exists “an unspecified number of illegal landfills in which are buried toxic waste without any special pre-treatment”<sup>92</sup>. More specifically, according to Pasotti “In Sicily toxic waste was disposed primarily in two types of sites: in abandoned mines, some of which were in public hands, and in caves, which were excavated to extract materials for construction on the black market and then were filled back with garbage. The ability of organized crime to traffic waste depends on the inability of the government to effectively patrol the territory and highlights the link between waste, construction contracts and caves”<sup>93</sup>. Therefore, whether it is buried in legal or illegal landfills, a huge percentage of the waste that actually is produced in the municipality of Palermo does not receive adequate treatment.

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<sup>91</sup> Read more in “Rapporto Ecomafie 2013”. Legambiente, pag. 84-90.

<sup>92</sup> *Ibidem*, pag. 93.

<sup>93</sup> Pasotti E. 2010. “Sorting through the trash: the waste management crisis in southern Italy”. Routledge, London, pag 291-295.



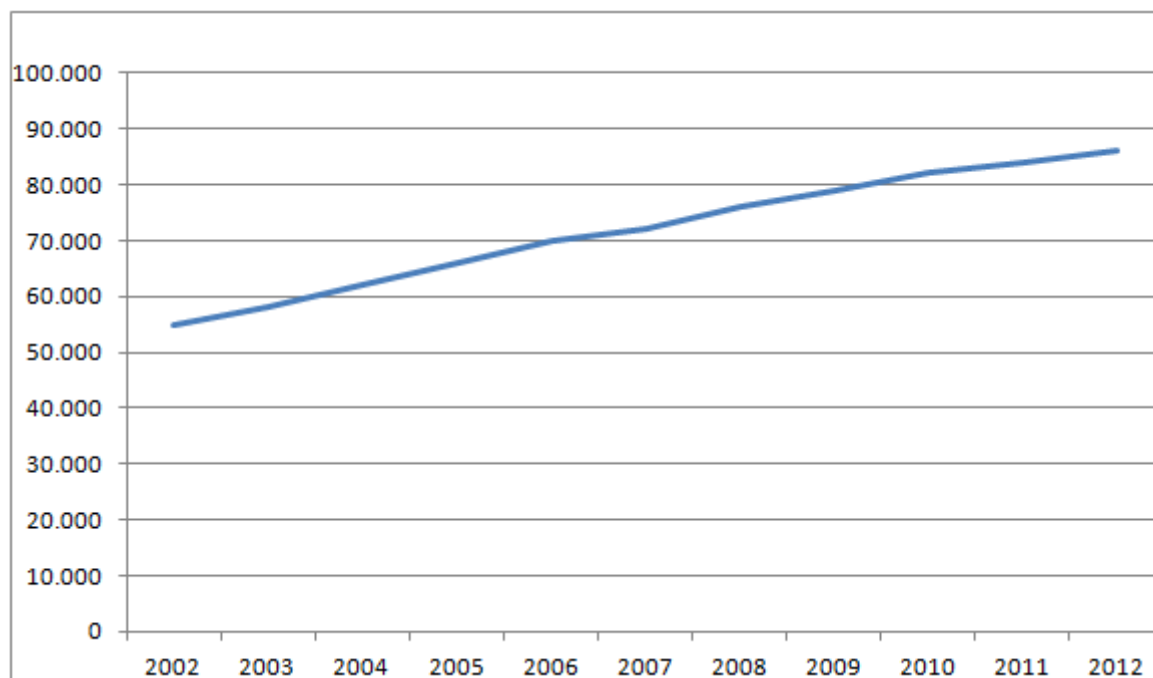


Figure 4

The amount of waste produced annually by households in the municipality of Palermo. (Source: Ispra, 2013)

More specifically, as can be seen from the graph above, approximately the 92% of this waste ends up in the landfill of Bellolampo, the main city landfill, without receiving any preventive treatment. It is a situation not longer sustainable, given that Bellolampo currently is approaching its carrying capacity. Moreover, in order to obtain a more complete perception of this problem, it is necessary to consider also the data regarding the amount of waste which is annually collected separately and sent for recycling. As can be seen from the graph below, the separate collection in the municipality of Palermo, although it followed a progressive increase, still remains at very low percentages. In fact, currently the percentage of waste recycled in the Municipality of Palermo stood at 9.3% of the waste produced annually, recording one of the worst performances at the national level. An unattainable goal considered that, as envisaged in the regional

waste plan, which transposed at the regional level the minimum targets of recycling set by both EU and national legislation, by the end of the year 2015 the percentage of recycling should reach the 65% of the total waste produced.

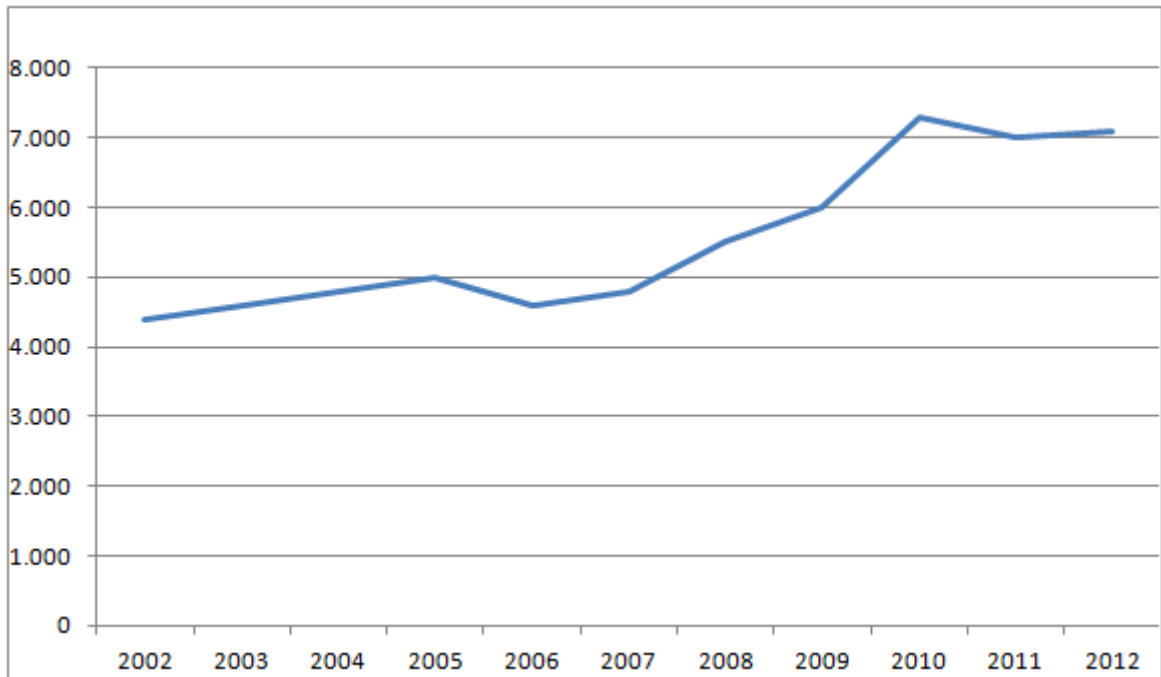


Figure 5

The amount of household's waste annually recycled in the municipality of Palermo. (Source: Ispra, 2013)

Summarizing, the critical points of the Palermo municipal waste management system can be highlighted as follows:

- 1) lack of disposal facilities;
- 2) inadequacies in the collection of MSW management;
- 3) financial deficits of the Atos;

4) very low percentage of separate collection;

5) A system of landfills nearing saturation, which operates in the absence of the requirements prescribed by law.

Therefore, as can be seen, the municipality is facing a tremendous waste crisis due to several reasons. However, to the above mentioned reasons must be added another motive, even more important than the previous ones, namely the failure of Amia S.p.A, the public company responsible for the waste management system of the municipality. More precisely, Amia, together with its subsidiaries (Amiaesemme and Palermo ambiente), has nearly 3,000 employees and an overall deficit of over 150 million euro. Currently, Amia has been replaced by a new public company, RAP, which makes use of the same resources and of the same employees of the former company. Therefore, for these reasons have been raised serious reservations about the effective possibility of this new public utilities company to operate in a sustainable way. As pointed out by Pasotti, “Waste management is crucial to the functioning of society, and impacts on public health, environmental legacy, economic livelihood, public order, and equity among the citizens living in different areas and bordering towns”<sup>94</sup>. Therefore, also at the base of the waste emergency plaguing the municipality of Palermo can be highlighted numerous causes each of which plays a crucial role in the deterioration of the situation. Moreover, this make extremely difficult the acquisition of a systemic view and, consequently, the identification of the levers of intervention that policy makers can use to mitigate the problematic behavior and reverse the negative trend. Moreover, in addition to the difficulties directly related to

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<sup>94</sup> Pasotti E. 2010. *“Sorting through the trash: the waste management crisis in southern Italy”*. Routledge, London, pag 297-299.

the system of waste management there are others of general nature related to the specific situation of the region of Sicily, and who greatly contributed in exacerbating the situation. Specifically, it is possible to observe:

1. Social factors. Poverty and social distress fueled by high unemployment and a widespread black economy. More in particular, the low demand for labor combined with a poor quality of the work offered are the factors that grafting complex dynamics that self-reinforce each other and determines a progressive deterioration of the situation. Furthermore, must be added that public intervention to support employment failed to influence or counter these phenomena but rather have resulted in creating a significant economic completely dependent from the public sector. This in turn have caused tremendous problems of effectiveness and efficiency of public services due to the excessive enlargement of the number of public employees. In the opinion of the author, This situation calls for a strong cultural change aimed at establishing a clear separation between welfare policies and labor policies. In fact, too often has been implemented policies aimed at directly supporting low income families trough public employment that have proved themselves unsustainable in the long term and that have determined distortions in the labor market. Thus, it is therefore necessary to fight against this collective feeling of distrust and chronic skepticism, and embracing a new concept of sustainable development based on a shared public ethic for the promotion of justice and legality.
2. Technical factors. More specifically, lack of infrastructures, lack of in-house experts and lack of qualified and well trained personnel employed in the public sector.

3. Endemic factors. More precisely, these factors are related to the difficulty of governing the territory due to the presence of organized crime. In the waste sector, in fact, the criminal activities are realized through the illegal trafficking of waste, the creation of illegal landfills and with concrete attacks to the existing infrastructures and facilities such as the arson of Bellolampo in 2012.

Therefore, it is necessary that, all of these critical issues, will be addressed in a targeted manner and through specific actions whose effects should be evaluated according to different time horizons. Lastly, in addition to the criticalities reported above, there is another factor that plays a crucial role in the gradual worsening of the waste crisis and that compromises the possibility of implementing a more effective and efficient system of waste management for the municipality of Palermo. More precisely, it is the problem related to the impact that clientelistic pressures produces on the waste management system of the municipality of Palermo. That of clientelistic networks it is a widespread phenomenon in Sicily, where the lack of autonomy of public companies often degenerates in using these as “real feuds that politicians use to dispense jobs in exchange for votes, thus leading to a dramatic reduction in the quality of public service and a significant increase in cost”<sup>95</sup>. Therefore, the next paragraph will be devoted to a careful analysis of this phenomenon and on the reason for which it constitutes one of the principal causes of the poor performance of the waste management system of the municipality of Palermo.

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<sup>95</sup> According to Grossi and Mussari the limitations of public utilities autonomy depend on several factors. More specifically, “they are due to the absence of their own assets, as the assets of the exercise remain the property of the local authority,; to the lack of legal personality which limits the access to credit and by the strong interference of the City Council that appoints the Board of Directors and operates a strong control over the acts of the municipal utility”. G. Grossi, R. Mussari 2004. *Local public services from the perspective economico aziendale*. Arachne, Roma pag. 31-40.

### **2.5.1. The Impact of Clientelism on the Waste Management System of the Municipality of Palermo**

Although several authors believe that clientelistic pressures are able to produce certain positive effects, appears widely demonstrated that, in any case, “programs administrated by political appointees get lower results than programs administrated by career bureaucrats”<sup>96</sup>. As Lewis claims “careerist bureaucrats as oriented to budget-maximizing, bureau-shaping and rent-seeking which theoretically has enormous implications on how a public policy is delivered”<sup>97</sup>. This view is also corroborated by Evans and Rauch that in their researches have highlighted that “Meritocratic recruitment is the most important structural feature for improving bureaucratic performance” giving evidence that in the public sector a merit based system is able to produce better results than a patronage based one<sup>98</sup>. Despite all this, the phenomenon of the proliferation of patronage networks in the public sector is far from declining in many democratic and highly developed political systems. Unquestionably, this phenomenon is well known and widespread in the Italian public sector, representing one of the main causes responsible for the poor performance of Italy in the economic field and of the growing sense of political distrust which circulates nowadays in the country. In fact, the capacity of Italian political parties to penetrate and affect the normal institutional dynamics of a territory through direct pressures aiming at increasing their electoral support has now reached pervasive proportions and is one of the areas where is mostly felt the economic and political gap between the north and the south of the country. Unfortunately, Sicily does not represent an exception in this

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<sup>96</sup> Hicken A. 2011. “*Clientelism*”. Annual review of political science, Vol. 14, pag. 289-310

<sup>97</sup> Lewis D. 2007. “*Testing Pendleton’s premise: do political appointees make worse bureaucrats?*” Journal of politics, Vol. 69, pag. 1073-1088.

<sup>98</sup> Evans P., Rauch J. 2000. “*Bureaucratic structure and bureaucratic performance in less developed countries*”. Journal of public economics, Vol. 75, pag. 49-71

regard, representing indeed one of the Italian regions in which this phenomenon has reached alarming proportions. More precisely, the economy of the island is one of those most affected by the distorting effects produced by undue political infiltration in the government of the territory. More specifically, The main object of these political pressures is represented by the public companies entrusted of the provision of public services. The specific case of this research project, which is the case of Amia S.p.A., namely the public company responsible of managing the waste management system of the municipality of Palermo, appears in this regard as a paradigmatic case of maladministration due in large portion to the excessive weight of the political interference in the appointment of public managers and in the human resource management of the company. More specifically, that of the “merely formal” autonomy of public managers and that of overstaffing are two crucial elements in order to fully understand the dynamics that characterize such phenomena. As pointed out by Bianchi, in order to make explicit the main decision making processes affecting PU performance appears necessary to take into account two complementary perspective “The institutional environment in which the PU operates and the main internal factors affecting PU performance”<sup>99</sup>. Concerning the first element mentioned, the institutional environment in which the PU operates, this can be analyzed considering two different perspectives:

1. The external autonomy. More precisely, according to Bianchi external autonomy “relates to the degree of independence of the PU managers from external influences in decision-making”. As

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<sup>99</sup> Bianchi C. 2010. “Fostering accountability in public utilities: the ACQUA spa case-study”. In Bianchi C. et al. “Applying System Dynamics to Foster Organizational Change, Accountability and Performance in the Public Sector: A Case-Based Italian Perspective”. System Research and behavioral science, Vol. 27, pag. 395-420

mentioned earlier, in the context of public companies often happens that politicians are able to assume a leading role in designating the boards of directors on the basis of their political affiliations rather than on their specific competencies, thus compromising the company's ability to direct their activities only towards the satisfaction of the public interest of the citizens. In concrete terms, the lack of external autonomy is manifested in the fact that unnecessary workers has been often hired because of political pressures on the boards of directors, and in the absence of any actual company need, thus producing a negative impact on company performance.

2. The external accountability. In the public sector, accountability is usually discussed as political accountability or the accountability of politicians to the electorate. According to Broadbent and Laughlin “Performance management systems give expression to the ends that the organization wants to achieve (i.e. its visions, mission, objectives, key success factors, key performance indicators, and targets) as well as the means of action (strategies, plans, performance evaluation systems and reward systems) and the information-flows it uses to assess whether it has learned from its experiences. Performance management systems regulates the internal workings conditions of the organization, providing a way of knowing whether current strategies are achieving organizational goals or whether they need to be changed. As environments change, performance management systems may also need to change in order to maintain their relevance and usefulness”<sup>100</sup>. Furthermore, as pointed out by

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<sup>100</sup> Broadbent J., Laughlin R. 2005. “*Organizational and Accounting Change: Theoretical and Empirical Reflections and Thoughts on a Future Research Agenda*”, Journal of accounting and organizational change, Vol. 1, pag. 7-26



Dubnick “External accountability demands often seek to promote organizational changes in order to improve performance”<sup>101</sup>. Regarding the case of Amia it is possible to note that, despite the company is regularly in a position of being incapable to cope adequately with the service for which it is responsible, no significant corporate restructuring plans or revision procedures of the targets has been adopted. On the contrary, the board of directors has merely continued to recruit unnecessary and unqualified personnel. What has been said, testifies that within the company was not implemented any mechanism for evaluating the performance of managers, which therefore do not have received any external pressure from the shareholders to “look for ways of improving future organizational performance in order to meet the next set of accountability requirements”<sup>102</sup>. Moreover, although citizens have perceived a declining of the performance and a global mismanagement of the service provided by the company, due to the widespread feeling of dissatisfaction and diffidence towards public institutions have not pushed significantly to foster organizational and managerial changes in the management of Amia. In fact, as Bianchi claims “It is also necessary that the community develops a culture oriented towards the proper role of the PUs in society (e.g. to satisfy citizen’s needs) rather than perceiving such companies as a means to

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<sup>101</sup> Dubnick, M. 2005. “*Accountability and the Promise of Performance: In Search of the Mechanisms*”, Public Performance and Management Review, Vol. 28, pag. 376-417.

<sup>102</sup> Ferreira A., Otley D. 2009. “*The design and use of performance management systems: an extended framework for analysis*”. Management accounting research, Vol. 20, pag. 263-282.

opportunistically obtain favors from politicians through influences peddling”<sup>103</sup>.

For what instead, regards the second element above mentioned, namely the public company organization setting, it is possible to highlight three different internal factors that are capable to affect significantly the performance of the PU under analysis:

1. The internal autonomy. In this regard, although the statute of Amia includes a series of provisions aimed at ensuring the autonomy of the managers and a high degree of transparency in decision-making processes is also provided that the municipality of Palermo has the power to appoint a number of directors proportional to the shares of the company possessed. Therefore, since Amia is a company entirely owned by the municipality, occurs the abnormal situation for which a corporation merge into a single entity, namely the municipality of Palermo, the sole shareholder and the only customer. In this scenario seems irrational believe that the company can effectively carry out its tasks independently and without political interferences. Therefore, all of this has made it possible that all the decisions regarding the procurements of goods or the recruitment of workers was affected by the pressure of the political current that has appointed the directors and nominated the managers;
2. The internal accountability. Another element which can be highlighted in the case of Amia is the lack of any procedure aimed at evaluating the performance of the employees. This scarce attitude to

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<sup>103</sup> Bianchi C. 2010. “Fostering accountability in public utilities: the ACQUA spa case-study”. In Bianchi C. et al. “Applying System Dynamics to Foster Organizational Change, Accountability and Performance in the Public Sector: A Case-Based Italian Perspective”. System Research and behavioral science, Vol. 27, pag. 395-420

performance evaluation have gradually determined a general feeling of impunity on the part of workers, resulting in a high level of obstruction and soldiersim. Since no reports has been conducted by Amia on the levels of productivity of its employees, it is possible deduce them through comparative analysis conducted on the performance levels of other companies responsible for the providing the same service in urban areas of the same proportions as those of Palermo. More specifically, on the basis of the Medhelan report, which have analyzed and compared the performances of the companies responsible for the public service of urban waste management of the main Italian cities, can be deduced that the level of productivity of the employees of Amia, calculated by comparing the total tons of waste collected and the number of employees is approximately half of the average data recorded by the comparable companies. This is a very significant data that, under normal conditions would have required the company management to take appropriate corrective measures.;

3. The customer orientation. More specifically, another aspect that appears unequivocally from the analysis of Amia is the weak orientation towards customers. In fact, besides the fact that any formal procedures on how to deal with customers complaints has been predisposed, the company have not conducted any market survey aimed at detecting the perception of the level of customer satisfaction.

Nevertheless, although almost globally political appointments represent an effective method in the hand of politicians to boost their political support, as Judith Chubb claims “Palermo is an ideal terrain for studying the

relationship between clientelist politics at the local level and the processes of economic and political development”<sup>104</sup>. Therefore, even though clientelistic outcomes depend upon political system, level of civic consciousness and democratization, a set of political, institutional and social consequences, can be widely observed. More specifically, it is possible to distinguish between:

1. Political consequences. On a political level, one of the most remarkable consequences of a robust clientelistic system is represented by the politicization of bureaucracies. More specifically, according to Peters and Pierre the term politicization means “the substitution of political criteria for merit-based criteria in the selection, retention, promotion, rewards and disciplining of bureaucrats”<sup>105</sup>. This phenomenon on one hand produces a loss of confidence of citizens regarding the fairness of government institutions and, on the other hand, determines the fragmentation of the society and an increase of political distrust by citizens.
2. Institutional consequences. On this regard the main consequence observable is the progressive decreasing of the level of the standards and targets to be achieved by a public company and their gradual substitution with short terms oriented and of low impact objectives;
3. Social consequences. Regarding the social consequences of clientelism, the most notable one is represented by the reduction of resources invested on social policies. More in particular, as Remmer claims “Social spending increases before elections to expand political support, but decreases after elections, when bigger slices of

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<sup>104</sup> Chubb J. 1981. “*The social bases of an urban political machine: the case of Palermo*”. Political science quarterly, Vol. 96, pag. 107-125

<sup>105</sup> Peters B., Pierre J. 2006. “*Handbook of Public Policy*”. Sage, London, pag. 28-85.

the public budget are allocated for administrative costs”<sup>106</sup>. Therefore, this concentration of public spending in pre-election periods results in a wasting of public resources that inevitably determines a deterioration of the overall social wealth of the entire region.

To sum up, as Huntington pointed out “Clientelism is a rudimentary response to the decision making insufficiencies, and the consequent social and political instability caused by an imbalance between the advances in political participation and rising standards of democratic governance and the slowness of political institutionalization and administrative modernization to respond to those changes”<sup>107</sup>. Undoubtedly, as has been amply evidenced clientelism is a social practice that produces strong economical, political and social implications. More specifically, according to De Sousa “Clientelism grows where the state has failed to accomplish its social functions, where democratic standards have not been fully appropriated across all segments of society, where there are no clear rules through which public business is carried out, and where public or private activities lack proper modes of regulation to guarantee due process and fairness. A lot of money is spent in commodities that do not deliver broad externalities to the whole of the population and whose access and benefits are restricted to a limited number of people”<sup>108</sup>. Undoubtedly, the dramatic financial crisis of recent years has exacerbated the criticalities of a territory already difficult to govern as that of Palermo. More specifically, high unemployment rates combined with a weak entrepreneurial system have

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<sup>106</sup> Remmer K. 2007. “*The political economy of Patronage: expenditure patterns in the Argentine provinces*”. *Journal of politics*, Vol. 69, pag. 363-377.

<sup>107</sup> Huntington S. 1971 “*The Change to Change: Modernization, Development and Politics*”. *Comparative Politics*, Vol. 3, pag. 283-322.

<sup>108</sup> De Sousa L. 2008. “*Clientelism and the Quality(ies) of Democracy. Public and Policy Aspects*”. DIS Working Paper 2008/2, Center for the Study of Imperfections in Democracy, Central European University, Budapest.

progressively led to the conception that municipal companies constitutes the unique way to respond to the labor demand. Therefore, in such scenario it is easy to understand how a clientelistic system can proliferate by leveraging on those chronically unemployed workers that are ready to offer their votes in exchange for a job in a municipal company. Furthermore, as pointed out by Cosenz, in Sicily, as in Italy in general, there are barriers which prevent to improve Public Administration working aptitude. More specifically, following his reasoning “due to the political protection that clientelism gives to public employees, the working culture of Italian civil servants suffers from a traditional inclination to avoid offices accountability and work inefficiently. This class of workers appears reluctant to change its working aptitude and, thus, supports clientelism lastingness”<sup>109</sup>. To conclude, as Remmer claims clientelism can be defined as a “distasteful form of governance fundamentally antithetic to democratic rule” that in the long term produces an adverse impact on citizen’s lives. Therefore, in order to limit the negative policy impacts of clientelism is necessary to to:

1. Introduce conflict of interest rules and mechanisms of control. More in particular, it is necessary to activate mechanisms of control aimed at:
  - reducing the autonomy of politicians regarding the allocation of public expenditure;
  - introducing rigorous budget review procedures;
  - improving the quality of the budget planning and the internal/external audit procedures;

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<sup>109</sup> Cosenz F. 2010. “A System Dynamics approach to analyzing the effect of clientelism on public organizations performance in Italy”. *Review of international comparative management*, Vol. 11, pag. 325-337.

2. Introduce rules aimed at avoiding the possibility of duplicates the duration of electoral mandates;
3. Introduce stricter rules about meritocratic recruitment procedures in the public sector.

Obviously, the above suggested policy instruments represent a non-exhaustive list of remedies aimed at countering the negative effects of clientelism but that can be considered as best practice for this purpose. In fact, in this regard, in addition to the policies adopted on the part of public institutions is also necessary that civil society develop a new culture on the actual role and importance that public companies play to foster the levels of development and social cohesion of a territory. Therefore, it is necessary to find tools widely shared by the social fabric and specifically tailored to a given socio-political environment which are directed to maintain a high alert level regarding the possibility that political infiltration may alter the normal course of life of a democratic society.

## CHAPTER THREE

### THE DYNAMIC PERFORMANCE MANAGEMENT APPLIED TO THE FIELD OF MUNICIPAL WASTE MANAGEMENT

#### **3.1. Introduction**

Local public services are decisive factors in the economic, competitive and social development of the civil society of a whole country. Therefore, as the essential character of the services offered to local citizens “play a crucial role in any community, the reforms regarding the companies that manages public services are subject to a growing interest from scholars from various disciplines”<sup>110</sup>. It is well known that, in between the eighties and the nineties, almost globally, in the public sector was initiated a profound process of reform of the public sector dictated by the need to make better use of the limited economic resources available to municipalities to meet the growing needs of their communities. More specifically, this process of reform was produced and encouraged by the impact of the new perspective of governance and management of public services offered by two innovative ideological movements: The New Public Management (NPM) and the Public Governance. Therefore, in this chapter, firstly, will be analyzed the main characteristics and the contribution in terms of the evolution of governance systems offered by both NPM and Public Governance. Secondly, will be introduced the theme of the centrality acquired by the issues of performance measurement and performance management in the public sector. More appropriately, will be shed light on how the traditional mechanisms of P&C does not allow to

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<sup>110</sup> Mulazzani M., Pozzoli S. 2005. “*Le aziende dei servizi pubblici locali*”. Maggioli, Rimini, pag. 9-24.



understand, and therefore to govern, the dynamic complexity of a given social system<sup>111</sup>. On this regard, as Bianchi claims “in order not to render illusory the efforts made by governments to the adoption of formal P&C systems is, therefore, necessary to adopt a non-mechanistic perspective, precisely a strategic-learning oriented perspective”<sup>112</sup>. More specifically, this type of learning aims to equip decision-makers operating at different levels in a political organization “an awareness of the causes underlying the phenomena on which their actions are designed to intervene”<sup>113</sup>. Thirdly, will be highlighted the need to integrate the traditional mechanisms of P&C with the instruments provided by dynamic performance management in order to govern the dynamic complexity that, differently from static complexity, is characterized by “uncertainty and unpredictability of the causal relationships among the variables which produce the observed phenomenon”<sup>114</sup>. Following this perspective, will be introduced the methodology of System Dynamics (SD) as a valuable tool in the hands of decision makers in order to create conceptual maps capable of identifying the key variables of the system and the behavior produced by their interaction and make computer simulations able to highlight the processes of accumulation or reduction of strategic the resources of the reference system along time horizons of medium and long term. More specifically, through the use of System Dynamics methodology will be possible to capture non-linear relationships among the variables and allowing decision-makers to fully understand the sources of uncertainty both inside and outside of the public institution to govern and undertake a

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<sup>111</sup> Brunetti G. 2004. *“Il controllo di gestione in condizioni ambientali perturbate”*. Franco Angeli, Milano, pag. 12-58.

<sup>112</sup> Bianchi C. 2012. *“Modelli concettuali e strumenti operativi per la valutazione e il miglioramento della performance nell'erogazione dei servizi pubblici in una prospettiva di soddisfazione dell'utenza”*

<sup>113</sup> Ibidem

<sup>114</sup> Cosenz F. 2011. *“Sistemi di governo e di valutazione della performance per l'azienda università”*. Giuffrè, Milano, pag. 53-70.

learning oriented process directed to the development of policies and strategies aimed at improving the performance according to a perspective of sustainability. Lastly, will be analyzed in concrete terms the contributions that System Dynamics methodology is able to offer in order to better understand the criticalities that characterizes the Palermo waste management system and to offer policy options capable of mitigating the emergency situation of current days. To conclude, this chapter is mainly devoted to justify the adoption of System Dynamics methodology and highlight the potential offered by its combination with the DPM approach for the purposes of the present research.

### **3.2. From New Public management To Public Governance**

The reform of Public Administration is a recurring theme in the most recent analyses of public systems. In this regard, over the last twenty years several researches have highlighted two principals reform movements of greater interest: the New Public Management (from now NPM) and the Public Governance. More specifically, the expression NPM identify the objectives and conceptual schemes that are common to most of the reforms that in recent years have affected public administrations of many countries worldwide<sup>115</sup>. In fact, during the nineties, numerous OECD reports have showed that most of the countries that are part of it have introduced packages of reforms with the same basic characteristics. More in particular, these reforms were targeted, taken as a whole, to introduce a result oriented culture in a less centralized public system<sup>116</sup>. Also the World Bank has been a strong supporter of public reforms based on the principles of NPM. More specifically, in several well-known reports, The

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<sup>115</sup> Poselli M. 2001. *"I nuovi sistemi di gestione dei servizi negli enti pubblici locali"*. Il Ponte Vecchio, Cesena, pag 127-134.

<sup>116</sup> Read more in *"Public Administration after "New Public Management"*. OECD Publishing. 2010. Pag. 18-26.

World Bank advocates that public sector reforms has to be pivoted “on anticorruption programmes, increasing in market competition and on the development of a strong judiciary”<sup>117</sup>. More specifically, World Bank’s emphasis on development of a strong judiciary and anti-corruption programmes reflects a profound mistrust in the ability of local public institution of reviewing their management processes and promote a less bureaucratic and more efficient formula of its activities. According to Sanger “Public service reforms are generally characterized by efforts to transform overstuffed, centralized, and dysfunctional public bureaucracy into a decentralized and efficient public service characterized by integrity and commitment to development”<sup>118</sup>. In extreme synthesis, the trends of these interventions in the public sector can be grouped in four aspects:

1. The reduction of public intervention in the economy with regards to both employment and spending review policies;
2. The robust recourse to privatization or quasi-privatization with an emphasis on the concept of subsidiarity in the provision of public services;
3. The computerization of public services;
4. The enlargement of the international context in order to encourage management models more dynamic and open to transnational cooperation.

In his article “A Public Management for all Seasons?”<sup>119</sup> Cris Hood, that can be defined as one of theoretical leaders of the affirmation of the NPM, identifies some doctrinal components useful for describing the essential elements of NPM. More specifically, these components consist of:

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<sup>117</sup> For further information, checks “*World Development Report 1997*” and “*World Development Report 2003*” of the World Bank.

<sup>118</sup> Sanger M.B. 2004. “*The Welfare Marketplace: Privatization and Welfare Reform (A Center for Public Service Report)*”. Brookings Institution Press, Washington D.C., pag. 133-150.

<sup>119</sup> Hood C. 1991. “A Public Management for all seasons?”. *Public Administration Review*, Vol. 68, pag. 4-5.

1. Increasing the responsibility of decision makers in the management of public resources;
2. Introducing the use of appropriate performance indicators in order to clearly define the objectives that have to be pursued effectively and efficiently;
3. Fostering the decentralization of production by replacing the complex state machine with smaller and more manageable peripherals units;
4. Introducing competitive mechanisms aimed at reducing costs and increase the levels of service quality;
5. Simplifying the administrative process by strengthening the role of policy makers and recognizing a greater emphasis on the concept of performance expressed in terms of both outcome and output.

Another renowned definition that summarize the essential features of NPM is that of Jones and Thompson. Specifically, this definition summarize the fundamental elements of NPM in the famous 5R: restructure, reshape, reinvent, realign and rethink<sup>120</sup>. On the contrary, it should be noted that several authors had expressed serious doubts about the approach suggested by the application of the principles of NPM. More in particular, Manning and James argues that “the state should play a balanced role in development through government machinery and state-owned enterprises”.<sup>121</sup> Similarly, Bouckaert and van Dooren suggest “that market forces and mechanisms are imperfect and do not necessarily generate

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<sup>120</sup> Jones L. Thompson F. 1997. “L'implementazione strategica del New Public Management”. *Azienda Pubblica*, Vol. 6, pag. 55-80.

<sup>121</sup> Manning N., James O. 1996. “Public Management Reform: A Global Perspective”. *International Review of Administrative Sciences*, pag 143–150.

sustainable development, so a more balanced approach is required”<sup>122</sup>. In an dynamic environment such as that of our days, a public authority that continues to reason in terms of hierarchy, centralization of functions and of formal and bureaucratic exercise of powers is destined to fail in the realization of its mission. Therefore, what is crucial is that modern public administrations becomes able to interpret promptly the needs of the community which have to govern and ensure their satisfaction also through the creation of network of relations with the other actors operating in the same socio-economic environment. What has just been said above, regarding the regulation of relations between institutional bodies of different types, the reference go to the “principle of vertical subsidiarity”, while, regarding the relationship between public and private entities for the satisfaction of social and economic needs the reference go to the “principle of horizontal subsidiarity”<sup>123</sup>. Overall, all that has been said converge on a single theme: that of Public Governance<sup>124</sup>. The term Public Governance in the most recent and eminent literature is intended to indicate the capacity of public administration to move towards new institutional arrangements. More specifically, roles and modes of actions are putting greater emphasis on cooperation between public and private entities and of a more immediate and direct inclusion of citizens in the processes of elaborating and implementing public policies. To conclude on this point, the characters of the Public Governance can be summarized as follows:

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<sup>122</sup> Bouckaert G, Van Dooren W. 2002. *“Performance Measurement: Getting Results”*. Public Performance & Management Review, Vol. 25, pag. 329-335.

<sup>123</sup> More in particular, according to Poggi “the principle of subsidiarity as regards to the relations between the different territorial levels of powers and means that, on the one hand, the performance of public functions should be realized at the level closest to the citizens and, on the other hand, that those tasks are attracted to the level of a higher local institutions only where this is able to perform them better than that of the lower level”. Read more in Poggi A. 2001. *“Le autonomie funzionali tra sussidiarietà vertical e sussidiarietà orizzontale”*. Giuffrè, Milano, pag. 291-300.

<sup>124</sup> Minogue, et al. 1998. *“Changing the State: Concepts and Practice in the Reform of the Public Sector”*. International Review of Administrative Sciences, Vol. 67, pag. 310-315.

1. Public-Private Partnership (PPP). More specifically, this element express the need to promote forms of public/private cooperation in the field of local public services;
2. Network Management. More in particular, this character aims to increase the capacity of public administrations to better govern the relationship with all the actors operating in the same socio-economic system;
3. Joined-Up Government. More specifically, it is an instrument which is intended to reduce friction and possible political tensions and to create synergies between all the different stakeholders in order to promote a more efficient and effective use of public resources and the production of more integrated services for final clients.

It also should be noted that the concept of Public Governance it is not antithetic with that of NPM, but rather it represent its natural evolution. In fact, “the principles of efficiency and cost-effectiveness of operations and those of autonomy, accountability and planning and control of the performance are interpreted in a way which is not limited only to the internal perspective of the public administration but also extends to the relationship between public administration and citizens”<sup>125</sup>. More explicitly, in this broader perspective, the fundamental themes of NPM such as the autonomy of the different institutional bodies, the separation between the political sphere from the managerial one and that of the accountability of all public actors are interpreted in the light of the principle of transparency of the administrative action. Moreover, this perspective implies a different way of conceiving the principle of legality of administrative action, that don't have to be identified as the mere

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<sup>125</sup> Meneguzzo M. 1997. “Ripensare la modernizzazione amministrativa ed il New Public Management. L'esperienza Italiana: innovazione dal basso e sviluppo della governance locale”. Azienda Pubblica, Vol. 6, pag. 589-597.

compliance with the formal procedures but considered in terms of effectiveness and efficiency of administrative action in relation to the purposes for which it is preordained. In conclusion, with reference to the concept of Public Governance, the focus have to shifts from the perspective of singles public institution (Micro level) and of systems of public companies (meso level), to the activities of programming and control of the performance of the entire socio-economic system considered as a whole (macro level). According to Bianchi, the concept of organizational growth concerns the strategic domain of management. It underlines the aptitude of an organization to attain a set of results leading to its long-term success and continuity. Growth, strategy and performance are strictly related concepts. Strategic decisions concerns the constitution, improvement, or change of asset of structures (e.g., those involving organizational, production, distribution and cultural assets ). Linking and balancing the short with the long term in planning and control and decision making activities implies the need to adopt a strategic view of management. A strategic perspective is strictly related to the analysis of the impact of current and often inertial decisions on the change in both organizational structures and external environmental conditions<sup>126</sup>”.

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<sup>126</sup> Bianchi C. 2012. “*Enhancing performance management and sustainable organizational growth through system dynamics modeling*”. In “*Systemic Management for Intelligent Organizations: Concepts, Model-Based Approaches, and Applications*”, Groesser, S. N. & Zeier, pag. 143-161

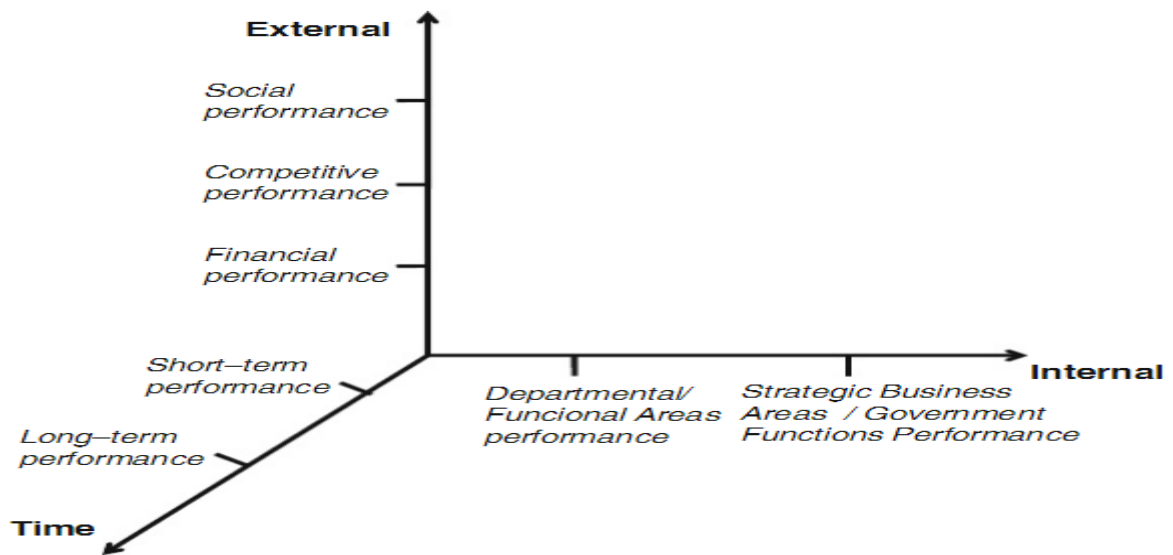


Figure 6

The three different levels of organizational growth (Source: Bianchi, 2012).

To sum up, Performance Management in the public sector is a complex phenomenon and there are no easy solutions to it. Therefore, whether it is analyzed from the perspective of NPM that from those of Public Governance, inevitably both external and internal factors creates numerous set of problems that require to decision makers continuous and timely efforts aimed at promoting efficiency and effectiveness in the administrative action. As Bianchi claims, “to support effective decision making activity in the public sector implies a number of challenges which are interrelated, not only because of the specific complexity but also as a consequence of the idiosyncrasies that characterize a particular geographical area”<sup>127</sup>. More precisely, Bianchi identifies four main interdependent sub-systems that should be taken into account in order to promote organizational changes programs in the public sector:

<sup>127</sup> Bianchi et al. 2010. “Applying System Dynamics to Foster Organizational Change, Accountability and Performance in the Public Sector: A Case-Based Italian Perspective”. System Research and behavioral science, Vol. 27, pag. 395-420



1. Socio-economic system;
2. Political system;
3. Institutional system;
4. Organizational system.

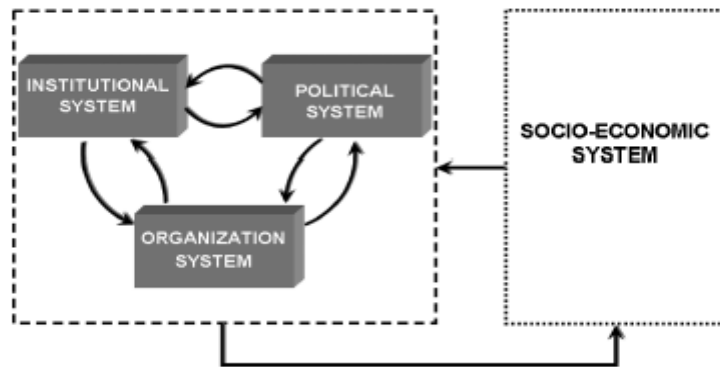


Figure 7

The four sub-systems affecting organizational change interdependently in the public sector (Source: Bianchi, 2010)

In conclusion, to paraphrase the expression used by Hood<sup>128</sup>, there is no performance management system good for all seasons, because each environment has its unique social, economic, political and cultural context. Therefore, is possible to conclude this paragraph asserting that public service reforms and performance management initiatives, regardless of the ideological trend that inspired them, must be customized and specifically tailored in order to effectively respond to the peculiar circumstances of a specific scenario.

<sup>128</sup> Hood C. 1991. "A Public Management for all seasons?". Public Administration Review, Vol. 68.

### **3.3. From Performance measurement to performance management**

Every organization faces the common challenge of continuously improving its performance. Public sector performance is influenced by a myriad of factors and does not depend only on the human and financial resources allocated, but also on the organizational environment in which public employees operate. According to Knipe, “The environment is influenced by multiple, formal and informal factors, ranging from rules, procedures and systems to organizational culture, values and the work ethic of employees”<sup>129</sup>. Armstrong defines performance management as “a means of getting better results from the organization, teams and individuals by understanding and managing performance within an agreed framework of planned goals, standards and attribute/competence requirements”<sup>130</sup>. Similarly, Abedian suggest that “performance management is basically concerned with measuring, monitoring and evaluating performance and then initiating steps to improve performance where it is Warranted”<sup>131</sup>. The phase of performance measurement logically precedes that of performance management. In fact, in order to be able to address the performance of a given public body towards the achievement of specific strategic objectives is necessary to build adequate measurement systems that can provide information on the multiple dimensions through which the performance should be evaluated. According to Ruffini, in a period of global financial crisis in which the public financial capacity is strongly reduced “the need to improve the quality of public services while simultaneously containing public expenses is strongly perceived by citizens”<sup>132</sup>. Therefore, in the

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<sup>129</sup> Knipe et al. 2002. “*Project Management for Success*”. Sandown, Heinemann, pag.32-66.

<sup>130</sup> Armstrong M., Baron A. 2005. “*Managing Performance: Performance Management in action*”. CIPD Publishing, London, pag. 18-59.

<sup>131</sup> Abedian I et al. 1998. “*Trasformation in action*”. Univ ersity of Cape Town press, pag. 12-43.

<sup>132</sup> Ruffini R. 2009. “*L'evoluzione dei sistemi di controllo nella pubblica amministrazione*”. Franco Angeli, Roma, pag. 34-60.

perspective of attributing greater attention to the results of administrative action, has been developing the idea that measurement systems are fundamental to:

- Ensuring constant attention to the strategies developed by the organs of political direction;
- Identifying objectives related to resource input;
- Allowing the systematical collection of information oriented on the results;
- To facilitate the adoption of decisions based on the results of the organization and cost containment;
- Implementing an organizational culture oriented to the development of organizational skills and competences;
- Introducing mechanisms directed to ensure the internal and external circulation and diffusion of the information related to the results achieved.<sup>133</sup>

More specifically, performance measurement is the process that, through the definition and detection of data and indicators, seeks to acquire relevant information on the results of a company. This process is a powerful tool for decision makers in order to obtain information on the public company and, consequently, to verify the degree of implementation of programs and public policies. In recent years there has been a growing interest on this theme in the Italian public sector for two reasons:

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133 Read more in Allen J. 1996. "The uses of performance measurement in government". Government Finance Review, Vol. 12, pag. 11-15; Kouzmin A. et al. 1999. "Benchmarking and performance measurement in public sectors: Towards learning for agency effectiveness". International Journal of Public Sector Management, Vol. 12, pag. 121-144; Bruijn, H. 2001. "Managing performance in the public sector". Routledge Taylor New York;. Bianchi C. 2004. "Sistemi di programmazione e controllo per l'azienda "Regione". Giuffrè, Milano.

1. The public sector reforms aimed at stimulating the responsibility for results at both managerial and political level;
2. A growing need for accountability of public administrations. As pointed out by Otley, “Accountability forms the cornerstone of performance management systems”. More specifically, the pressure towards the development of accountability in the public sector came mainly from:
  - The crisis of the fiduciary relationship between civil society and public administration;
  - The increasing need for inter-institutional controls due to the recent reforms towards federalism and autonomy of the state that has modified the relationship between different levels of government;
  - The increasing scarcity of economic resources in the system;
  - The growing need to create a system able to encompass the various institutional actors.

These reasons show that performance measurement systems must reflect two dimensions and information values:

1. an internal dimension aimed at providing information to decision makers in order to assess and implement programs and policies and to support managerial decisions;
2. an external dimension aimed at fostering external control by non-administrative entities entrusted with the task of realizing an external control of the activities of public institutions.

Focusing our attention more on the internal dimension, it is possible to highlight how the information provided by the systems of performance

measurement may be useful to a variety of managerial activities. More specifically, according to Poister and Streib through these information it is possible to:

- Monitoring more effectively the company activities;
- Supporting strategic planning in the phase of definition of the strategic objectives and in the subsequent phase of verification of their level of implementation;
- Supporting decision makers in the delicate phase of budgeting, in order to assign to the various peripheral units objectives consistent with the plans and sufficient resources needed to achieve them;
- Achieving a better management of the available human resources. In fact, the system of performance measurement is a useful tool to improve workforce performance by increasing the level of motivation and productivity of the employees towards the realizations of the goals previously determined;
- Improving the quality of business processes by implementing feedback and feed forward mechanisms aimed at achieving a continuous improvement of business performance;
- Improving the quality of the services by comparing the performances of the various public companies involved in a given administrative process in order to facilitate the identification and

development of any margins for improving the related managerial activities<sup>134</sup>.

Furthermore, on the basis of what has been said earlier it is important that the systems of performance measurement are constructed, implemented and specifically calibrated in relation to the specific business process that intend to support. As Sanderson claims “Measure the performance of a public company is a complex activity because the managerial results cannot be evaluated, as is the case for private companies, in terms of profits obtained. In fact, the purpose of public companies is to satisfy the needs of citizens and for this the only accounting surveys, which provide information on the economic and financial dimension, do not allow us to have adequate information on the quality of management”<sup>135</sup>. The economic and financial indicators provide us with information on the state of financial health of an institution but do not give us any information in terms of quality of the services provided to citizens. It is therefore important in public companies to develop, in addition to accounting systems, non-accounting systems aiming at providing data able to measure the various dimension of the performance of public enterprises. As previously mentioned, each system of performance measurement has specific characteristics since it must be calibrated on the specific strategic and managerial objectives of a given organization. To measure the performance of a public administration, or of a simple operating unit, it is necessary to collect data and information with respect to three specific objects: input, output, and outcome. More specifically:

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<sup>134</sup> Poister T., Streib G. 1999. “*Performance measurement in Municipal government: Assessing the state of the practice*”. Public Administration Review, Vol. 59, pag 325-335.

<sup>135</sup> Sanderson I. 2001. “*Performance management, evaluation and learning in Modern local Government*”. Public Administration, Vol. 79, pag. 297-313.

1. The input is the set of productive factors acquired by the company and used in the production of goods or provision of a service. The productive factors can be financial, material, human and material depending on the type of goods or services. They can be expressed in monetary or non-monetary terms. Furthermore, it is necessary not only to acquire the inputs at the lowest possible cost for the same quality, but also that their quality level will be consistent with the quality and quantity of the output to which they are destined and to the characteristics of the production process. In fact, especially in the public sector “where economic resources are always scarce and insufficient to meet the demand for services, one of the challenges consists in the reduction of the costs of acquisition of the inputs”<sup>136</sup>.
2. The output is the sum of the results achieved by any operating unit in terms of quantity and quality of goods produced and/or services provided. In order to evaluate the degree of efficiency of the services provided by an operational unit or a public institution, is essential to consider the characteristics of the output through a dual perspective, the required quality and the social value of the service that have to be provided. Therefore, given that efficiency indicators linking input parameters with output parameters, any problems of inefficiency can therefore be found in the relationship between the levels of the inputs related to that of the outputs.
3. The outcome is the impact that the output and in general all the activities carried out by the operating unit or the public institution has had on the stakeholders. The detection of the outcome in the public sector is a fundamental moment, as the activity of the public

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<sup>136</sup>Aristigueta M. 2008. “*The Integration of Quality and Performance*”. International Handbook of Practice-Based Performance Management, Sage Publications, New York, pag.395-412.

administration is put in place to meet the needs of the community and therefore it is essential to know if these needs are met. According to Buckmaster “outcome measurement can be used effectively as a tool for learning by providing feedback to managers as well as to improve the accountability and programme evaluation of a department”<sup>137</sup>. On this regard, Public Management Service (PUMA) Unit of OECD defines evaluation as “analytical assessments addressing results of public policies, organizations or programmes, that emphasizes reliability and usefulness of findings. Their role is to improve information and reduce uncertainty; however, even evaluations based on rigorous methods rely significantly on judgment”<sup>138</sup>.

According to Dorsh and Yasin, “Governments worldwide have realized that their future success will depend on their ability to continuously learn and respond to changes in new environments. This requires continuous self-introspection and evaluation processes”<sup>139</sup>. The two most important concepts that can be used as “two lenses through which to accomplish the activity of evaluating the performance of a public institution are the concepts of efficiency and effectiveness”<sup>140</sup>. Efficiency measures the ability of an operating unit to maximize the relationship between inputs used and results obtained. The efficiency measures the ability of an operating unit or public institution in general to achieve the objectives defined and its goals.

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<sup>137</sup> Buckmaster N. 1999. “Associations between Outcome Measurement, Accountability and Learning for Non-profit Organizations”. The International Journal of Public Sector Management, Vol. 12, pag. 186- 197

<sup>138</sup> For more details checks <http://www.oecd.org/governance/budgeting/1902965.pdf>

<sup>139</sup> Dorsh J., Yasin M. 1998. “A framework for benchmarking in the public sector. Literature review and directions for future research”. International Journal of Public Sector Management, Vol. 11, pag. 91-115

<sup>140</sup> Curristine T., et al. 2007. “Improving public sector efficiency: challenges and opportunities”. OECD Journal on Budgeting, Vol. 7, pag. 5-38.



The distinction between goals and objectives allows to introduce two different approaches to the concept of effectiveness:

1. The effectiveness of management. This concept concerns the inner sphere of the public company and measure the achievement of managerial objectives defined during the phase of programming. So the measurement is made by comparing the planned targets and the values actually observed in the consumptive.
2. The social effectiveness. This concept concerns the relationship between the public company and the external environment and measures the organization's ability to meet the needs of the community in which is called to operate through the production of goods and services. Social effectiveness measure the ultimate effect of the activities carried out by the public institution and, therefore, the degree of achievement of the strategic objectives set in the planning stage.<sup>141</sup>

According to Borgonovi, effectiveness can be defined as “coherence between quantity and quality of the product, considered as an intermediate result of the administrative activity, and the quantity and quality of needs whose satisfaction is the end result”<sup>142</sup>. Furthermore, in an attempt to ensure the coexistence of the two different types of approaches is important to emphasize that, in order to ensure the effectiveness of the activities of a public institution, it is essential to orient all the activities of the organization toward the definition of managerial objectives that are consistent with the strategic objectives. In the light of what has been said earlier, it is necessary to build an appropriate system of performance

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<sup>141</sup>Heinrich CJ. 2002. “*Outcomes-based performance management in the public sector: implications for government accountability and effectiveness*”. Public Administration Review, Vol. 62, pag. 712-723.

<sup>142</sup>Read more in Borgonovi E. 2002. “*Principi e sistemi aziendali per le amministrazioni pubbliche*”. Etas Milano.

indicators that can enable decision makers to assess at any time deviations between the objectives defined at the political level and the activities actually implemented, in order to undertake timely the appropriate corrective actions. OECD defines performance indicators as a “variable that allows the verification of changes in the development intervention or shows results relative to what was planned”<sup>143</sup>. More specifically, a performance indicator is an element used to evaluate the concrete actions implemented in order to achieve the goals predetermined by the organization. Performance indicators are used to observe progress and to measure actual results compared to expected results. On the issue of the different types of performance indicators have been formulated several classification and elaborated different conceptual models. However, although it is difficult to find a criterion of classification that is able to satisfy any need for information, it is possible to list the main features that indicators must have in order to be considered solid, effective and useful. More specifically, as pointed out by to Poister, performance indicators has to be:

1. Relevant and Meaningful. The indicators should be consistent with the cognitive purposes for which they were built. Therefore they should be directly related to the strategic and management objectives formulated in the planning phase. The indicators should measure the shape of the business performance consistently with the strategy previously formulated;
2. Clear. The indicators must be clearly defined in order to ensure the simplicity and the reliability of the activity of data collection, in

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<sup>143</sup> For further informations, checks <http://www.oecd.org/env/indicators-modelling-outlooks/37551205.pdf>

- order to prevent possible confusion and misinterpretation that can prejudice the correct evaluation of the performance;
3. Understandable. The definition of the indicator has to be understandable to the different stakeholders recipient of the information;
  4. Balanced and Comprehensive. Is important to develop a set of indicators able to measure all the various dimensions of the performance in order to acquire a complete set of all the relevant information to evaluate the results achieved. Limiting the activity of performance evaluation only to a set of indicators reflecting only a partial picture of the performance may produce distortions. For this reason, it is always important to include some indicator of quality and customer satisfaction in order to acquire a deep view of the performance of a given public institution;
  5. Unambiguous. The interpretation of the indicator must be unique. Therefore, it is important to establish previously if it is a decrease or an increase in the value of the indicator that represent an improvement in the performance of a given operative unite. It is also important to build indicators that are not affected by other factors not connected with the object of measurement;
  6. Timely. The indicator should provide information as current as possible. This aspect ensures maximum usefulness of information for the different recipients and in particular for the decision makers;
  7. Comparable. Indicators should provide meaningful information only on the basis of a comparison over time or space. The spatial comparison is often made difficult due to the non homogeneity of the systems of measurements adopted by the different operational units of the system considered. Moreover, temporal comparisons

requires to maintain a stable set of indicators over time in order to allow decision makers to promote the construction of time series analysis;

8. Verifiable. The data must be verifiable. In case of unexpected results, overly positive or negative, it must be possible to verify the information acquired. Verifiability is guaranteed by an adequate system of tracking and collecting data;
9. Statistically valid. The statistical validity is achieved by the extension of the survey sample and by an high level of frequency of detections;
10. Cost-effective. This element requires that financial and human resources are in proportion to the amount and quality of information to acquire and manage. For this reason it is important to implement a system with few and targeted indicators chosen on the basis of their cost-effectiveness;
11. Attributable. The indicators to be effective and stimulate virtuous behavior must be traceable to the operation unit responsible for the object of measurement and then be able to affect their performances. This element highlights the motivational role that a good indicator can have on personnel and management.<sup>144</sup>

According to Ruffini, to allow the measurement system to work properly it is necessary to “identify a number of favorable conditions that can help in facilitating this process”<sup>145</sup>. These favorable conditions can be summarized as follows:

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<sup>144</sup> Poister T., Streib G. 1999. “*Performance measurement in Municipal government: Assessing the state of the practice*”. Public Administration Review, Vol. 59, pag. 325-335.

<sup>145</sup> Ruffini R. 2010. “*L’evoluzione dei sistemi di controllo nella pubblica amministrazione*”, Angeli, Milano, pag. 106-152

1. Environmental elements. On this regard, has to be noticed that through the evaluation and enhancement of previous experiences it is possible to delineate and foster new modes of organization and identification of responsibilities;
2. Human factors. Fostering the management of the organization to recognize importance to all the fragments of the process, thus ensuring adequate human resources;
3. Training needs. Ensure adequate training support to develop the appropriate skills for the development of the systems;
4. Management factors. Assign strong focus and broad participation in the elaboration of the measurement mechanism, particularly in the phase of distributing feedbacks to all the levels of the organization;
5. Methodological factors. Achieve an adequate system for measuring results requires a common basis of detection, constant verification of the quality of information, internal consistency of the system, and propensity to develop high levels of autonomy.

The increasing importance recognized to the dimension of the performance is crucial to avoid a self-referential management of public administrations. Therefore, the implementation of a performance measurement system becomes a necessity when there is the need to develop:

1. Budgetary management systems. More specifically, systems aiming at allow decision-makers to acquire full awareness of the resources available for carrying out the activities for which they are responsible;
  2. Benchmark analysis. It is a method that compares the performance of an administrative organization with that of a similar one in order
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to understand and analyze which are the critical factors of success of top performing organizations;

3. Retributive systems. More specifically, it is necessary to develop within the public administrations performance-related retributive mechanism aimed at encouraging the level of productivity through specific incentive policies based on the results achieved;
4. Leadership. More specifically, it is to ensure continuous improvement of the performance of public managers through processes aimed at developing leadership skills and accountability.

Furthermore, as has been already pointed out before, the performance measured through appropriate and well calibrated measurement system can help in understanding which strategies has to be adopted in order to improve the entire organization. The fundamental use of performance measurement system is therefore that of ensuring the continuous management of performance of a given organization. More specifically, as pointed out by Giolitti , “The added value of evaluating the performance at the organizational level is given by its use in support of decision-making activity in order to improve governance. In particular, performance management systems aimed at strengthening the capacity of diagnosis and strategic thinking, stimulates organizational learning and encourages the improvement of a goal oriented culture within public administrations”<sup>146</sup>. Nevertheless, as Bianchi claims “conventional financially-focused P&C systems have been considered lacking in relevance, since they are not able to provide information that can support either dynamic complexity management, the measurement of intangibles, the detection of delays, adequate under-standing of the linkages between the short and the long

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<sup>146</sup> Giolitti R. 2006. “*Dal performance measurement al performance management*”. In “*Misurare per decidere*”, Rubettino, pag.155-159

term, and the setting of proper system boundaries in strategic planning”. Therefore, according to Bianchi “to provide decision makers with proper lenses for interpreting such phenomena, understanding the feedback loop structure underlying performance, and identifying alternative strategies to adopt so as to change the structure for performance improvement”<sup>147</sup>, it is precise to integrate the traditional P&C systems, limited to a pure static perspective, with the dynamic performance management approach, in order to govern properly dynamic complexity, to foster sustainable growth and monitor crisis prevention. In conclusion, the next paragraph will be dedicated to the introduction of the dynamic performance management as a valuable instrument that enable decision makers to acquire a more comprehensive perspective of the performance, no longer anchored on a restricted group of critical success factors but on the whole organization conceived in a systemic perspective.

### **3.4.The Dynamic Performance Management as a strategic instrument to govern the complexity of the public sector**

In the light of what has been observed in the previous paragraph, we can state that performance management systems represent an evolution of the traditional instruments aimed at support the activities of planning, control and reporting of the public institutions. In fact, the concept of performance management expand the boundaries of corporate results by focusing on the outcomes of the organizational system taken as a whole. Therefore, performance management has to be considered as an exceptional instrument in the hands of decision makers in order to govern social

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<sup>147</sup> Bianchi C. 2012. “Enhancing performance management and sustainable organizational growth through system dynamics modeling”. In “Systemic Management for Intelligent Organizations: Concepts, Model-Based Approaches, and Applications”, Groesser, S. N. & Zeier, pag. 143-161

environments characterized by a high level of dynamic complexity<sup>148</sup>. More precisely, according to Bianchi “designing a P&C system to support decision makers to assess performance management in a sustainability perspective is the core of dynamic performance management”<sup>149</sup>. In fact, the introduction of the dimension of the creation of public value determines the need to adopt a model of performance management able to “evaluate the performance on the basis of a multidimensional perspective”<sup>150</sup>. This implies that, besides the dimensions of technical and economic efficiency, must be also considered that of equity and transparency. Elements particularly relevant in order to ensure the economic, social and environmental sustainability of the different intervention policies implemented. Therefore, the model proposed in this study is intended reflect and encompass this perspective by supporting decision-makers in the task of restructuring the architecture of their strategic, informational and operational structures to operate more sustainably in the current socio-economic scenario<sup>151</sup>. More specifically, Bianchi has identified three complementary perspectives of performance management:

1. The objective view. The objective view is focused on the identification of the core object of the whole process carried out by a given public institution in order to provide a service/product. More specifically, the adoption of the objective view allow to underline the contribution of each department towards the value chain that lead to

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<sup>148</sup> Read more in Bianchi C. 2004. *“Sistemi di programmazione e controllo per l’azienda “Regione”*. Giuffrè, Milano; Cosenz F. 2011. *“Sistemi di governo e di valutazione della performance per l’azienda università”*. Giuffrè, Milano.

<sup>149</sup> Bianchi C. 2012. *“Enhancing performance management and sustainable organizational growth through system dynamics modeling”*. In *“Systemic Management for Intelligent Organizations: Concepts, Model-Based Approaches, and Applications”*, Groesser, S. N. & Zeier, pag. 143-161

<sup>150</sup> Mastrogioseppe P., Petrelli M. 2010. *“La misurazione e la valutazione della performance organizzativa”*. IPSOA, Milano, pag. 21-58

<sup>151</sup> Lebessis N., Paterson J. 2001. *“Developing new modes of governance”*. In *“Governance in the EU”*, Office for Official Publications of the European Communities, Luxembourg 2001, pag. 259-305.



the delivery of an end product to both internal and external clients. As pointed out by Bianchi, “the design of a performance management system requires that the chain of final and intermediate products delivered to both internal and external clients be fully mapped. It also requires that the underlying processes, responsibility areas, assigned resources, and policy levers be made explicit. These design requirements can be described as an objective view of performance management. Such a view implies that products generated by management processes and activities are made explicit”<sup>152</sup>.

2. The instrumental view. According to Cosenz, the instrumental dimension “aims to the definition of appropriate performance indicators related to strategic resources used and to the end results achieved. More precisely, is defined instrumental because allows decision makers to identify the relationship between the use of strategic resource and end results through appropriate levers of intervention linked to critical success factors that can be used to influence expected results”<sup>153</sup>.
3. The subjective view. According to Bianchi “The subjective view provides a synthesis of the previous two views, because it make explicit, as a function of the pursued results, both the activities to undertake and the related objectives and performance targets to include in plans and budgets for each decision area”<sup>154</sup>. More

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<sup>152</sup> Bianchi C. 2012. “Enhancing performance management and sustainable organizational growth through system dynamics modeling”. In “Systemic Management for Intelligent Organizations: Concepts, Model-Based Approaches, and Applications”, Groesser, S. N. & Zeier, pag. 143-161

<sup>153</sup> Cosenz F. 2011. “Sistemi di governo e di valutazione della performance per l'azienda università”. Giuffrè, Milano, pag. 97-103.

<sup>154</sup> Bianchi C. 2012. “Enhancing performance management and sustainable organizational growth through system dynamics modeling”. In “Systemic Management for Intelligent Organizations: Concepts, Model-Based Approaches, and Applications”, Groesser, S. N. & Zeier, pag. 143-161

precisely, in relation to the objectives established, through this perspective are made explicit basic activities to be undertaken and the related performance indicators that the subjects responsible for their achievement have to take into account to achieve them.

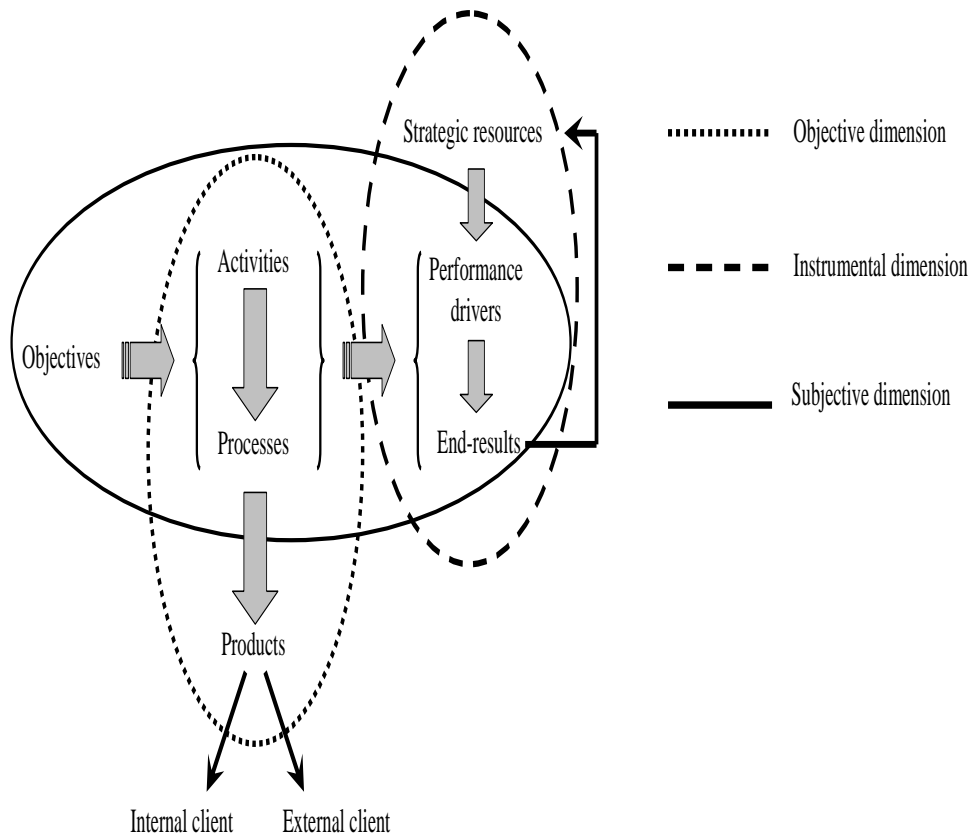


Figure 8

The Three views for designing a performance management system in a public institutions (Source: Bianchi, 2010)

More in particular, the configuration of a performance management system allows to focus more attention on the efficiency in the use of strategic resources aimed at ensure the highest level of satisfaction of citizens-users. According to Bianchi performance management systems specifically contributes to:

1. Improve the accountability of decision makers in reference to transparency in communication both inside and outside of the public institution;
2. Facilitate the strategic dialogue and communication between the various operative units that composes the structure of the public company;
3. Focus more on the achievement of planned results rather than the compliance with formal procedures;
4. Improving decision-making processes at both central and peripheral level;
5. Acquire a greater propensity towards innovation, productivity and staff involvement of in the managerial process;
6. Focus more attention to the quality of services provided in order to increase the reputation of the public institution;
7. Increase the motivation of employees through greater clarity in the definition of the respective roles and responsibilities and the incentives achievable.<sup>155</sup>

To achieve all this it is therefore necessary to provide informational support instruments that enable a greater understanding and interpretation of the dynamics that characterizes the operating environment for public administrations. More precisely, the government of complexity must face not only with the markedly bureaucratic character of the *modus operandi* of public administrations but also with that of the reference context,

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<sup>155</sup> Read more in Bianchi C. 2004. *"Sistemi di programmazione e controllo per l'azienda "Regione"*. Giuffrè, Milano;

characterized by non-linear cause-effect relations and significant delays between the decisions taken and their effects.<sup>156</sup> In fact, the govern of dynamic complexity, characterized by uncertainty and unpredictability to perceive the causal relationships between the variables determining the observed phenomenon, requires:

1. The identification and understanding of non-linear relationships between the different variables of the system;
2. The identification of time delays in cause-effect relationships;
3. The comprehension of the short and long term trade-offs related to the strategies adopted.

For these reasons, the traditional P&C systems reveal themselves appropriates only when applied to systems of government characterized by static complexity or, to be more precise, characterized by a set of variables that interact among themselves according to regular and uniform relationships. As Bianchi claims, “In order to set performance measures fostering the generation of value, according to an outcome and sustainable development perspective in public institutions”, critical factors to which refers are:

1. products/services and clients (i.e. users). More in general, the entire administrative processes that leads to the delivering of the final product;
2. end-results measuring final targets, and the corresponding performance drivers, to promptly detect and affect the symptoms of change in performance. Such indicators should provide a basis to

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<sup>156</sup> For further informations, checks Cosenz F. 2011. “*Sistemi di governo e di valutazione della performance per l'azienda università*”. Giuffrè, Milano.

settle proper incentive mechanisms, driving managers efforts towards desired outcomes;

3. both responsibility areas and policy levers capable to have an impact on results.

In this respect, a public institutions that deliver a public service should primarily take into account:

- how a given set of products/services is delivered;
- who is accountable for the achievement of results directly and indirectly associated to the provision of the products/services;
- where and when to intervene through proper corrective actions to bring back public utilities towards the achievement of predetermined goals.

The inability of Italian public managers to properly interpret the factors responsible of the dynamic complexity represents one of the principal causes for the unsatisfying performance levels achieved so far by public utilities. On this regard, a major implication of dynamic complexity refers to a difficult identification of the drivers related to the processes impacting on the performance of public institutions. To overcome such limitation, it is therefore necessary to adopt a dynamic performance management view in order to design and implement performance management systems aimed at pursuing sustainable development in public institutions. In this thesis will be showed how modeling feedback relationships between end-results, performance drivers and strategic resources, may support decision-makers in managing and measuring the performance of the public company responsible to the waste management system of the municipality of Palermo. More specifically, focusing on desired results, the related performance drivers and the strategic resources are identified. The

identification of the key performance drivers represent a fundamental element because only through leveraging on them will be possible to generate an impact on desired results. Thus, based on the drivers the necessary resources are planned. Goals are seen as the instrument of the process and therefore, for this reason the view is called the instrumental view. To implement this view, it is important to detect performance measures related to both end-results and performance drivers. According to this view, the end-results are seen as efficiency/effectiveness measures of results, for the realization of final products. Drivers are used to affect end-results according to the expected direction and time horizon. Performance measures associated to the drivers are normally related to processes directed to the realization of intermediate products. On this regard, Bianchi differentiate two different and related levels for measuring and managing organizational performance under the perspective of sustainability, i.e.: an institutional and an inter-institutional level(Bianchi, 2010). As regards to the institutional level, performance is analyzed as an output/outcome of the policies adopted and the actions undertaken by decision makers. On the other side, the inter-institutional level consider performance as an outcome of the policies adopted and the actions undertaken by decision makers of different but inter-related organizations or of different parts of the same organization. In the case of Amia S.p.A., investigated in this research, the DPM framework can be implemented as follows. Firstly, strategic resources can be identified as stocks (or levels) of available tangible or intangible resources in a given time. Secondly, are identified the corresponding inputs and outputs influencing stock levels over time (inflows and outflows). The identification of the strategic resources and of performance drivers, the most important factors that are influencing their change, is essential to shed light on the different key areas on which is

possible to intervene to improve company performance. Finally, the end-results are identified as a measure of the efficiency and effectiveness expressed in terms of volumes or impact. More specifically, end-results represent the flows affecting the accumulation process of the corresponding strategic resources. Following this perspective, it is therefore possible to implement a strategic performance management framework which intends to “support the whole cycle of strategy formulation, execution, measuring performance and bringing corrective actions and thus bringing dynamism in the framework. For this purpose it is also necessary to integrate the DPM approach with instruments capable of governing the dynamic complexity and to support the continuous process of strategic learning of decision makers<sup>157</sup>. In this research project this instrument consists in the application of the System Dynamics methodology. The SD approach begins with defining problems dynamically and uses different tools to reach its goals and to support decision-making processes. The tools are both qualitative (causal loop diagrams, stock and flow diagrams) and quantitative (formal stock and flow diagrams). For the present study, SD modeling has been found appropriate to develop a dynamic performance management model for the case study of Amia S.p.A., which is described in the following chapter. More in particular will be highlighted how from the combination of SD methodology with dynamic performance management approach, decision-makers will be enabled to better identify and measure key-performance indicators and to effectively influence policy levers to pursue a sustainable development of the municipal company. The figure below

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<sup>157</sup> Read more in Sterman J. 2000. *“Business Dynamics. System thinking and modeling for a complex world”*. Irwin/McGraw Hill, Boston; Homer J., Hirsch G. 2006. *“System Dynamics Modeling for Public Health: Background and Opportunities”*. American Journal of Public Health, Vol. 96, pag. 452-458; Bianchi C. 2004. *“Sistemi di programmazione e controllo per l’azienda “Regione”*. Giuffrè, Milano; Morecroft J. 2007. *Strategic Modelling and Business Dynamics*, Chichester. John Wiley, New York; Cosenz F. 2011. *“Sistemi di governo e di valutazione della performance per l’azienda università”*. Giuffrè, Milano.

shows how from the combination of DPM and SD methodology, it is possible to identify clearly the end results and the performance drivers from which they depend in order to be able to influence the strategic resources of the system to govern and coordinate them in a systemic manner to influence the performance of Amia in terms of sustainability.

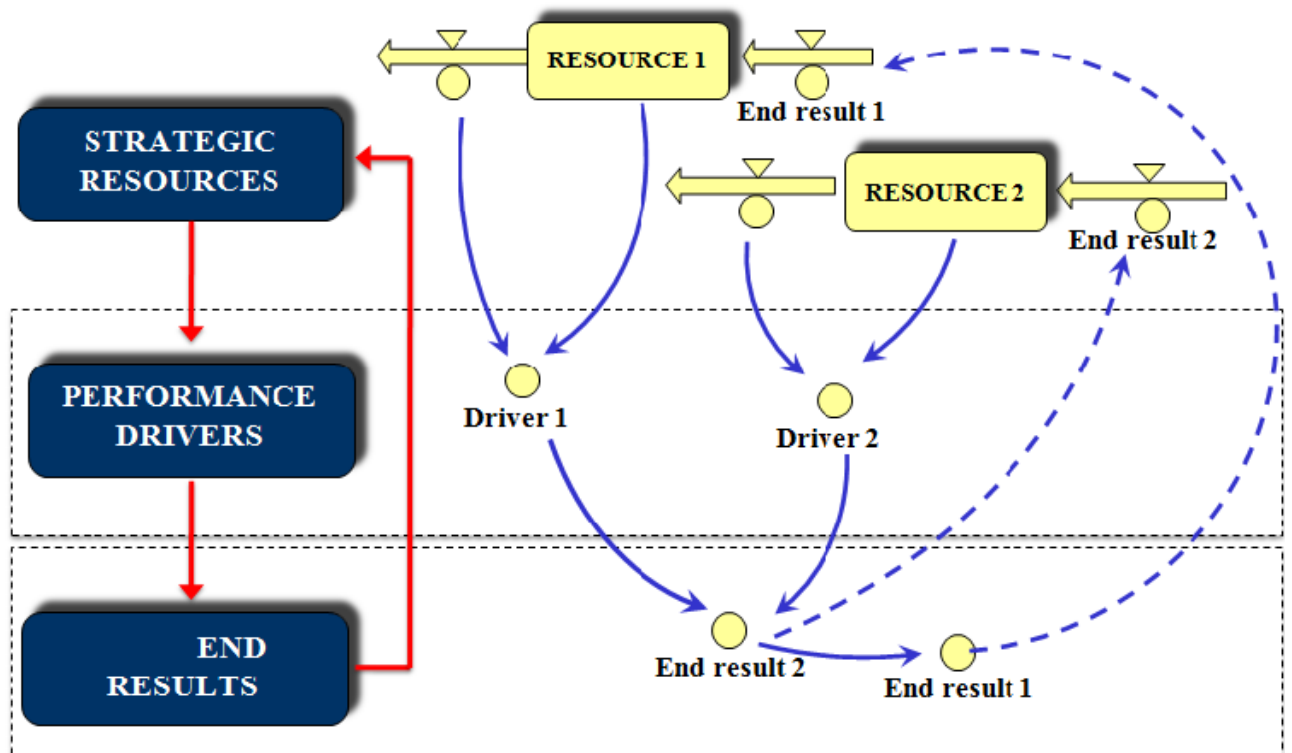


Figure 9

The Dynamic Performance Management view to foster sustainable growth in public institutions (Source: Bianchi 2010)

In fact, System Dynamics methodology is able to offer a significant contribution to decision-makers in guiding them towards a path of strategic learning and understanding of the dynamics of the system governed. More precisely, system dynamics models allow decision-makers to:

1. make explicit their mental models;



2. proceed to a mapping of business processes from a perspective of selective analysis of the key variables of the system
3. identify and monitor the causal links existing between the key variables of the system in order to fully understand the origin and causes of a given phenomenon
4. identify the non-linear relationship between the key variables of the systems
5. perceiving and taking into account the delays existent between causes and effects in the analysis of a given phenomenon
6. simulating, through the use of apposite software, the effects that the policies adopted produces along of a long-term time horizon.

To conclude, the next paragraph will be devoted to introduce the SD methodology as a valuable tool to usefully contribute to the implantation of a strategic learning-oriented process aimed at supporting decision-makers by providing them informative instruments capable of ensure a better understanding of the principal causes impacting on the performance of the public institution of which they are responsible. Therefore, this research is an attempt to develop a system dynamics model based on the dynamic performance management approach which aims to help to understand the dynamics that have produced the greatest impact on the performance of Amia S.p.A..

### **3.5.Introduction to System Dynamics Methodology**

The methodology of System Dynamics (from now SD) was founded in the late fifties at the Massachusetts Institute of Technology on the initiative of the engineer JW Forrester.<sup>158</sup> After years of application regarding the most varied sectors, the SD methodology is now considered as a well founded methodology to investigate the nonlinear behavior of complex systems and for deciphering the mental models of decision makers. More specifically, the methodology of System Dynamics is an approach to the study and management of complex dynamic systems characterized by the existence of feedback mechanisms that allows to highlight and to make understandable:

- the logic through which the key variables of the system interact with each other;
- the different areas in which the relevant system is considered to be highly sensitive to the actions of decision makers;
- the different scenarios that arises as a result of the simulations carried out on the different policies implemented.

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<sup>158</sup> For further information, checks Forrester J. W. 1961. *"Industrial Dynamics"* MIT, Cambridge, Massachusetts; Forrester J. W. 1974. *"Principi dei sistemi"*. Etas Kompas libri, Milano; Morecroft J. 1988. *"System dynamics and microworlds for policymakers"*. European Journal of Operational Research, Volume 35, Pag. 301–320; Serman J. 2000. *"Business Dynamics. System thinking and modeling for a complex world"*. Irwin/McGraw Hill, Boston; Melão N., Pidd M. 2001. *"A conceptual framework for understanding business processes and business process modelling"*. Information Systems Journal, Vol.10, pag.105–129; Bianchi C. 2001. *"Processi di apprendimento nel governo dello sviluppo della piccola impresa. Una prospettiva basata sul'integrazione tra modelli contabili e modelli di system dynamics attraverso i micromondi"*. Giuffrè, Milano; Bianchi C. 2004. *"Sistemi di programmazione e controllo per l'azienda "Regione"*. Giuffrè, Milano; Morecroft J. 2007. *Strategic Modelling and Business Dynamics*, Chichester. John Wiley, New York; Cosenz F. 2011. *"Sistemi di governo e di valutazione della performance per l'azienda università"*. Giuffrè, Milano; Milling P. 2007. *"A brief history of system dynamics in continental Europe"*. System Dynamics Review, Vol. 23, pag. 215-218.

In fact, due to nonlinearity and to the lack of consideration of the temporal factor, it is possible that the effects of the policies previously adopted conflicting with those expected in such a way that make useless any efforts to drive the state of a system towards the desired one. Policy resistance can occur when unintended consequences compromise the intended outcome, so that interventions fail to achieve it<sup>159</sup>. On other occasions, interventions do achieve the intended outcome, but at a significant cost in terms of unintended consequences. The reason of this deviations often resides in the bounded rationality of decision makers that, being anchored to their mental models, tends to deconstruct the issues thus losing the systemic vision.<sup>160</sup> More precisely, the mental models are deeply rooted generalizations determined from past experiences that influence the way in which decision-makers perceive and try to govern the relevant system<sup>161</sup>. In systems characterized by dynamic complexity, with a plurality of causal links between the key variables and a high degree of uncertainty, the mental models interferes with the ability of decision-makers to understand objectively the phenomena observed. This requires the elaboration of “conceptual maps” aimed at identifying the key variables and their relationships in order to create simulation models that allow decision makers to implement a process of strategic learning to govern the complexity of the system under observation.<sup>162</sup> More precisely, through the

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<sup>159</sup> More in particular, according to Sterman “Policy resistance arises because we often do not understand the full range of feedbacks operating in the system. As our actions alter the state of the system, other people react to restore the balance we have upset. Our actions may also trigger side effects”. Sterman J. 2000. *“Business Dynamics. System thinking and modeling for a complex world”*. Irwin/McGraw Hill, Boston, pag. 10-15.

<sup>160</sup> For further in formations regardint the concept of bounded rationality, checks Simon H. 1991. *“Bounded rationality and organizational learning”*. Organization Science, Vol. 2, pag. 125-138.

<sup>161</sup> As Doyle and Ford claims “A mental model of a dynamic system is a relatively enduring and accessible, but limited, internal conceptual representation of an external system whose structure maintains the perceived structure of that system”. Doyle J., Ford, D. 1998. *“Mental models concepts for systems dynamics research”*. System Dynamics Review, Vol. 14, pag. 3-29

<sup>162</sup> Bianchi C. 2001. *“Processi di apprendimento nel governo dello sviluppo della piccola impresa. Una prospettiva basata sull'integrazione tra modelli contabili e modelli di system dynamics attraverso i micromondi”*. Giuffrè,

system dynamics models is possible to understand and interpret the rationale of functioning of all systems that are characterized by:

1. the presence of counterintuitive dynamics due to the cognitive limitations of the decision makers and the scarcity of information available;
2. the presence of levers of intervention that can be used by decision makers in order to govern the complexity of the system and adopt policies aimed at pursuing the objectives previously settled;
3. the presence of significant delays regarding the possibility of observing the effects of the policies adopted.

Therefore, through the use of SD, decision makers can develop conceptual maps that allow understand which are the key variables of a system and, consequently, on how acting on them to orientate the system towards the desired direction. Logically, to the phase of definition of the boundaries of the relevant system follows that of the identification of the relationships between the key variables. This allows the elaboration of a simulation model that encompasses the levers of intervention through which decision makers can influence the performance of the policies adopted. According to Bianchi, System Dynamics differs from traditional methods of analysis because, on the basis of the comparison made between the simulation models and the reality, “allows the decision makers to continuously review the assumptions previously made to extrapolates keys of interpretation that allow to understand and deal suitably with the complexity of the phenomenon observed” (Bianchi, 2009). More specifically, simulations aims at showing how the key variables respond over time to the policies adopted, thus enabling decision makers to acquire a great awareness of the

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Milano, pag. 440-452; Cosenz F. 2011. “*Sistemi di governo e di valutazione della performance per l'azienda università*”. Giuffrè, Milano, pag. 123-130.

delays and of the exogenous constraints which characterizes the system under analysis. All this means that the contribution of SD methodology does not result in the mere identification and suggestions of policies to be applied but rather in the understanding of the relevant components of the system and of the dynamics that may occur over time. The use of the SD methodology involves a series of steps which can be summarized in the following points:

1. Identification of a problem;
2. Development of dynamic hypotheses and causal maps to explain the cause of the problem;
3. Realization of a computer simulation model can reproduce the system relevant to the root of the problem;
4. Analysis of the model to verify that it is able to reproduce the behavior observed in the real world;
5. Processing and testing in the model alternative policies designed to alleviate the problem;
6. Implementation of the optimal solution.

According to Moxness we can summarize these phases by making reference to the acronym P'HAPI. More specifically, according to the P'HAPI method the application of SD methodology can be divided in the following phases:

P) Problem. This phase is devoted to the identification of the problematic behavior over an appropriate time horizon;

H) Hypothesis. This step is characterized by the formulation of hypothesis regarding the system structure that is responsible for the problematic behavior;

A) Analysis. This step is directed to testing the hypothesis previously formulated considering both the structure and the behavior of the problem observed. This phase ends approving or rejecting the hypothesis previously formulated. Models must be tested under extreme conditions, conditions that may never have been observed in the real world.

P) Policy. This phase is directed to the identification of alternative policies aimed at solving or alleviating the problem. According to Sterman “Policy design includes the creation of entirely new strategies, structures, and decision rules. Since the feedback structure of a system determine its dynamics, most of the time high leverage policies will involve changing the dominant feedback loops by redesigning the stock and flow structure, eliminating time delays, changing the flow and quality of information available at key decision points, or fundamentally reinventing the decision processes of the actors in the system. The robustness of policies and their sensitivity to uncertainties in model parameters and structure must be assessed, including their performance under a wide range of alternative scenarios”<sup>163</sup>.

I) Implementation. Specifically, this phase aims to concretely realize the suggested interventions and strategies.<sup>164</sup>

System dynamics models are developed by building structures made up of causal circuits between the variables of the relevant system. The basic elements from which aggregation originates the structure of a dynamic system are precisely the feedback loops. In first approximation, a feedback circuit can be defined as “a chain of two or more variables that affect each

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<sup>163</sup> Sterman J. 2000. “*Business Dynamics. System thinking and modeling for a complex world*”. Irwin/McGraw Hill, Boston, pag. 36--74.

<sup>164</sup> Moxnes, E. (2009). Presidential address: Diffusion of System Dynamics", System Dynamics Society. Proceedings of the 27th International Conference of the System Dynamics Society, Albuquerque accessed at: <http://www.systemdynamics.org/conferences/2009/proceed/papers/P1449.pdf>

other”<sup>165</sup>. These causal circuits allow to understand the motivations that constitutes the basis of the existence of a specific phenomenon, highlighting the drivers and levers of intervention that can be used to influence the state of the system. More in particular, the relationships between the variables that form these causal circuits can be distinguished in:

- Direct relations. In this type of relationship, graphically indicated by the symbol "+", to an increase / decrease of a variable corresponds to an increase / decrease of the linked variable;
- Indirect relations. In this type of relationship, graphically indicated by the symbol "-", to an increase / decrease of a variable corresponds to a decrease / increase of the linked variable.

Based on the polarity of the causal circuits, determined by the dominance of a direct or an indirect relationships between variables, it is possible to distinguish between:

- Reinforcing loops. In this case the variables are linked in such a way that the results of their interference determines a trend of exponential growth or decay of a given phenomenon;
- Balancing loops. In this case the relationship among each variable is structured in such a way that the results of their interference tends to reach an equilibrium point at a certain time.

Nowadays, given the increasing attention recognized to the three interconnected dimensions of social, environmental and economical, is

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<sup>165</sup> Wolstenholme E. 2003. "Towards the definition and use of a core set of archetypal structures in system dynamics". System Dynamics Review, Vol.19, pag. 7–26

greatly felt the need to develop appropriate tools that can support public managers in understanding and addressing the dynamics of the relevant system towards the overcoming of the limitations imposed by the traditional strategic management tools<sup>166</sup>. For this reason, SD could then be implemented in the strategic planning process of local authorities as a useful tool to identify “key variables and their relationships of interdependence; the initial stock of resources and their processes of accumulation, the mental models of decision makers and the logics that regulate the activity of a given institution”<sup>167</sup>. Therefore, SD is particularly suitable to the phase of strategic planning in order to “promptly perceive and assess the changing requests coming from the external reference environment and to evaluate through simulations the impact of different policy alternatives”<sup>168</sup>. To conclude on this point, it has to be specified that SD methodology provides policy makers with two different modeling approaches, the qualitative and the quantitative. In the following paragraphs these approaches will be analyzed in a more analytical way in order to highlight their respective characteristics and the different contribution that they are able to provide for the understanding of the dynamics of the relevant system.

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<sup>166</sup> Armah F., et al. 2010. “A Systems Dynamics Approach to Explore Traffic Congestion and Air Pollution Link in the City of Accra, Ghana”. *Sustainability Journal*, Vol. 2, pag.252-265.

<sup>167</sup> Fernandez S., Rainey HG. 2006. “Managing Successful Organizational Change in the Public Sector”. *Public Administration Review*, Vol. 66, pag.168–176

<sup>168</sup> Cosenz F. 2011. “Sistemi di governo e di valutazione della performance per l'azienda università”. Giuffrè, Milano, pag. 147-156



### **3.5.1. The quantitative modeling approach**

In the System Dynamics methodology the quantitative analysis is realized by using a type of model called Stock and Flow diagram (from now SFD). More in particular quantitative models are realized by making use of specific software that allows, once have reconstructed the relationships between the variables of the system and placed the quantitative values , to obtain a graphical simulation of the dynamics that characterizes the system under analysis along a well defined time horizon. The variables that are used to draw a quantitative simulation model can be classified into:

1. Stock. Stock variables express the level of the key resources of the system under investigation in a given period of time. More specifically, the stock variables represent the strategic resources from the use of which it is possible to reach the fulfillment of the result to which the organization is intended;

AMIA Workforce



Figure 10

Example of stock variable

2. Flows. Flow variables allow to identify the processes of accumulation and depletion of the stock variables with reference to the time horizon adopted for the simulation. In other words, the variables flows represent the final results that affect the increase or the decrease of the strategic resources;

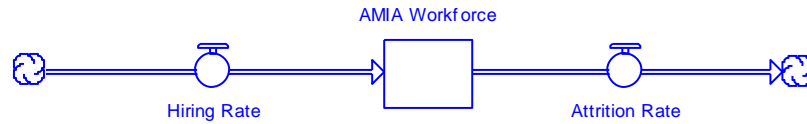


Figure 11

Example of flow variable

3. Auxiliaries. Auxiliaries variables have the main purpose of increasing the comprehensibility and significance of the model. Within a simulation model the performance drivers are represented by using auxiliary variables.

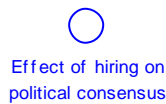


Figure 12

Example of auxiliary variable

### **3.5.2. The qualitative modeling approach**

The qualitative research is an approach typically related to the field of social sciences. In fact, the overall purpose of this approach is to lead to the identification and understanding of all those factors and those motivations that drive the performance and behavior of social organizations towards a given direction. More specifically, the main function of a qualitative analysis is to conduce a preliminary survey of the problems aimed at understanding their causes and to provide a systemic perspective on the functioning of the system. Several authors consider that the qualitative approach does not have scientific character because the results that can be achieved through its application can not be replicated outside the specific

context under analysis<sup>169</sup>. On this regard, as Gherardi and Turner claims, the data coming from a qualitative analysis, “are unsuitable for statistical analysis and can be defined as soft data”<sup>170</sup>. Other authors, instead, attribute to qualitative analysis the same level of consideration recognized to quantitative analysis.<sup>171</sup> On this concern, as pointed out by Coyle, in systems characterized by high levels of uncertainty qualitative analysis can be “useful not less than a full scale quantitative modelling approach. In such a situation an inference diagram can be enough to provide useful suggestions and insights to decision makers”<sup>172</sup>. Also Forrester states that “There are cases with uncertainties in concepts, pressures and decisions, in which can be difficult building a quantitative model. In such cases it might be the case to restrict the analysis to a qualitative level, that is, to use a non-simulation System Dynamics approach in which insights are provided inferring rather than calculating the behavior of the system over time”<sup>173</sup>. In System Dynamics the qualitative analysis is realized through the elaboration of a specific type of model called Causal Loop diagram (from now CLD). The CLD’s are graphical maps that represents the causal structure of the reference system. In particular, a CLD allows to make explicit the causal relations between the variables belonging to the same

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<sup>169</sup> Read more in Leonardi F. 1991. “*Contro l’analisi qualitativa*”. Franco Angeli, Milano; Miles, M., Huberman, A. 1994. “*Qualitative Data Analysis: An expanded sourcebook*”. Sage, London & Thousand Oaks, California. Campelli E. 1996. “*Metodi qualitativi e teoria sociale*”. Franco Angeli, Milano; Ricolfi L. 1997. “*La ricerca qualitativa*”. Carocci, Roma; Corbetta P. 1999. “*Metodologia e tecniche della ricerca sociale*”. Il Mulino, Bologna; Cardano P. 2003. “*Tecniche di ricerca qualitativa. Percorsi di ricerca nelle scienze sociali*”. Carocci, Roma;

<sup>170</sup> Gherardi S., Turner B. 1987. “*Real men don’t collect soft data*”. Dipartimento di politica sociale dell’università di Trento, Quaderno n. 13, pag. 6-34.

<sup>171</sup> For further informations, check Wolstenholme E., Coyle G. 1983. “*The development of System Dynamics as a methodology for system description and qualitative analysis*”. Journal of operational research society, Vol. 34, pag. 569-581; Luna-Reyes L., Andersen D. 2004. “Collecting and analyzing qualitative data for system dynamics: methods and models” System Dynamics Review Vol. 19, pag. 271–296.

<sup>172</sup> Coyle G. 2000. “*Qualitative and quantitative modelling in System Dynamics: some research questions*”. System Dynamics Review, Vol. 16. Pag. 225-244.

<sup>173</sup> Forrester J. 1971. “*Counterintuitive behaviour of social systems*” Technology Review, Vol.73, pag. 3-24

reference system and to identify which feedback mechanisms produce the dynamic behavior that characterizes the system under analysis. The CLD's reveal themselves extremely effective instruments since they:

- Provides an initial graphical description and an highly intuitive interpretation of the problem investigated;
- Allow to represent in a concise and effective way the assumptions made in relation to possible causes considered to be at the base of the dynamics analyzed;
- Highlight clearly the fundamental feedback mechanisms related to the problem taken into consideration;
- Allow to investigate, explain and formalize the mental models of the decision makers involved;
- Facilitate the process of communication and sharing of knowledge between all the different members that compose a social system.<sup>174</sup>

The qualitative models, for the fact of not including the use of quantitative data, do not give rise to any computer simulation but are useful for understanding the cause-effect relationships in the observed system. The figure below shows the qualitative representation of the system under study. As can be seen, the logical relationships are represented by a “+” sign in the case of a direct relationship of a “-“ sign in the case of an indirect relationship. In order to expand the level of understanding and

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<sup>174</sup> Read more in Forrester J. W. 1961. *“Industrial Dynamics”* MIT, Cambridge, Massachusetts; Forrester J. W. 1974. *“Principi dei sistemi”*. Etas Kompas libri, Milano; Morecroft J. 1988. *“System dynamics and microworlds for policymakers”*. European Journal of Operational Research, Volume 35, Pag. 301–320 Sterman J. 2000. *“Business Dynamics. System thinking and modeling for a complex world”*. Irwin/McGraw Hill, Boston; Bianchi C. 2001. *“Processi di apprendimento nel governo dello sviluppo della piccola impresa. Una prospettiva basata sull'integrazione tra modelli contabili e modelli di system dynamics attraverso i micromondi”*. Giuffrè, Milano; Ford A. 2009. *“Modeling the Environment”*. Island Press. Washington DC; Cosenz F. 2011. *“Sistemi di governo e di valutazione della performance per l'azienda università”*. Giuffrè, Milano.

intelligibility offered by a qualitative modeling approach it is possible to combine the two types of approach and creating a qualitative model which highlights graphically also the stocks and the flows in order to gain a greater understanding of the role of each variable in the system under analysis. To conclude on this point, the two styles of research leading to the knowledge of different aspects of reality, all useful and important to understand the dynamics that characterizes a given social system. In fact, in the opinion of the author, there is no an objective reality but rather different representations of it based on the valorization of one aspect rather than another. Therefore, it is inappropriate to accept distinctions based on the level of reliability arising from the use of this two different types of approach. What it is important is to ensure a high level of scientific rigor both in tqualitative that in the quantitative research approach, by using methods and techniques that allow to follow precise logical paths in a conscious, lucid and schematic manner.

### **3.6. The integration of Dynamic Performance Management and System Dynamics methodology to foster organizational change in the public sector**

On the basis of the analysis conducted in the previous paragraphs, it can be stated that the SD methodology can reduce the limitations arising from the mere aplication of the traditional tools of performance management in order to govern the dynamic complexity. In fact, SD simulation models allows decision-makers to clearly understand the feedback mechanism that composes the system under analysis and to take into account the time delays existents between the causes and effects of a policy. Therefore , on the basis of what has been said, the adoption of the SD methodology is complementary to the traditional P&C systems. In fact, while the

traditional P&C systems provides to decision makers information about the economic and financial performance of the organization, SD methodology, being oriented to a dynamic approach, provides a more extensive and comprehensive perspective of all the other areas that is important to consider to measure the performance.<sup>175</sup> On the basis of this synergy, decision makers will be able to acquire a global vision of the reference system and therefore of the policies that need to be adopted to ensure the effective and efficient achievement of the strategic objectives. Therefore, in order to obtain information pertaining to the level of achievement of strategic objectives and how the organization running its operations it is necessary to create a system of indicators specifically calibrated on the different key variables to be monitored in order to assess performance. More specifically, this measurement system, based on conceptual maps and feedback loops, allow to analyze in depth the phenomenon occurred and the causes that determined them. Furthermore, from a circular perspective of movement, this system of measurement should be able to allow to identify possible levers of intervention that decision makers can use to drive the system towards the desired state. More in particular, through the use of system dynamics simulation models, policy makers have the opportunity to test the effects of policies and therefore to know in advance all the potential effects, both of long and short-term, which may arise from the implementation of these. Moreover, the measuring performance system has to be conceived in such a way to allow the elaboration of a of continuous learning-oriented process by decision makers. In fact, to reach a deeper level of understanding of the logic of

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<sup>175</sup> Read more in Bianchi C. 2002. "Introducing SD modelling into planning and control systems to manage SMEs' growth: a learning-oriented perspective", System Dynamics Review Vol. 18, pag.315–338; Bianchi C., Bivona E. 2004. "Il governo del capitale intellettuale attraverso il raccordo tra modelli contabili e di System Dynamics - Una prospettiva di programmazione e controllo per l'area Organizzazione e Sistemi". Agf editore, Udine; Bianchi C. 2004. "Sistemi di programmazione controllo per l'azienda Regione". Giuffrè, Milano; Cosenz F. 2011. "Sistemi di governo e di valutazione della performance per l'azienda università". Giuffrè, Milano.

functioning of any social system it is necessary to analyze the basic assumptions that actually determine what Schein calls “the way in which group members perceive, think and feel”<sup>176</sup>. More specifically, according to Schein through a process of cognitive transformation of the values accepted by the members of a group once become convictions leading the group members to think that reality is always working that way. When a value becomes an assumption is taken for granted and therefore comes to be part of those mental models that limit the ability of decision makers to perceive correctly the real causes of a given situation. In order to overcome their bounded rationality the governing bodies of a given organization must liberate themselves from the constraints of their past experiences and adopt a continuous learning oriented perspective able to constantly analyze the possible alternative policy options. Moving in this direction means to activate that particular process that several authors defines double-loop learning<sup>177</sup>. More specifically according to Argyris and Schön, “organizational learning occurs when individuals within an organization experience a problematic situation and, in the interest of the organization, investigating it. They experience the surprise of the mismatch between the expected results and the actual results of the action, reacting with a thought process and new courses of action that lead to change the images of the organization or the understanding of organizational phenomena, and restructuring activities in order to align expectations and results, changing

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<sup>176</sup> Schein E. 2004. *“Organizational Culture and Leadership”*. John Wiley & Sons, San Francisco, pag. 63-111.

<sup>177</sup> For further information regarding the concept of “Double loop learning”, checks Argyris C. 1976. *“Single-loop and Double – loop models in research to decision making”*. Administrative Science Quarterly, Vol. 21, pag. 363-370; Argyris C., Schön D. 1995. *“Organizational Learning II: Theory, Method, and Practice”*. FT Press, New York, pag. 89-142; Greenwood J. 1998. *“The role of reflection in single and double loop learning”*. Journal of advanced nursing, Vol. 27, pag. 1048-1053; Sterman J. 2000. *“Business Dynamics. System thinking and modeling for a complex world”*. Irwin/McGraw Hill, Boston; Blackman D., et al. 2004. *“Does double loop learning create reliable knowledge?”*. The Learning Organization, Vol. 11, pag. 11 -27.

in this way, the organizational theory in use. The single-loop learning indicates an instrumental learning that changes strategies of action or the underlying assumptions without changing the values that are the basis of a theory of action. The double-loop learning however, indicates a typology of learning that generates a not only in the strategies and assumptions, but also of the values of the theory in use”<sup>178</sup>. Learning the modalities through which address these dynamics is therefore what Schein calls “the culture of the organization” . To be more precise, the culture of an organization “is the result of a complex system of influences that result from the efforts of external adaptation and internal integration”<sup>179</sup>. These are two aspects of organizational life that integrate and influence each other. What has just been mentioned, is a further confirmation of the need of integrating the models of system dynamics to traditional instruments of P&C systems in order to develop the different phases of observation, reflection, diagnosis and action in the perspective of improving the performance of the organization. More specifically, the design of the system of performance evaluation must be carried out trying to line up in a systemic manner the performance indicators to the strategic objectives. In conclusion, a SD model aimed at supporting the management of the performance of a given organization, firstly, has to defines the strategic objectives of the organization and, secondly, any eventual discrepancies between the actual state of the system and the desired one through appropriate performance indicators. In fact, as pointed out by Bianchi performance indicators are directly linked “to the combination of customer/product and to the underlying processes for which it is necessary to identify precisely the

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<sup>178</sup> Argyris C., Schön D. 1995. “Organizational Learning II: Theory, Method, and Practice”. FT Press, New York, pag. 89-142.

<sup>179</sup> Schein E. 2004. “*Organizational Culture and Leadership*”. John Wiley & Sons, San Francisco, pag. 63-111.



different areas of responsibility and the potential levers of intervention of the system under analysis and then define the cause-effect relationship which will finally result in the causal circuits of the system dynamics simulation model”<sup>180</sup>.

### **3.7. Regarding some applications of System Dynamics methodology to clientelism and municipal solid waste management**

The contribution that SD methodology is able to offer in the analysis of the processes of government of public administrations is almost boundless. In fact, thanks to its ability to support decision-makers in governing complex systems, SD methodology has been applied several occasions and in relation to various areas of interest with regard to the fields of public policy planning and city management. However, with regard to the specific subject of this work, the scientific contributions available are very limited. Among the few works available on the subject, the main contribution is the study conducted by Cosenz entitled “A System Dynamics Approach to Analysing the Effect of Clientelism on Public Organizations Performance in Italy”<sup>181</sup>. In this study Cosenz retraces the main causes that led to the profound rootedness of clientelistic networks in the Italian political system as one of the major obstacle to the affirmation of the principles of efficiency and effectiveness into the administrative action. More precisely, through a qualitative approach to this problem, Cosenz highlight the political and social factors that pushing both politicians and citizens toward the creation of this kind of relationships. Another scientific contribution of great importance for the study of this phenomenon is offered by Bianchi in his article entitled “Fostering Accountability in Public Utilities: The

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<sup>180</sup> Read more in Bianchi, C. 1996. “*Modelli contabili e modelli dinamici per il controllo di gestione in un’ottica strategica*”. Giuffré, Milano.

<sup>181</sup> Cosenz F. 2010. “A System Dynamics Approach to Analysing the Effect of Clientelism on Public Organizations Performance in Italy”. *Review of International Comparative Management* Vol. 11, pag. 325-337.

ACQUA SPA Case Study<sup>182</sup>. More specifically, in this study Bianchi shows that the constant political interferences in the processes of governance of public utilities end up emptying the role of public managers, affecting the long-term ability of the company to operate according to logics of sustainability. Both studies, have greatly contributed in providing multiple perspectives of analysis and different stimuli of investigation that have led to a progressive widening of the field of investigation of the present research. Furthermore, numerous are the scientific contributions that have analyzed, from the most varied research perspectives, the field of municipal solid waste management. The following table contains a, non-exhaustive, list of the most remarkable contributions regarding the application of SD methodology to the municipal waste management sector.

Area of interests	Authors
Public Governance in MSWM	Dyson and Chang, 2005; Huang et al., 2001; Ericksson et al 2005; Bovea et al., 2009.
Social sustainability	Fiksel 2006; Docherty et al., 2009; Hirsch et al., 2007; Pires et al., 2011.
Environmental sustainability	Saysel et al., 2002; Shi and Gill, 2005; Leal Neto et al., 2007; Morrisey and Browne, 2004.
Municipal planning	Mashayekhi 1993; Sudhir et al., 1999; Inghels and Dullaert 2009; Pons et al., 2010; Hao et al., 2007.

<sup>182</sup> Bianchi C. 2010. "Fostering accountability in public utilities: the ACQUA spa case-study". In Bianchi C. et al. "Applying System Dynamics to Foster Organizational Change, Accountability and Performance in the Public Sector: A Case-Based Italian Perspective". System Research and behavioral science, Vol. 27, pag. 395-420

Each of the studies listed in the table above has been subject to a careful analysis as it offered interesting insights for the preparation of this study, increasing its prospects of research, and determining a general advancement of the state of the art regarding the waste management context. These studies, considered together, promote the application of the SD methodology as a valuable tool to:

1. Foster the adoption of a systemic perspective in the processes of government of local public services that focus on the concept of creating public value;
2. Consider both the external and the internal perspective in the provision of a public service to the citizens. More specifically, the internal perspective highlights the intra-institutional vision of the organizational system under analysis;
3. Foster an organizational and cultural change in the management of local public services focused on the greater participation and valorization of the role of the citizens/final clients.
4. Enable the adoption of a long term perspective in the evaluation of the economic, environmental and social impact of the policies implemented.

However, despite the valuable scientific contribution offered by these studies, only a few moving towards the perspective of integrating the P&C systems with the SD methodology. In fact, as pointed out in the previous paragraph, it is necessary to integrate the SD methodology with the mechanisms offered by dynamic performance management approach in order to foster an improvement of the processes of government of public

institutions according to a perspective of sustainability. Therefore, In the present study the approach which has been adopted is that of combining SD methodology with the dynamic performance management approach in order to reconstruct and fully understand the system of governance of Amia S.p.A. and offer to decision maker a conceptual model able to identify the performance drivers upon which to act to undertake a process of sustainable change of the organization.

### **3.8. The contribution of System Dynamics to evaluate the impact of clientelism in the waste management system of the municipality of Palermo**

As can be seen from the analysis of the previous paragraphs, an inadequate management system of urban solid waste produces extremely serious consequences both in environmental and in social terms. In fact, uncontrolled dumping and improper handling of wastes causes a variety of environmental problems, including that of the contamination of the aquifers thus causing serious risks for public health. In fact, several studies that have demonstrated that in Italy, in all those areas in which waste is managed without the adoption of all the necessary measures required by the law, there is a high level of tumor incidence<sup>183</sup>. Moreover, in addition to other consequences, the mismanagement of urban waste produces a worsening of the image of the areas involved. The decreasing of the reputation determines a consequent reduction in tourist flows and, therefore, the impoverishment of the socio-economic fabric of the

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<sup>183</sup> Read more in: Griffith J. et al. 1989. “*Cancer Mortality in U.S. Counties with Hazardous Waste Sites and Ground Water Pollution*”. International Journal Environmental Health, New York, Vol. IV, pag.732-745; Fazzo L., et al. 2008. “*Cluster analysis of mortality and malformations in the Provinces of Naples and Caserta (Campania Region)*”. Annali Istituto Superiore di Sanità, Roma, Vol. IV, pag. 99-111; Martuzzi M., et al. 2009. “*Cancer mortality and congenital anomalies in a region of Italy with intense environmental pressure due to waste*”. Occupational and Environmental Medicine, London, Vol. IX, pag. 725-732.

community under analysis<sup>184</sup>. Undoubtedly this happened in the case in Palermo, where the emergency situation waste contributed to worsen the reputation of the city, damaging the tourism sector. In fact, waste management, due to the fact that incorporates and links between them several dimensions deeply interconnected, can be considered as a privileged observation point in order to assess the level of social cohesion and development of a given territory. Furthermore, waste management is a sector that involves a broad range of stakeholders each of which with different responsibilities, competencies and expectations. In fact an efficient waste management system constitutes a priority both for politicians and civil society. More specifically, politicians have the difficult task of mediating and to reach a compromise between the various and often in contrast instances of all the other shareholder will of the MSWM system. Therefore, that of the MSWM is a sector in which it is strongly felt the need to encourage the widest participation of all the various shareholders, in order to implement a strategy that is capable of balance all the different instances that each groups brings with it. In recent years waste management has risen to the top of the political agenda in several countries, with regional and local governments being placed under increasing pressure in order to provide more effective services with scarce municipal resources. Moreover, that of municipal waste management is a field characterized by a high level dynamic complexity. As will be observed in the next chapter through the analysis of the case study of Amia S.p.A., non-linearity combined with the bounded rationality of decision makers constitutes an element that makes it extremely difficult to understand the

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<sup>184</sup> For further information checks: Cummings L. 1997. "Waste minimization supporting urban tourism sustainability: a mega resort case study". Journal of sustainable tourism, Vol. 5, pag. 93-108; Dodds R. 2007. "Sustainable tourism and policy implementation: lessons from the case of Calvià, Spain". Current issues in tourism, Vol. 10, pag. 296-332, Pons M., et. al. 2009. "Predicting municipal solid waste generation in Andorra with System Dynamics modeling" CIMNE, pag. 1-22

real causes of a problematic behavior.. More in particular, with regard to the causes responsible for the current situation of waste emergency of the municipality of Palermo, has been conducted research and formulated the most varied hypotheses . Nevertheless, these researches have mainly highlighted problems related to technical aspects without penetrating the core of the real problem. In fact, most of the studies analyzed for the purposes of the present research were focused on the need to develop a more efficient separate collection systems in order to reduce the total amount of waste sent to landfills<sup>185</sup>. Another considerable group of studies, was devoted on the need to adopt rewarding mechanisms in the form of economic incentives in order to induce citizens to produce less waste<sup>186</sup>. Lastly, another significant group of researches, considering that the system of landfills of the municipality of Palermo is on the brink to reach its carrying capacity, was focused on the need to build incineration plants as the only possible solution to prevent the periodic situation of waste emergency<sup>187</sup>. All of these studies have undoubtedly contributed to provide a better understanding of important critical factors that have determined the actual situation of waste emergency. In spite of this, as has been said earlier, all these studies allow to shed light only on limited portions of the problem investigated without penetrating the heart of the real dynamics that have contributed to worsening this situation over time. In fact, even the most efficient waste management system is doomed to fail if missing the political will to make it work efficiently. Is precisely this specific

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<sup>185</sup> For further informations , checks : Beccali G. et al., 2001. “*Managing municipal solid waste*”. The international journal of life cycle assessment, Vol. 6, pag. 243-249; Messineo A., Panno D. 2008. “*Municipal waste management in Sicily: practices and challenges*”. Waste management, Vol. 28, pag.1201-1208

<sup>186</sup> Read more in: Bevilacqua C., et al. 2001. “*Economic impact of solid waste management on the Sicilian economy: an integrated environment input-output approach*”. Conference proceedings of Xv International Conference On I/o Techniques, Montreal, Canada; Mazzanti M., et al. 2012. “*Waste dynamics in economic and policy transitions. Decoupling, convergence and spatial effects*”. Journal of environmental planning and management, Vol. 55, pag. 563-581

<sup>187</sup> Lo Mastro F., Mistretta M. 2004. “*Cogeneration from thermal treatment of selected municipal solid waste. A Stoichiometric model building for the case study on Palermo*”. Waste management, Vol. 24, pag. 309-317

consideration that prompted the author to investigate on the impact that clientelistic political pressures have concretely determined in the intensification of the waste emergency situation of the municipality of Palermo. To this end, in order to reconstruct the system of governance of the municipal waste management system of Palermo and identifies the causal relationships which determined its negative trend, the methodology used was the System Dynamics. More specifically, thanks to the application of SD methodology was possible to create a qualitative model capable of mapping the causal relationships between the key variables of the system and therefore to consider the effective role that both exogenous and endogenous factors plays in the determination of the problematic behavior investigated in this research. In fact, System Dynamics, is a research methodology that allows to create a perfect synthesis between qualitative and quantitative survey techniques in order to gain a comprehensive and exhaustive overview of all the key factors that affect the system under analysis. Furthermore, as can be seen better in the next chapter, thanks to the application of SD methodology it was possible to identify all those intangible factors that has substantially contributed to the progressive worsening of the situation. More specifically, the reference is to all those “soft variables” that is essential to consider in order to govern the dynamic complexity of a given social system<sup>188</sup>. In this regard, as pointed out by Forrester “The omission of soft variables has a very specific assumed value in the model”<sup>189</sup>. In conclusion, in the next chapter will be shown how from the application of SD methodology, combined with the approach of Dynamic Performance Management, will be possible to

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<sup>188</sup> For further information on the concept of soft variables, read more in: Coyle G. 2000. “*Qualitative and quantitative modeling in System Dynamics: some research questions*”. System Dynamics review, Vol. 16, pag. 225-244; Linard K. et al., 2002. “*Building a knowledge-based strategy: A System Dynamics model for allocating value adding capacity*”. Berrett-Koehler, San Francisco.

<sup>189</sup> Forrester J.W. 1994. “*System Dynamics, system thinking and soft OR*”. System Dynamics Review, Vol. 10, pag. 245-256

highlights the principal causal circuits responsible of the waste emergency of the municipality of Palermo and to identify the performance drivers on which decision-makers can leverage in order to redirect the performance of the company towards the efficient and sustainable provision of the service of which it is responsible.



**CHAPTER FOUR**  
**AN EMPIRICAL APPLICATION OF DYNAMIC PERFORMANCE**  
**MANAGEMENT APPROACH TO THE MUNICIPAL WASTE**  
**MANAGEMENT SYSTEM OF PALERMO: THE AMIA S.P.A CASE**  
**STUDY**

**4.1. Introduction**

In this chapter will be analyzed the case of Amia S.p.A., the municipal company responsible of the waste management system of the municipality of Palermo. More specifically, in this chapter, firstly will be described the organizational structure of Amia. Secondly, the specific object of the research project will be initially addressed through the use of the qualitative modeling approach. More specifically, will be presented a causal loop diagram (CLD) which reconstructs the system of causal relationships that have determined the problem of overstaffing investigated herein. Thirdly, will be highlighted the performance drivers on which decision managers can leverage in order to restore the financial equilibrium and the competitiveness of the company. Moreover, will be suggested corrective policies that can be implemented in order to reduce the negative effects that clientelistic political interference has produced on the performance of Amia S.p.A.. Lastly, the results and the implications that emerges from the model structure presented will be discussed in order to provide a clear explanation of the effects and consequences produced by clientelism on the governance of Amia S.p.A.

#### **4.2. Significant events concerning Amia S.p.A.**

Amia was founded in 1968 as the municipal company responsible of the service of waste collection in the city of Palermo. The 27 September 2001, on the initiative of the municipality of Palermo, Amia has been transformed into a stock company with an initial share capital amounted to 34,217,851euro. Therefore, as a result of this transformation, the company has provided a public service to the citizens having the municipality of Palermo as the sole shareholder and client. Specifically, pursuant to the service contract stipulated with the municipality of Palermo, Amia is required to provide the following services:

1. waste collection;
2. sweeping and cleaning of public areas;
3. waste disposal;
4. ordinary maintenance of the roads;
5. environmental monitoring;
6. accessory and instrumental services to the activities previously identified.

Whereas, several activities were entrusted to a subsidiary company of Amia, Amiaesemme srl, regarding which Amia was the owner of the entire capital. More specifically, the activities of which Amiaesemme was responsible were:

1. Road sweeping;
2. emptying bins;
3. cleaning drains;
4. cleaning Outdoor Markets;
5. separate Waste Collection;

6. cleaning underpasses.

Since the same year of its entry into the “free market” (2001), Amia has experienced a gradual increase in revenues until 2006. In fact, from year 2007 it is possible to observe the first significant reversal of the trend. As shown in the table below, which shows the evolutionary trend of company's assets, from 2007 onwards Amia has always closed the financial year reporting huge losses.

Financial year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Net assets	48.083.486	45.107.238	48.172.592	48.285.803	54.486.153	23.808.039	-77.506.322	-101.840.485	-37.996.394	-54.699.215

Figure 15

The evolutionary trend of Amia S.p.A. net assets over the last decade

During 2008, the municipality of Palermo, in order to recover the economic balance of the company, utilizing contributions from the Ministry of Economy (CIPE funds) had proceeded with a recapitalization that zeroed debts and endowed Amia with a share capital of 53.865.553 euro. However, this intervention did not succeed in its attempt to rebalance the economic situation of the company. In fact, in the following year (2009) the national government by ordinance no. 3830 by the Board of Ministers in order to overcome the waste emergency in the city of Palermo authorized the municipal council to employ beforehand contributions planned for 2010. Furthermore, during 2009, the municipality of Palermo proceeded to a second recapitalization, realized by divesting the 49% of its shareholding in AMG and selling some properties, obtaining the amount of 98.122.064 euro. However, also this second attempt to restore the financial

equilibrium of the company was not successful. Therefore, once ascertained the continuing difficulties of Amia and of its subsidiary companies to accomplish their duties due to a considerable budget deficit the situation was examined by the judiciary. The inquiries concerning the crime of falsification of balance sheets, once established the impossibility of Amia to fulfill its obligations regularly, resulted the 27 January 2010 into the declaration of insolvency of the company and the contextual designation of special commissioners appointed to its liquidation. This inquiry has shown that the causes of the failure of Amia are numerous, widespread and attributable to both managers and politicians. However, the major critical element detected is the existence of an exorbitant number of employees on the payroll of Amia and on that of its subsidiaries. In fact, according to the findings from the investigation, the employees of the Amia group amount to around 3000 units. In addition, it was calculated that the satellites activities linked to the services carried out by the Amia group amount to over 2000 units. In fact, as results from the financial statements of the company, the cost of staff amounts to over € 83 million per year. A cost absolutely disproportionate if compared with that of other companies that operates in similar realities. Moreover, in addition to the disproportionate number of employees of the Amia group resulting from comparative analysis with other companies providing the same typologies of services in areas of the same proportions of Palermo, another critical element was identified in the scarce level of efficiency in the provision of the services. In fact, these workers were hired, without recourse to any public procedure, making use of cooperatives created to promote the social reintegration of former prisoners. Therefore, the workers hired were for the majority people without any work experience, with little sense of civic duty and, in some cases, even subject affiliated to the organized crime. Even in

the report of the commissioners this aspect is reaffirmed as one of the principal causes that has led to the financial deficit of the company. In addition, as well as the critical issues already identified must also it should be added that the commissarial management has been a failure. In fact, it was not even able to mitigate the effects of those elements that constitute the major emergencies of the system under analysis. What is clear is that both the financial problems of Amia as well as those relating to the management of the landfill Bellolampo are issues that are at the top of the political agenda for many years, and which have remained unresolved due to the inertia of the local administrators and the inadequacy of the commissarial management. As has been already observed, the reasons are many and all attributable to a set of political incapacity, managerial inability, generalized irresponsibility, infiltration of organized crime in the waste management sector and inadequacy of the commissarial management.

### 4.3. The Amia S.p.A structure

The structure of Amia S.p.A., is characterized by two distinct organizational levels:

1. Administrative and managerial level;
2. Technical and operational level.

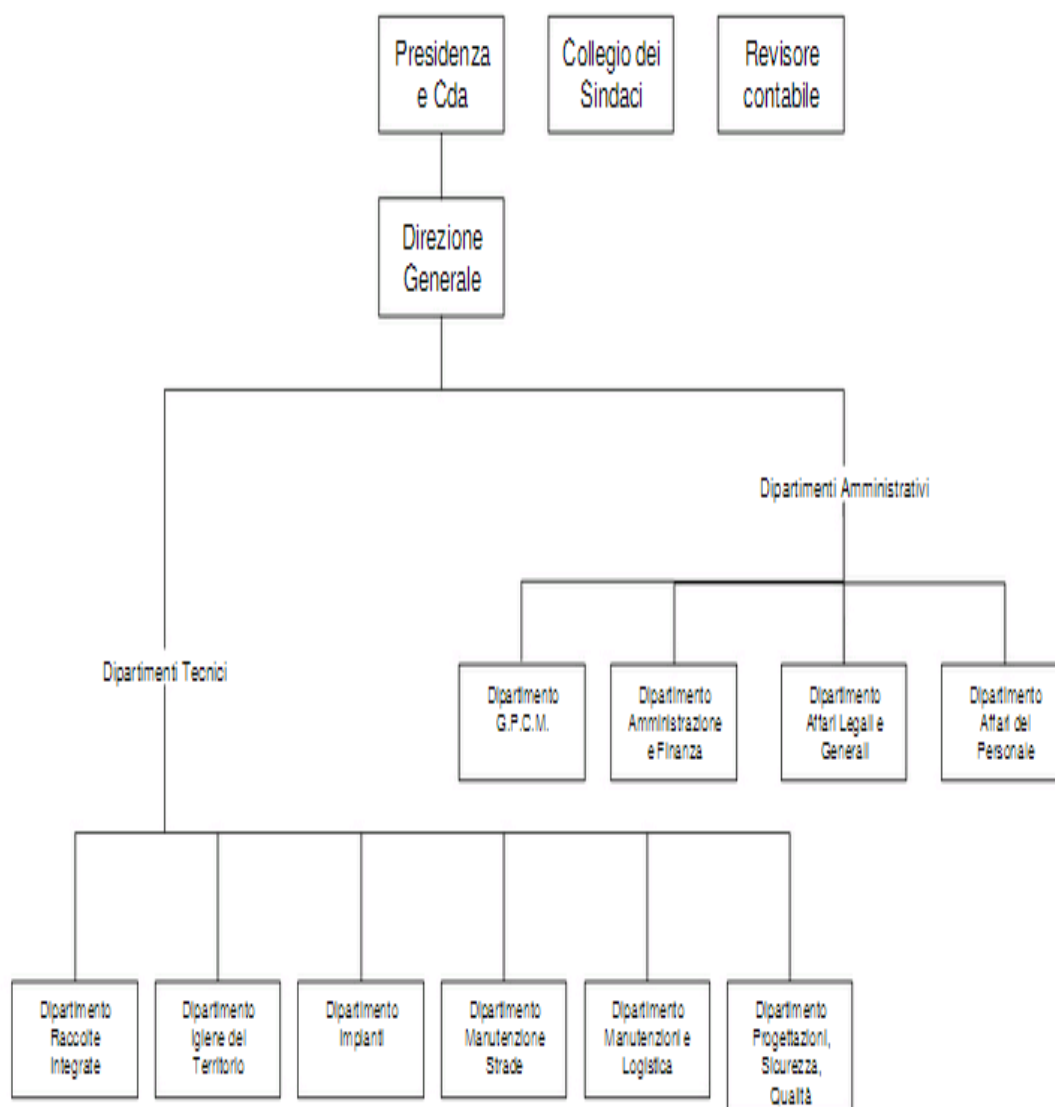


Figure 13

The company organizational chart of Amia S.p.A

As can be seen, at the top of the organizational structure of the company is placed the Board of Directors that, together with the Board of Auditors, deals with the ordinary and extraordinary management of the Company, thus constituting the directional center of the system of governance of the company. Based on what results from the charter of services of the company, Amia has as its key objective “the protection of the environment and the territory”. More precisely, in order to achieve such objective the charter of services specifies that Amia “carries out its activities in the field of environmental hygiene, sanitation, environmental monitoring, collection, transportation and disposal of waste of all kinds, as well as road maintenance”. Concretely, Amia is structured into 10 Departments and performs its functions making use of a workforce of 1964 employees, including 10 managers, 242 employees and technicians and 1712 service workers within his area of influence. Within of the eight districts of the city of Palermo, which has an area of 159 sq km with about 700,000 inhabitants, are located 9 offices that supports the activity of Amia. Overall, the number of workers employed by the Amia group amounts to about 3000 units.

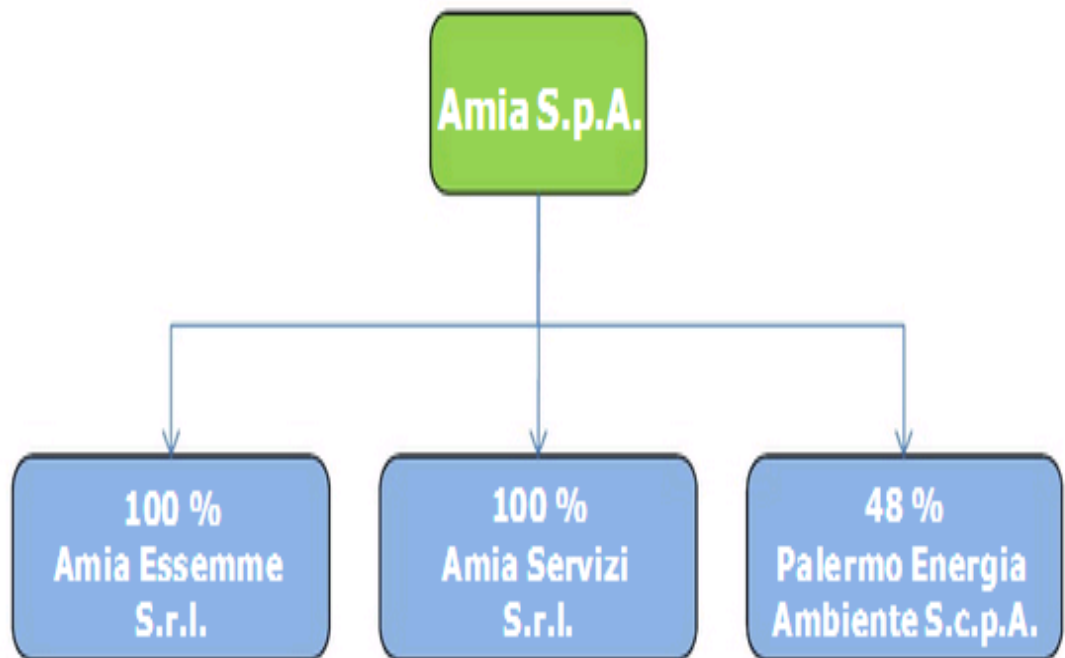


Figure 14

The overall structure of the corporate group Amia S.p.A

Specifically, Amia Essemme is a subsidiary company of Amia S.p.A., whose assets is wholly owned by the parent company and which was formed in 2006 to provide for the service of street sweeping and maintenance of manholes. With regard to Palermo Energia Ambiente S.c.p.A., this is a company formed in 2003 in partnership with the Falck Group for the construction of an incinerator plant located in Bellolampo which was placed in voluntary liquidation in 2011.

With regard to the mission of Amia, is necessary to distinguish between:

1. Environmental mission of Amia. With regard to environmental policy, Amia considers environmental protection a matter of strategic priority, and in this sense is committed to conducting its activities, in line with the principle of sustainable development, by implementing



an environmental policy aimed at reducing and recycling waste , in order to reduce the use of primary resources and the rational use of the available resources.

2. Qualitative mission of Amia. In this respect, the management of Amia is committed to pursuing a policy that focuses on the activities the customer/user to which the Company perform his services. The customer/user perspective satisfaction, therefore, plays a central role in the evaluation of business success. Consequently, it becomes important to acquire a deep knowledge of customers needs in order to deliver services capable to meet their needs and create an adequate level of customer satisfaction. More in particular, with regard to the qualitative mission, the objectives that Amia S.p.A. intends to pursue are:

- Improving the image and the reputation of the company within the social fabric in which it operates;
- Strengthen the communication with the customer / user through specific surveys aimed at constantly monitor the level of quality of the services provided and the level of customer satisfaction;
- A constant activity of personnel training and of updating of the corporate management in order to ensure the achievement and maintenance of the goals and an progressively more elevate level of the services.

In conclusion, these objectives are directed to ensure the establishment of a company strongly focused on the citizen / user, to make customer satisfaction the determining factor for the achieving a higher level of efficiency and effectiveness of services rendered to the whole community.

More specifically, on the basis of what results from the charter of services, the principles that inspire and guide the provision of the services performed by Amia are:

1. Equality and impartiality of treatment. The provision of services carried out by Amia S.p.A. is based on the principle of the equal rights of users. Therefore, the modalities of services delivery are the same for all regardless of their sex, race, language, religion or political opinions;
2. Continuity. On the basis of this principle Amia S.p.A. is committed to ensuring a regular and continuous service and to reduce the duration of any possible inefficiencies;
3. Participation. The user has the right to submit complaints, make proposals and suggestions to Amia S.p.A. in order to increase the degree of user involvement and improve the level of service provided. In this respect, Amia S.p.A. care staff training in order to ensure a high standard of service quality and a high level of professionalism in dealing with customers.
4. Effectiveness and efficiency. Amia S.p.A. is committed to continuously improve the level of effectiveness and efficiency of the services provided. To achieve this objective are adopted all the technological, organizational and procedural solutions in order to provide an efficient and effective provision of the services. To this end, all staff of Amia S.p.A. is deeply committed to meet the user's requirements and to improve the quality of the services.

In light of the above considerations, therefore, the Amia S.p.A. group takes the form of a reality strongly focused on the need to create a deep connection with its customers, based on the high quality of services

rendered and on a continuous and timely detection of the level of customer satisfaction, in order to boost their level of involvement and gain a level of reputation and credibility so high as to enable it to strengthen its market share. However, these objectives remained entirely unrealized because, as also confirmed by the numerous interviews conducted with members of the management of the company and members of the local government, was not adopted any policy to measure customer satisfaction and to encourage the involvement of citizens/users as well as any measures aimed at training the workers in order to increase their level of professionalism and productivity. The reason for this behavior lies in the chronic scarcity of financial resources available to promote such activities because of the enormous, and ever-increasing, weight of personnel costs on the business dynamics of Amia S.p.A. Cost increase that was supported by a considerable increase in the amount of the Tarsu, the tax on waste, and by the displacement of municipal spending realized by taking resources originally destined to other sectors. In fact, despite the company over the last ten years has operated recording every year a considerable budget deficit, rather than reorganize its business processes and optimize the use of available resources has merely continued to hiring unnecessary and unqualified personnel. It is a completely irrational behavior from an economic point of view that can only be motivated by the presence, or better, by the prevarication of political interests and interferences in the management and government of the company. In fact, it is clear that the reasons of the failure of Amia are purely political and chargeable specifically to the needs of the political parties to take advantage of the state of emergency in order to increase their electoral support and ensuring their re-election by piloting a substantial number of voters in exchange for a workplace within the company. This mechanism, which sees public

enterprises exclusively as mere instruments to dispense favors and to strengthen or restore political equilibrium, it is unfortunately widespread in the Italian political life. In fact, the dynamics that has been discussed above have been carefully studied and analyzed by numerous scholars. In particular, one of the most important contributions in this field, is that offered by Cosenz in his article “A System Dynamics Approach to Analysing the Effect of Clientelism on Public Organizations Performance in Italy”. More specifically, in this article the author presents a qualitative model capable to allow a clear understanding of the mechanisms through which, the Italian clientelism system, works and reproduces itself over time.

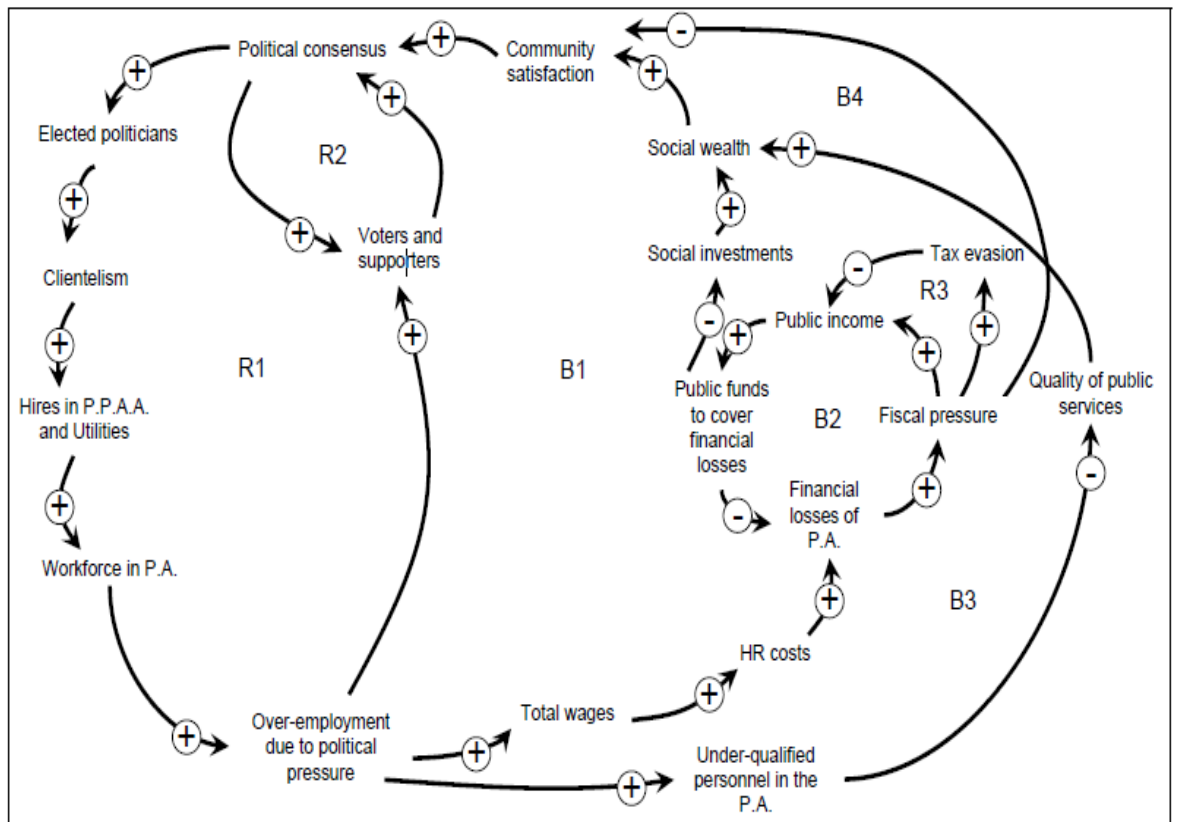


Figure 15

Model structure of Italian clientelism system (Source: Cosenz, 2010)

As can be seen from the above model “Italian clientelism aims to increase and maintain the consensus of a given party/representative by assigning jobs and offices in Public Administrations (P.P.A.A.) and, consequently, creating gratitude-based relations with the electorate. In the long term, such practice has implied a drastic increase of human resources (HR) inside public organizations which have nowadays to face increasing financial losses linked to the raise of salaries and an overall paralysis of the public services supply. The need to restore public financial losses naturally imposes rapid solutions: usually, public monetary resources shifting together with the increase of tax rate represent the best stratagem that Italian politicians have applied. Nevertheless, if such mechanism is systematically used, a big volume of the public money flow will be subtracted to other important social investments damaging the overall wealth of the country. So, the trade-off between high tax rate and bad public services allocation – within a context characterized by declining wealth – succeeds in breaking those fidelity-based relations between governors and voters and, in doing so, causes the decrease of the party’s consensus”<sup>190</sup>. What has been said demonstrates that in Italy public managers are often hostages of politicians and then forced to adopt decisions aimed at favouring particularistic interests of restricted group of shareholders rather than that of the entire community. This *modus operandi*, also characterizes the case investigated through this research project. Therefore, in the following paragraph will be built a Causal Loop Diagram related to the specific case of Amia S.p.A. that allow to realistically recreate the mechanism discussed above and to understand how each variable affects another creating causal circuits that ultimately

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<sup>190</sup> Cosenz F. 2010. “A System Dynamics Approach to Analysing the Effect of Clientelism on Public Organizations Performance in Italy”. Review of International Comparative Management Vol. 11, pag. 325-337.

produces the problem of overstaffing investigated herein. In conclusion, the CLD presented will allow the identification of the levers of intervention on which managers can control in order to mitigate the negative effects that the clientelistic system has produced on the system of governance of Amia.

#### **4.4. The Amia S.p.A. model**

As seen previously, causal loop diagrams are composed of the linkages among variables. A linkage is referred to as a cause and effect relationship connecting two variables. This linkage could represent either a positive or a negative relationship among variables. The arrows between the variables stand for their connections. Those arrows with a “+” sign indicates that the two variables will change in the same direction. Similarly, those arrows with a “-” sign indicates that the two variables that are connected will change in opposite directions. More specifically, the causal loop model proposed in this study highlights the causal relationship of the Sicilian clientelistic systems with a specific focus on the impact produced on Amia S.p.A., the public utility responsible for the waste management system of the city of Palermo, in terms of overstaffing. Taking a cue from the analysis of the Italian clientelism system realized by Cosenz, it seems appropriate, before starting the analysis of the model’s feedback loops, to underline which are the factors that positively influence clientelism. More in particular, it is possible to distinguish between:

1. Political factors. Specifically, they are:

- Stressful political competition. The turbulent political scenario and the socio-economic instability of recent years has prompted politicians to try to raise as much as possible their electoral base through the establishment of patronage networks based on mutual exchange of favors. This

mechanism constitutes the easiest way for politicians in order to secure a greater control on the electorate and to influence the elections in their favor;

- Lack of adequate long-term electoral strategies. A distinguishing feature of the current political crisis of recent years is the inability of the current political class to formulate clear and effective answers to the real demands expressed by the community. As pointed out by Cosenz , “The critical combination among the lack of professional and political skills, a short political experience and the virtual distance from people needs, causes the unfeasibility to formulate suitable political strategies in facing electoral campaigns, but, on the other hand, instigates politicians to stipulate informally clientelistic agreements with voters”<sup>191</sup>;
- political privileges system. More specifically, high salaries and the overall extraordinary system of privileges enjoyed by Sicilian politicians, determines a substantial detachment of these from the actual conditions of life enjoyed by ordinary citizens. This system therefore allow politicians to count on an excessive bargaining power in relations with citizens and to leverage this position of strength to foster clientele. Unquestionably, this mechanism strongly influence and alter the normal processes of formation of the democratic will aggravating the state of public finances.

2. Social factors. More specifically, these are represented by socioeconomic factors that favor the proliferation of clientelistic

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<sup>191</sup> Cosenz F. 2010. “A System Dynamics Approach to Analysing the Effect of Clientelism on Public Organizations Performance in Italy”. *Review of International Comparative Management* Vol. 11, pag. 325-337.

relationships and on which politicians leverage in order to increase their electoral support. Namely they are:

- High unemployment rate. In Sicily in 2013, the unemployment rate has jumped to 21.6 growing of two percentage points compared to the 19.4% registered in 2012. A meaningful data considering that the national average stood at 12.8%. Dramatic is also the data regarding the youth unemployment rate, which now stands at 50.5% growing by more than four percentage points respect the level of 46,2% of 2012<sup>192</sup>. That lack of work therefore constitutes the first emergence of Sicily. An emergency that often has been used by the political class as a means to increase their electoral support in exchange of workplaces in public utilities. In fact, given the lack of entrepreneurial vitality of the Sicilian territory, this demand for labor is intercepted by politicians and satisfied by hiring a large number of unnecessary workers in public institutions and public utilities. Currently Sicily, with approximately 21,000 units, represent the Italian region with the highest number of civil servants of the whole country. Moreover, Sicily recording the highest average public managers in relation to the total amount of employees, with an average of one manager every eight employees compared to a national average of one manager every 21 employees.
- Economic crisis. This factor is strongly connected to that of the high level of the unemployment rate. In fact, it is estimated that in Sicily were lost more than 300.000 jobs since the outbreak of the global economic crisis of 2009. This situation

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<sup>192</sup> For further informations checks “Rapporto Istat sulla disoccupazione in Italia 2012 “



has produced a dramatic impact on the already fragile economy of the island, resulting in a worsening social emergency which allowed the political class to increase the possibility of concluding clientelistic agreements with voters in exchange of workplaces in public utilities.

- Lack of mechanisms to increase the level of quality and efficiency of the performance of public employees. In fact, as Cosenz claims, “due to the political protection that clientelism gives to public employees, the working culture of Italian civil servants suffers from a traditional inclination to avoid offices accountability and work inefficiently. This class of workers appears reluctant to change its working aptitude and, thus, supports clientelism lastingness”<sup>193</sup>.

Figure 16 illustrates the model structure which specifically consist of two reinforcing and two balancing loops.

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<sup>193</sup> Cosenz F. 2010. “A System Dynamics Approach to Analysing the Effect of Clientelism on Public Organizations Performance in Italy”. *Review of International Comparative Management* Vol. 11, pag. 325-337.

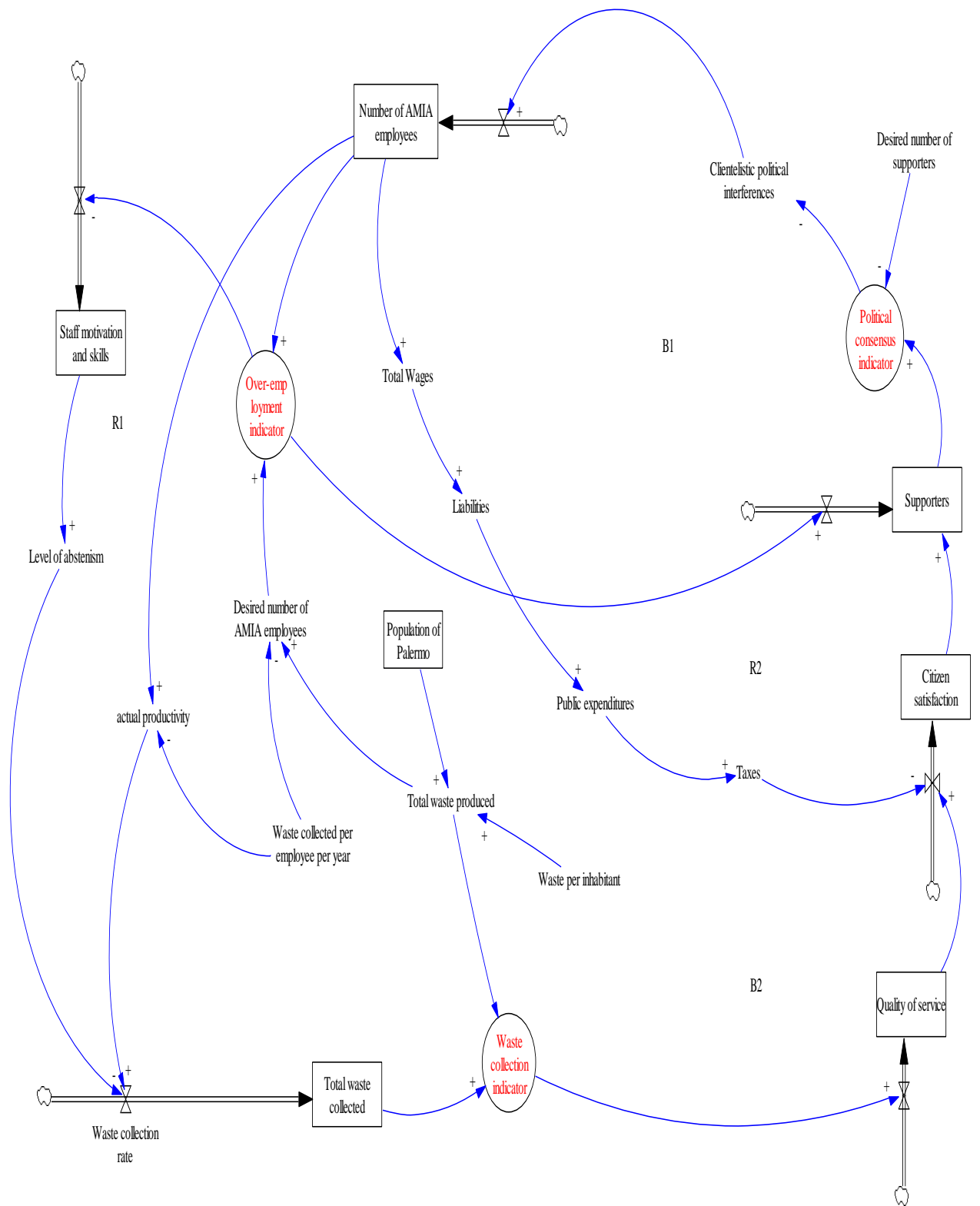


Figure 16  
The Amia S.p.A. Model structure

In order to provide a clear picture of the system described in the figure above, each feedback loop will be analyzed in detail in order to enable a proper understanding of the relationship between each variable and the effects of short and long-term produced on the system under analysis. Specifically:

- the feedback loop (R1) identify the mechanism that lead to the realization of the goal of every clientelistic agreement, namely the establishment of a system based on mutual exchange of favors between politicians and voters. More specifically, this mechanism works by using public utilities, in this case Amia S.p.A., as a mere instrument to assigning offices and jobs in exchange for the vote of the beneficiary of the exchange and of that of his/her family. Therefore, through this mechanism politicians, taking advantage of the chronic demand for work, expand their political consensus by ensuring them the electoral support of the familiar clans of those subjects who have benefited from the exchange. As pointed out by Cosenz, “the good functioning of the mechanism allows parties to gain more representatives in both political offices and decision making processes; as a consequence, politicians will foster those existing clientelistic agreements and enlarge such practice to other groups or lobbies of citizens” (Cosenz, 2010) . Obviously, these procedures of staff recruitment, not being motivated by actual and real needs of AmiaS.p.A, have determined in the long-term dramatic problem of overstaffing within the company. As can be inferred from the analysis of the model, the excess of personnel leads to a reduction in the level of motivation of staff employed which in turn results in an increase in the rate of absenteeism. As pointed out

by Drucker “Overstaffing destroys motivation. It destroys accomplishment, achievement and satisfaction. In the end it destroys performance”<sup>194</sup>. More specifically, in the case of Amia S.p.A., this occurs because those who are hired are for the majority former prisoners or subjects without any significant prior work experience and therefore highly unqualified as well as unnecessary. In such cases, as pointed out by Herzberg, it happens that because “There are too many bodies busily interacting with each other rather than doing their own work”<sup>195</sup>. Consequently, a higher level of absenteeism leads to a reduction in the volume of the waste collected and therefore to a reduction in the level of quality of the service offered to the citizens. In the moment in which this reduction of quality of service is perceived involves a reduction of the level of citizen satisfaction that ultimately results in a reduction of the number of supporters. Finally, this reduction of supporters will push again the politicians to leverage on the mechanism of offering jobs in Amia S.p.A. in order to secure an increase in their electoral base, thus leading to an intensification of clientelistic political pressures and interferences on the recruitment procedures of the company. The figure below shows specifically the connections between the different variables that together contribute to creating the mechanism described in feedback loop R1.

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<sup>194</sup> Drucker P. (1974). “*Management. Tasks, responsibilities, practices*”. Heinemann, London, pag. 444-446

<sup>195</sup> Herzberg F. (1959). “*The motivation to work*”. John Wiley & Sons, New York, pag. 29-42.

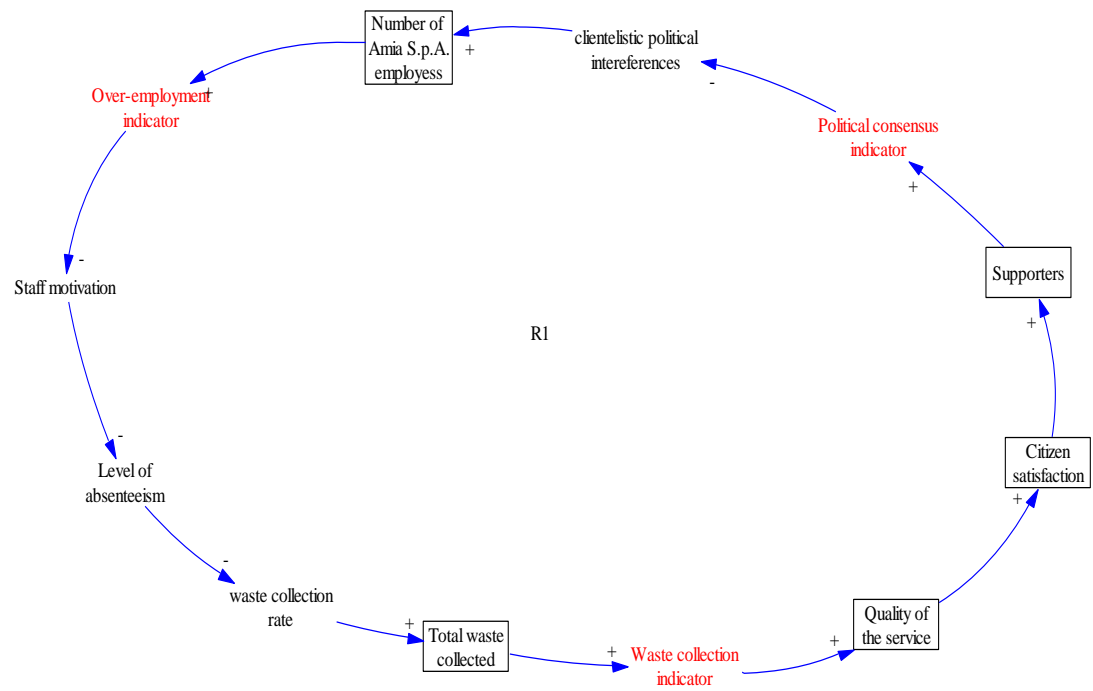


Figure 17

The reinforcing loop R1 in detail

- For what it regards the reinforcing loop (R2), as can be seen from the analysis of the model structure below, the extensive overstaffing determines a considerable increase of the operating costs of Amia. Accounting techniques suggest that salaries represent negative components of financial statements and, therefore, they may contribute in expanding losses of financial resources which, in turn, have to be restored with other public resources. In the specific case object of this study, the increase in operational costs due to the over-employment of staff in Amia S.p.A., was supported by a substantial and progressive increase in the tax on waste. More specifically, from 2005 to 2012 the waste tax has increased by 75% in order to limit the budget deficit of the company. Obviously, this gradual increase in the tax levy, once perceived by citizens, results in a decrease of the

level of citizen satisfaction that, consequently, causes a reduction of supporters and thus the need by politicians to increase even more their efforts and their pressure in order to secure, through the promise of employment in Amia S.p.A., a number of supporters enough to be reelected. The figure below shows which are the linkages among the variables from which originates the feedback loop R2.

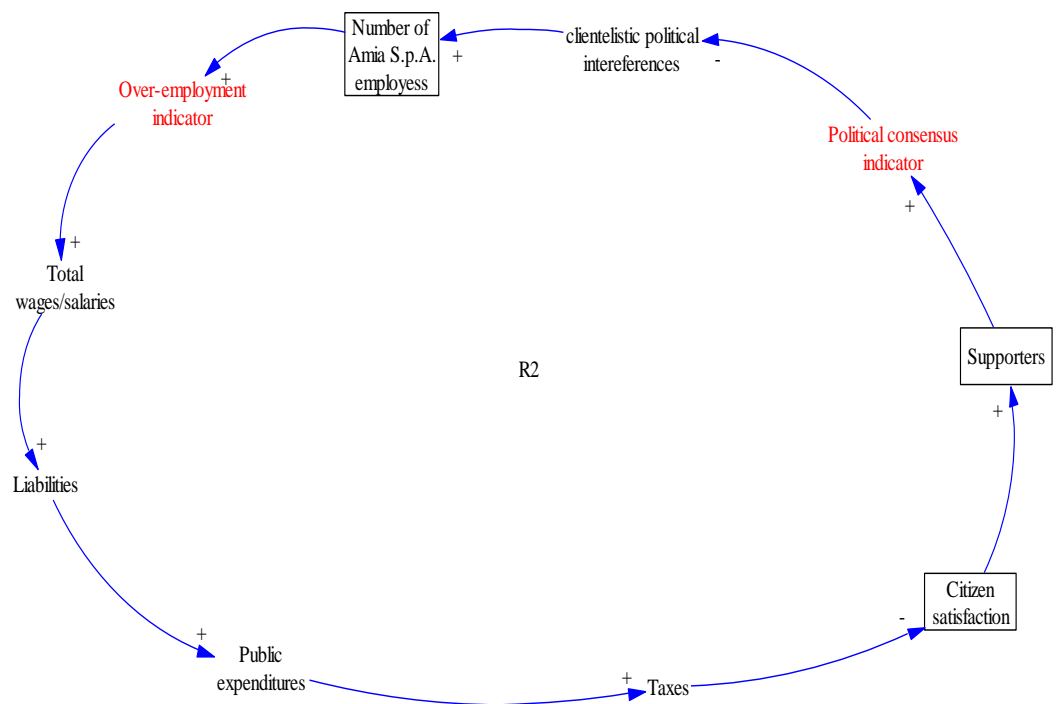


Figure 18

The reinforcing loop R2 in detail

- For what it concerns the balancing loop (B1), as is highlighted in the model, the increase of personnel hired in Amia SpA generates an increase of supporters due to the fact that the persons recruited and their family clan will demonstrate their gratitude by voting those politicians who supported them, thus finalizing the clientelistic exchange. As can be seen from the feedback loop B1, once the

number of supporters increases simultaneously the gap between current supporters and desired supporters is reduced, thus determining an actual number of supporters close to that of the desired one. Therefore, ultimately, this mechanism determines a decrease of the clientelistic political pressures and interferences.

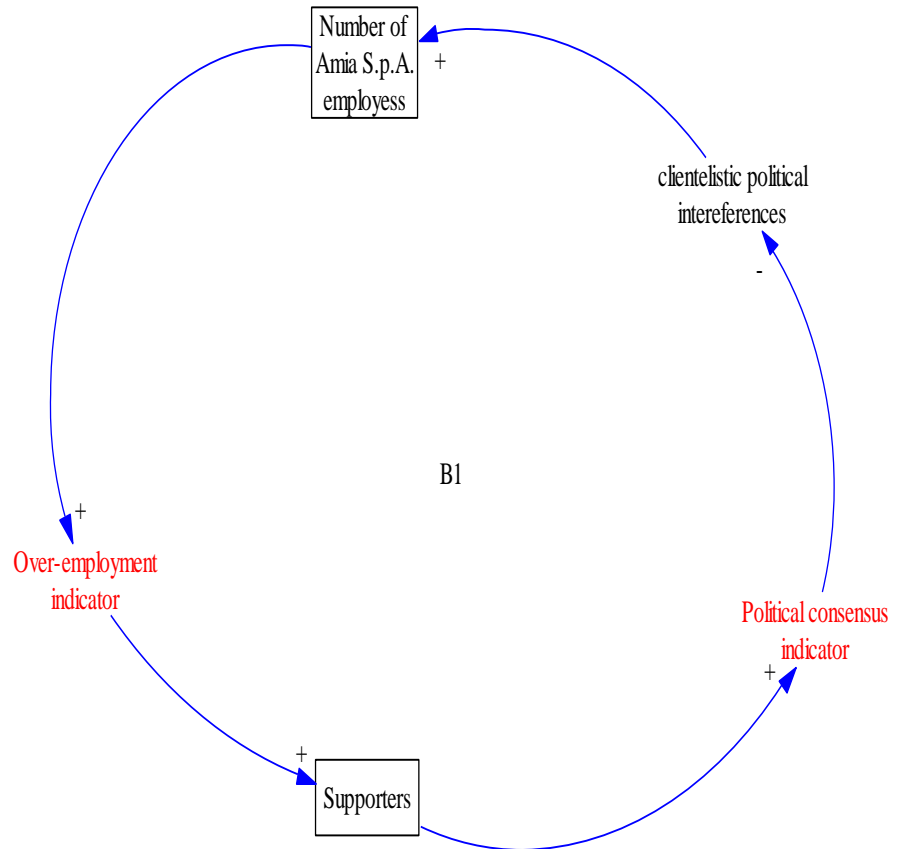


Figure 19

The balancing loop B1 in detail

- Lastly, the feedback loop B2 shows that the increase in the number of employees should theoretically result in a higher level of productivity of the employees thereby triggering a substantial improvement in the quality of services offered to citizens and therefore an increase in the level of citizen satisfaction, that

ultimately result in an increase in the number of supporters and to a reduction of the clientelistic political interferences. However, this is not what happens in the case of Amia S.p.A., where, as has been mentioned above, the people recruited were in large part constituted by unqualified subjects without any previous work experience and with very a little civic awareness. Therefore, it is not surprising that, as confirmed by the numerous interviews conducted for the purpose of the present work, the high level of absenteeism detected among Amia employees, combined with their low level of productivity, has come to represent another critical factor given the increasing difficulties of managing an exorbitant number of workers with a very scarce propensity to work.

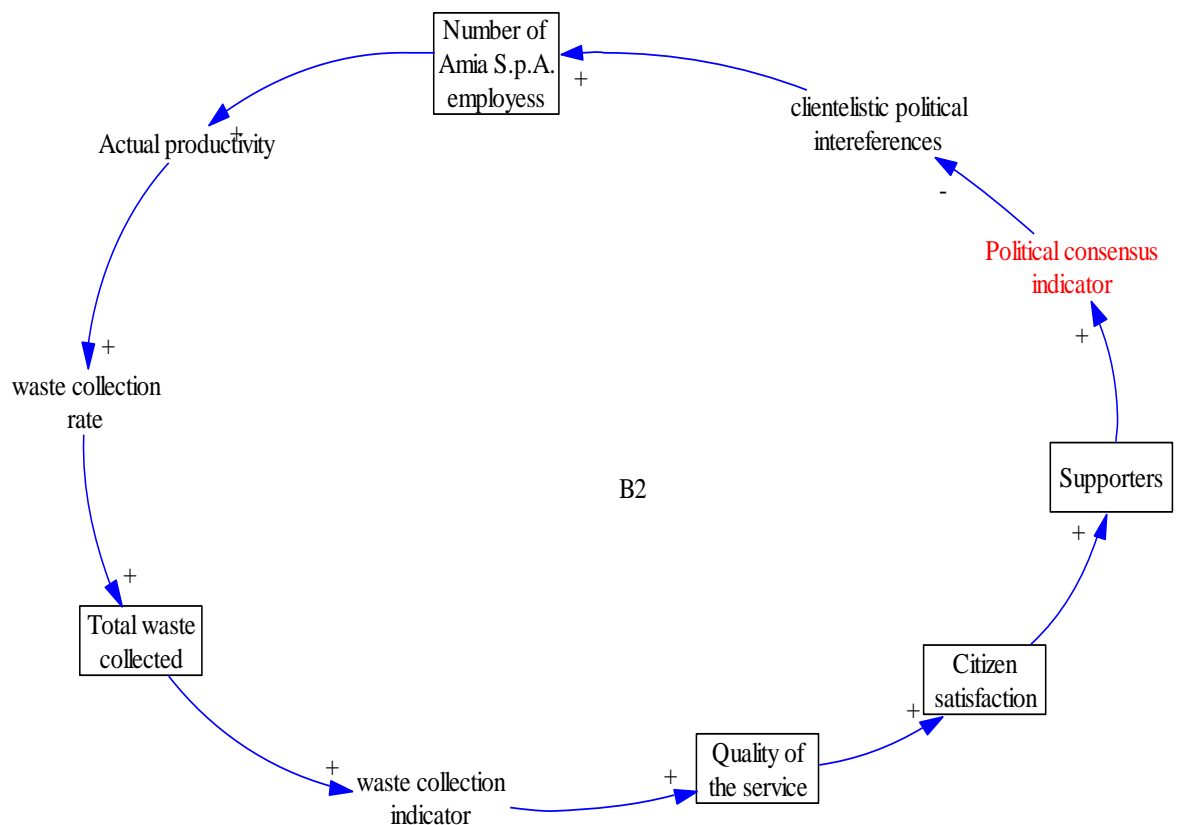


Figure 20

The balancing loop B2 in detail



Based on the above analysis, it is possible to outline intervention policies to allow Amia to recuperate in the long run sustainable competitiveness and financial equilibrium. More specifically, as can be seen from the model, in the specific case of Amia has been identified three key performance driver on which decision makers can leverage to drive the performance of the company towards a path of progressive recovery of the competitiveness and of the financial equilibrium. Specifically, these are: the over-employment indicator, the waste collection indicator and the political consensus indicator. More specifically, the variable over-employment indicator constitutes the first and fundamental performance driver on which refer to this purpose. Indeed, such a driver has been obtained by dividing the number of workers currently employed by Amia, and the desired number of workers. Therefore, in order to understand if the number of employees operating within Amia is objectively disproportionate, the number of desired workers has been calculated on the basis of the comparison made between the number of Amia employees and that of other public utilities that perform the same services in different geographical contexts with a similar number of inhabitants and a similar flows of solid waste produced. From this analysis have been confirmed the assumptions regarding the exorbitant and unsustainable number of employees hired in Amia and therefore the need to focus mainly on that variable in order to regain competitiveness and financial stability. More specifically, has emerged that in the municipality of Palermo there is an employee of Amia every 259 inhabitants while in Turin, the average is of an employee every 581 inhabitants and in Genova of an employee every 594 inhabitants. It is therefore clear that the importance that this indicator has for decision makers. Indeed, it is primarily on the number of employees that they must act in order to restore company ability to provide, effectively and

efficiently, the service of waste management in the municipality of Palermo. More appropriately it is necessary that managers develop an adequate standard cost system in order to better control and manage the performance of Amia. In fact, through a well calibrated standards cost system, on one hand, it is possible to define clearly the desired level of the results expected and, on the other hand, the conditions of efficiency, the term of comparison, the measure of the managerial performance, that allows comparative analyzes between the actual results and the desired ones. Therefore, once has been identified precisely the benchmarks on which to base organizational decisions related to staffing levels, through the use of the over-employment indicator managers are enabled to promptly perceive any possible deviations between the actual number of employees and the desired one, and therefore to adopt appropriate corrective measures by leveraging on it. Another factor that must be taken into proper consideration is that of employee productivity. In fact, on the basis of a comparison made between the performance of Amia S.p.A. employees and that of the municipal utilities of Turin and Genoa, has emerged that in Palermo each employee collects 164 tons of waste per year against the 496 tons of Turin and the 512 tons of Genova. In fact, the productivity index of the employees is a key element for the identification of the second fundamental performance driver identified in the model, namely the waste collection indicator. More specifically, by multiplying the number of citizens /users for the number of tons of waste produced annually by each citizen it is possible to identify the total amount of waste produced per year in the city of Palermo. As can be seen from the analysis of the model, by comparing the amount of waste produced annually and the amount of waste collected by each employee per year, can be deduced which is the actual amount of waste that Amia is not capable of intercepting. In concrete terms

a huge amount of waste that that remains uncollected and which determines tremendous problems to public health and public order within the territory of the municipality. As can be inferred, in this case the total waste produced represents the desired amount of waste that must be collected in order to provide an efficient service to the citizens. Therefore, referring to the waste collection indicator, calculated as the ratio between the total waste collected and the total waste produced, only when the result of this ratio is equal to 1, and therefore that the amount of total waste collected is equal to the amount of total waste produced, it is possible to assume that the collection service functions adequately, intercepting punctually every tons of waste produced in the municipality. Therefore, any deviations from this value allow managers to timely undertake all the necessary corrective measures to boost employee productivity and to reduce the gap between the waste collection rate and the desired waste collection rate. Finally, an additional performance driver identified is that regarding the ratio between the current number of political supporters and the desired one, specifically the political consensus indicator. In fact, being clientelism an informal institution which is nourished by the meeting between politicians and voters in order to exchange mutual benefits, through the evaluation of the discrepancy between the desired number of supporters and the current one, it is possible to obtain information about the effective weight that in a given moment clientelistic political pressures can produce on the system. Therefore, the political consensus indicator can be considered like a thermometer through which policy makers can evaluate the level of strength that the conditions that favor the establishment of clientelistic relationships possess at a given time. Consequently, the public managers once they are aware that the external reference environment in a given moment results highly permeable to clientelistic political interferences may

increase the level of alert and lever on those factors that directly or indirectly are able to reduce the conditions that promote the effective conclusion of clientelistic agreements. Therefore, as is evident from the analysis of the model structure proposed in this research, by combining DPM approach with System Dynamics methodology it is possible to understand the mechanism through which performance drivers are able to influence the end results, which in turn influence strategic resource accumulation and depletion processes, thus generating a strategic learning oriented process. Consequently, decision makers by leveraging on the levers of intervention identified through the model are enabled to adopt the appropriate measures capable of ensuring a sustainable growth of the organization.

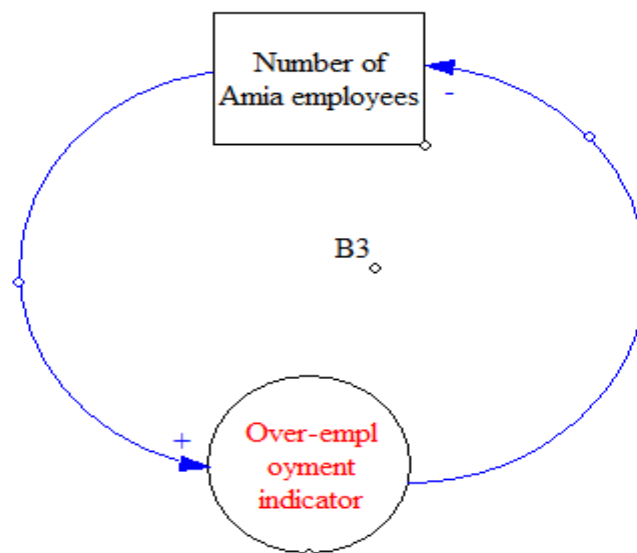


Figure 21  
The balancing loop B3 in detail

As can be seen from the analysis of loop B3, the performance driver over-employment indicator enables to monitoring the number of workers currently employed in Amia and, consequently, to perceive promptly any discrepancies between the actual number and the desired number of workers. As previously observed, determine if the number of workers is disproportionate to the actual company needs requires the development of a standard costs evaluation system capable of providing benchmarks through which tailoring organizational decisions. Furthermore, once determined the appropriate number of workers required to deliver the service effectively and efficiently, through the waste collection indicator, it will be possible to plan more accurately the collection targets to be achieved annually. Therefore, following this approach, in case there is a discrepancy between the actual amount of waste collected and the desired one will be possible to assess whether the number of employees was adequate to the collection target planned, and consequently also assess the level of productivity of the workers. Moreover, as Bianchi pointed out in the case of Acqua S.p.A., it is possible to identifies three different, although strongly interconnected, levels on which it is possible to intervene in order to mitigate the negative effects that clientelistic political interference have produced on the performance of a public company<sup>196</sup>. Specifically, these are: the institutional, the political and the managerial level. More precisely, as the figure below shows, in order to counterbalance the negative effects generated by the reinforcing loop R1, a first balancing loop could be fostered by introducing consistent changes in the system of rules, which regulate the roles and responsibilities of the various actors operating both internally and externally to Amia S.p.A..

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<sup>196</sup> Bianchi C. 2010. "Fostering accountability in public utilities: the ACQUA spa case-study". In Bianchi C. et al. "Applying System Dynamics to Foster Organizational Change, Accountability and Performance in the Public Sector: A Case-Based Italian Perspective". System Research and behavioral science, Vol. 27, pag. 395-420

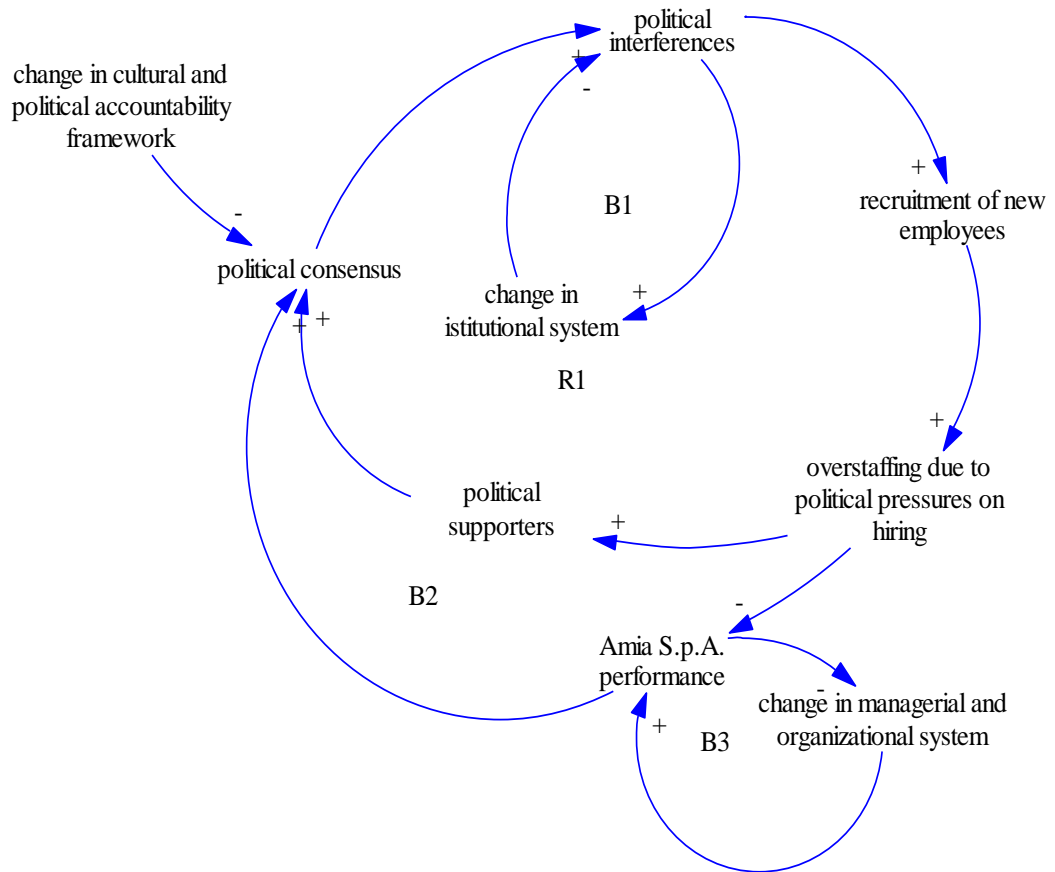


Figure 22

The corrective policies aimed at recovering Amia S.p.A. sustainable competitiveness and financial equilibrium (Adaptation from Bianchi, 2010)

As loop B1 highlights, the need for such policy should be directly related to the level of political interferences. On this respect, as pointed out by Bianchi “it is critical not only the quality of adopted changes in the system of rules, but also the time and the extent to which the phenomenon of political interferences is perceived as a threat to the survival of the community” ( Bianchi,2010). As can be seen from the analysis of loop B1, the introduction of a new set of rules could reduce the level of political interferences, thus allowing managers to determine more independently

from politicians the operational decisions regarding the company. Concerning the sociopolitical context, the strategy that Bianchi suggest to implement consist in the introduction of new frameworks aimed at fostering sociopolitical accountability. In fact, as Laughlin claims, “A change in the nature of accountability demands from powerful external stakeholders (such as politicians in the public sector) may create significant environmental disturbances”<sup>197</sup>. More precisely, the adoption of such frameworks would allow citizens to better evaluate the effectiveness of political action and the consequents outcomes. Nevertheless, in order to achieve this goal, it is also necessary to foster a strong cultural change in the community in which the company operates. More specifically, it is necessary that citizens, rather than perceiving public companies as a mere instrument to opportunistically obtain favors from politicians, develops a culture oriented towards the proper role that public utilities plays in society. As is clear from the analysis of loop B2, through this policy will be possible not only to perceive promptly the poor performance of the company but also to highlight the social cost of the mismanagement. Therefore, once citizens are enabled to perceive the poor quality of the services offered by the public company, the responsibility of the political class will be clearly identified as the real cause of the mismanagement, thus determining a drop of social consensus for re-election. Evidently, this mechanism represent a powerful deterrent to politicians, leading to a reduction in their interferences. Concerning the organizational context, another balancing loop could be fostered by introducing new organizational mechanisms inside the company in order improve the quality of managerial

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<sup>197</sup>Laughlin, R. (1991). “*Environmental Disturbances and Organizational Transitions and Transformations: Some Alternative Models*”. *Organization Studies*, Vol. 12, 209- 232.

processes. As can be seen from the analysis of loop B3, the adoption of proper systems to increase the quality of public managers, combined with the reduction of political influences, determines a higher level managerial autonomy that ultimately results in an improvement in the quality of services offered by the company. Therefore, on the basis of this mechanism, once will be perceived a performance level lower than the desired one, managers can autonomously identifies the area where there is the greater need to increase efforts to improve the level of quality of managerial and organizational processes.. In conclusion, by analysing the model structure of Amia, it appears evident that clientelism produce different behaviors. Specifically, trend oscillations in the conflict to increase political consensus. On this regard, the next paragraph will help to clarify the results that the above model have suggested. More specifically, by following a community satisfaction-based perspective, will be suggested sustainable policies that politicians might promote in the current Sicilian scenario in order to balance the need to increase their electoral support with that of increase the level of social welfare of the whole region.

#### **4.5. Results and implications**

From the analysis of the qualitative model introduced in the previous paragraph, several considerations arises concerning the application of clientelistic practices and their outcomes over time. As the model shows, clientelism constitutes a successful electoral strategy only in the short term since the over employment it causes can be independently supported by the financial autonomy of the PU involved and the quality of public services delivered remains within acceptable levels. Nevertheless, historical data highlight the inability of politicians of combining consensus achievement-oriented clientelistic practices with the need for increase the level of



prosperity of the region. Therefore, in order to mitigate the shortcomings deriving from clientelistic political interferences, two different approaches are suggested:

1. A direct approach, characterized by attempts to reduce clientelistic political interferences by diminishing the factors that creates the favorable conditions that allow a clientelistic system to take root and proliferate;
2. An indirect approach, which instead is directed to mitigate the distortive effects that clientelistic political interference have already produced on the reference system (e.g. over-employment, under-qualified personnel, inefficiencies). More specifically, this approach aims to create effective obstacles for the functioning of the mechanism previously analyzed.

As pointed out by Cosenz in his analysis of the Italian clientelism, in both types of approach what is relevant is that “political accountability and determination should drive institutions to adopt radical changes in the cultural background of Italian public sector”<sup>198</sup>. Regarding the direct approach, what is needed is to foster the adoption of policies aimed at reducing the impact of those socio-economic factors which favor the raise of clientelism. More in particular, examples of this type of approach is investing public resources in the higher education sector or the adoption of measure aimed at encouraging the establishment of new private enterprises or to sustaining those in crisis. In fact, these policies can reduce the unemployment rate thus reducing those detrimental effects coming from economic crises. Correspondingly, another factor on which it is necessary to act is constituted from the excessive number of privileges that elected politicians holds. In fact, the exorbitant number of privileges in the hands

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<sup>198</sup> Cosenz F. 2010. “A System Dynamics Approach to Analysing the Effect of Clientelism on Public Organizations Performance in Italy”. *Review of International Comparative Management* Vol. 11, pag. 325-337.

of politicians is the element that allows them to foster clientele. Therefore, the substantial reduction of political privileges, beyond the fact of allowing the reduction of the costs of the political machine and the saving of a considerable amount of public resources to improve the level of welfare of the whole community, would also result in the promotion of a deep cultural change regarding the actual role that Italian politicians play society. According to Cosenz, “such re-qualification of political offices would gradually brings political competitions to increase the value of candidates electoral programs and, in turn, refuse unfair agreements with voters” (Cosenz, 2010). For what it concerns the indirect approach, this is essentially aimed at eliminating the conditions that favor the promotion of clientelistic exchanges. More specifically, it must be ensured that the management of public utilities takes place according to a performance-oriented culture aiming at creating public value in order to provide high quality services to citizen. In this respect, the main drivers that need to be taken into consideration in order to achieve these objectives are represented by the performance management and social accountability. The World Bank has defined Social Accountability as “an approach towards building accountability that relies on civic engagement, i.e. in which it is ordinary citizens and/or civil society organizations who participate directly or indirectly in exacting accountability” (World Bank, 2004). On this respect, as pointed out by Cosenz “Accountability not only pushes public managers and civil servants to be responsible to the extent that they are required to answer for their actions, but also includes the means by which P.P.A.A. and their employees manage the diverse expectations generated within and outside the organization. This involves that, by combating administrative corruption, social accountability – together with integrity and transparency of public actions – may enable P.P.A.A. to successfully tackle the

deficiencies of the institutional framework. Therefore, accountability encourages administrators and civil servants to improve their performance which represents the output of the overall public action and, consequently, a critical lever for the long-term consensus preservation” (Cosenz, 2010). In addition to social accountability the other element required for generating the creation of public value is the need to adopt an adequate performance management system aimed at promptly detect any performance dysfunctions and undertake the appropriate corrective measures to successfully overcome criticalities and adopt a learning-oriented perspective. More specifically, how has emerged from the analysis of the specific case of Amia S.p.A., through the combination of DPM approach and SD methodology, it was possible to identify clearly which are the strategic resources, the end results and the key performance drivers on which public managers could leverage in order to orient the company to the improve their performances and, consequently, their impact on the community. In fact, it is necessary to focus the attention on the actual impact of public services on citizens rather than on the actions undertaken by a given public institution. This means that the formulation of policy decisions cannot be confined to a mere incremental vision and that the performance cannot be considered satisfactory only because the measures adopted are in accordance with the requirements of applicable laws, rules and procedures. What is needed is, however, a greater ability to understand and interpret the dynamic complexity that characterizes the reference environment. Despite the need of the introduction of performance-oriented mechanisms in public organizations in order to improve the quality of services provided to citizens has been recently explicitly recommend by several laws, strong resistance impede concretely

their effective implementation. Overall, the main obstacles that can be identified are:

1. The tendency to conceive municipal companies as a mere aggregate of offices and activities rather than systems that have to be coordinated to deliver a public service;
2. The lack of a common platform to compare data and performance results of the municipal companies that providing similar services in order to allowing a comparison of their respective performances based on unambiguous benchmarks;
3. The asymmetric character of the relationship between politicians and public managers. This asymmetry in concrete terms leads to an unbalanced system of distribution of the respective responsibilities and competencies, thus preventing the managers of PU to express their managerial skills. As pointed out by Bianchi, this happens because “political parties often take a leading role in designating the members of such boards. This turns the PU external autonomy into a formal state only. Members of the Board are often appointed on the basis of their political affiliation and rarely on their professional experience”<sup>199</sup>. More specifically, according to Gutierrez and Menozzi “a director has a political affiliation’ when he/she has alternatively one of the following roles: (a) an active position (or has been active) in the recent past in the political arena, (b) an official political position (for instance, deputy of the national Parliament, member of Regional, Provincial or Municipal governments), (c) been (or is) candidate for election, (d) a membership in a political party or

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<sup>199</sup> Bianchi C. 2010. “Fostering accountability in public utilities: the ACQUA spa case-study”. In Bianchi C. et al. “Applying System Dynamics to Foster Organizational Change, Accountability and Performance in the Public Sector: A Case-Based Italian Perspective”. System Research and behavioral science, Vol. 27, pag. 395-420

a friendship with people associated with a political party”<sup>200</sup>. This is exactly what happened in the case of Amia, where managers were appointed solely on the basis of their area of political affiliation, thus undermining a company management exclusively guided to the satisfaction of the interests of the whole community.

4. A misperception of the role of control procedures combined with the reluctance of public employees of being subjected to forms of performance control on their operational activities. This attitude can be explained by a conception of control activities as a mere sanctioning activity. Consequently, because of this misperception civil servants tend to be against the introduction of systems for evaluating the performance because of the fear of losing their workplace or to being forced to increase their productivity levels.

On this regard, as Cosenz claims, “the above resistances mainly stem from a well-established cultural setting that tends to consider public organizations as old bureaucratic machines in which the respect of procedures is placed before the efficiency and the quality of public services, and the core performance parameter corresponds to the satisfaction of politicians rather than that of citizens and other stakeholders”<sup>201</sup>. Therefore, the introduction of a dynamic performance management system combined with the use of System Dynamics methodology may represent a useful tool in the hand of public managers to counter these criticalities and to drive the performance of the company towards the sustainable achievement of the objectives formulated in the

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<sup>200</sup> Gutierrez U., Menozzi A. 2008. Board composition and performance in state-owned enterprises: evidence from the Italian public utilities sector, paper presented at the European Financial Management Association Annual Meeting, June 25- 28, Athens, Greece.

<sup>201</sup> Cosenz F. 2010. “A System Dynamics Approach to Analysing the Effect of Clientelism on Public Organizations Performance in Italy”. *Review of International Comparative Management* Vol. 11, pag. 325-337.

phase of strategic planning. To sum up, in order to give a clear answer to the questions to which this thesis aims to respond, in the light of the analysis conducted it can be argued that:

1. The main cause that led to the failure of Amia S.p.A., consists in the enormous cost of the personnel. In fact, as was mentioned earlier, in the last decade the managers of the company, because of the political interference received, has continued to hire unnecessary and unqualified staff, causing a huge deficit in the balance sheet of the company. Moreover, this exorbitant cost has prevented the company to make the investments to build the infrastructure and acquire the necessary means to provide effectively and efficiently the service of collection and disposal of municipal solid waste.
2. Regarding the principal consequences of clientelistic political interferences on the performance of Amia these are: scarce levels of autonomy and accountability and a poor orientation on customer satisfaction. In fact, the company is governed by a board of directors who are appointed directly by the municipality of Palermo, which constitutes the sole shareholder and sole customer of Amia. This situation has proved counterproductive since it is incapable to govern the peculiar complexities of the public sector. On this regard, as Bianchi have observed in the case of ACQUA S.p.A. “PU ownership has not been separated from external political interventions aimed to satisfy the interest of restricted groups of stakeholders with the intent to gain consensus leading to re-election”. Therefore, as has been clearly pointed out earlier, the political parties that have governed the municipality of Palermo in the last years, rather than appoint individuals with strong professional skills in this sector have preferred to appoint the directors only on the basis of

their political affiliation. This mechanism has progressively turned Amia autonomy into a mere formal state. Furthermore, the high level of political influence on the board of Amia S.p.A., can be also explained by making reference to the scarce level of accountability and transparency of the company. Lastly, Amia has demonstrated a poor orientation towards customer satisfaction. In fact, despite in the charter of company's services has been planned periodic checks in order to acquire data on the level of satisfaction of users as well as the adoption of mechanisms for encouraging the active participation of citizens to the services offered, concretely any measure has been adopted for this purpose. In conclusion, a reduced managerial autonomy combined with an exorbitant increase in operating costs due to the gradual increase of personnel costs results inexorably in an always lower level of company's performance.

3. Regarding the corrective mechanisms which can be used to mitigate the negative effects produced by the clientelistic political interferences on the performance of Amia, reference should be made to three different levels on which is possible to intervene. Specifically, these are:

- The change in the system of rules. More specifically, in this regard, it must be clearly redefined the system of allocation of competences and responsibilities, in order to formulate precise rules aimed at preventing the possibility of creating a grey area in which politicians can limit the autonomy of public managers. In fact, promote the empowerment of public managers and increase their sensitivity to the need to account for the results of their work, is an important prerequisite for

the effectiveness implementation of any program of customer satisfaction.

- The introduction of new frameworks aimed at fostering sociopolitical accountability. On this concern, as pointed out by Bianchi, “The adoption of such frameworks would allow the community to evaluate the effectiveness of political action and related outcome. In order to achieve this goal, however, it is also necessary that the community develops a culture oriented towards the proper role of the PUs in society (e.g. to satisfy citizen’s needs), rather than perceiving such companies as a means to opportunistically obtain favours from politicians through influence peddling”<sup>202</sup> .;
- The introduction of a new managerial systems aimed at improving the quality of the processes and services provided by the company. This implies the need to identify evaluation systems aimed at ensuring the correspondence between the products and services rendered to objective standards of quality (benchmarking).

4. Lastly, regarding the final question which this research aims to answer, ie whether clientelism represent a sustainable mechanism to increase the political consensus of a given political party, in the light of what has been observed, the answer can only be negative. In fact, over the last ten years in Sicily there has been a considerable decrease in the percentage of the citizens who went to vote in regional and municipal elections. As pointed out by Marsh, a higher rate of abstention is equivalent to a strong protest vote against the

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<sup>202</sup> Bianchi C. 2010. “Fostering accountability in public utilities: the ACQUA spa case-study”. In Bianchi C. et al. “Applying System Dynamics to Foster Organizational Change, Accountability and Performance in the Public Sector: A Case-Based Italian Perspective”. System Research and behavioral science, Vol. 27, pag. 395-420



current political system (Marsh, 1998). More specifically, it is possible to distinguish four categories of abstentionism:

- physiological abstentionism, inevitably present in all elections, which has increased in recent decades in the light of the progressive aging of the population;
- technical abstentionism, dictated by changes in voting procedures and to the resistances to adaptation on the part of voters, especially older ones;
- apathetic abstentionism, connected to the crisis of ideologies and mass organizations;
- abstentionism of protest.

Focusing our attention on this last form of abstentionism, it consists of a conscious action that is charged with political connotations and is intended to convey a clear message to the political system. Therefore, the protest reflect, on the one hand, the fall of meaning and effectiveness of the electoral vote and, on the other hand, the disaffection regarding the programs of political parties, considered inadequate and far from the real demands coming from civil society. More specifically as Pacifici claims, this form of abstentionism absolve therefore a function of punishing the actions of the government, that disappointed voters punish by not voting (Pacifici, 1979). In conclusion, in this study it was decided to interpret the data on the increase of the abstentionism rate in the sense of a way through which Sicilians voters have decided to punish politicians for their inability to respond adequately to the needs of the territory.

To conclude, these criticalities predominately arise from a well-established cultural setting that consider public organizations as old bureaucratic machines in which the respect of procedures is more significant than the

efficient and effective provision of public services of high quality levels. According to this perspective, the most important performance parameter ends up becoming ensuring the satisfaction of the particularistic interests of politicians rather than ensure the fulfillment of the general interest of the whole community. Hence, by shifting such cultural approach, the implementation of dynamic performance management within the processes of governance of public organizations may represent a valuable element capable of mitigating the harmful effects that clientelism produces on the community wealth.

## CHAPTER FIVE

### CONCLUSIVE REMARKS

#### **5.1. Conclusions, limitations and future perspectives of research**

This last chapter is directed to fulfill diverse purposes. Firstly, it is intended to summarize the research questions that guided the drafting of this work and to synthesize the major evidences that has emerged from the analysis of the specific case of Amia S.p.A.. Secondly, the limitations of this research are highlighted on the basis of the perceived shortcomings and weaknesses. Thirdly, the contributions offered through this research are presented together with the future perspectives that prospects. More specifically, this thesis attempted to evaluate the impact that clientelistic political interferences has produced on the performance of Amia causing its failure. As has been pointed out, clientelism represents an unsustainable political strategy given that is able to increase political consensus only in the short term. In fact, in the long term, once the distortive consequences produced by clientelism (over-employment, lack of services quality, public value dispersion, inefficiencies, high tax rates etc.) are perceived by the whole community, the level of citizen satisfaction begins to suffer a decline, thus determining a drop of political consensus. Considering the dynamic complexity of the system under analysis, this research has been elaborated by combining the dynamic performance management approach together with the System Dynamics methodology. More specifically, through the application of SD has been possible to build a qualitative model capable of showing all the key variables that compose the reference system and the way in which they interact with each other on the basis of linear and non-linear relations, thus creating the trends investigated. Furthermore, thanks to the DPM approach it was possible to understand

which of these variables represent a strategic resource, an end result and which, instead, a performance driver. Therefore, thanks to the conceptual map elaborated it was possible to clearly identify the levers of intervention on which Amia managers would have to operate in order to recover the financial equilibrium of the company and lead it back to a path of sustainable growth. Therefore, thanks to the approach suggested managers are enabled to understand more clearly the dynamics that govern the system under analysis and to identify and influence those performance drivers that can generate a positive impact on desired outcomes, in the perspective of managing the company according to a perspective sustainability. On the light of the model relationships, recommended policies have been discussed in order to mitigate the negative effects of clientelistic political interferences according to a community satisfaction-oriented perspective. Much of the quantitative data required for this research, such as those related to waste streams or the financial situation of Amia S.p.A., were documented and available. On the other hand, data on citizen satisfaction and on the quality of services were far more difficult to source and the data itself were flimsy and difficult to trace. Consequently, most of the intangible variables were hard to identify and quantify in order to assess their actual influence to the company structure. Under such conditions, experienced senior managers as well as authoritative representatives of the municipal government has been interviewed in order to understand and to have confirmations about the real dynamics of the system. Moreover data from analogous conditions were estimated. What has been said testifies that much further work would be required before one can be confident about the values and relationships assumed in the model. In addition, everyone may also have diverse views on the nature of the causality as well as the direction of causality. Therefore, the dynamics described by the model are

the result of evaluations and assumptions that have found confirmation in both data collected and in the interviews conducted, but that does not claim to provide a univocal and all-encompassing explanation of the phenomena investigated. However, despite all these limitations, the model developed, although it has been specifically calibrated to the peculiar situation of Amia S.p.A., can be considered representative of the situation of several other municipal companies operating in Sicily. For this reason can serve as a starting point for analyzing the condition of other public that besides having different objectives, parameter values, resource levels and exogenous factors, experiencing the same criticalities. In fact, the innovative aspect of this research is the application of the Dynamic Performance Management approach together with the System Dynamics methodology to evaluate the impact that clientelistic political pressures can produce on the performance of a given public utility. As highlighted above, through this approach it was possible to highlight the distorting mechanism that this phenomenon has produced on the system of governance of Amia, compromising the ability of the company to deliver the service to which it was responsible in a sustainable manner. More specifically, the suggested approach has allowed, on one hand, to highlight clearly the main causal circuits responsible for the negative performance of the company and, on the other hand, to identify the performance drivers on which managers can leverage in order to mitigate the negative effects caused by clientelism and to undertake a learning oriented process aimed at recovering the financial equilibrium of the company. To conclude, an interesting perspective of development of this study would be that of realizing a comparative analysis between the Amia case study with that of other public utility companies operating in the same sector but in different socio-economic contexts. In fact, through this comparison would be easier

to provide a greater understanding on all those factors on which it is necessary to focus in order to generate public value. Moreover, a comparative analysis would also allow the opportunity to focus also on the additional and diverse consequences that clientelistic political interferences may produce in the system of governance and on the performance of a local public utility. In addition, another interesting perspective of investigation would be that of evaluating the potential effects deriving from a public private partnership (PPP) applied to the Palermo's MWMS. Nowadays, several researches have demonstrated that public private partnerships can represent an efficient instrument to promote the implementation of a sustainable solid waste management system at the municipal level (Nyachhyon, 2006; Rathi, 2005). Moreover, this mechanism "can also be a means to promote sustainable development in areas not directly linked to companies' core business but that address their social and environmental responsibility goals by contributing, as good citizens, to local communities" (Global Compact, 2005). More specifically, for public sector entities, "alliances of this nature can facilitate access to a larger resource pool to undertake actions related to integrated solid waste management (ISWM), such as current waste generation and management diagnostics, citizen participation, awareness-raising campaigns, infrastructure and equipment, and institutional development". For all these reasons will be interesting developing this research by analyzing the contribution that a PPP can produce in order to limit the possible political interference in the management of the company and to improve the level of efficiency of the service provided to the citizens.

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