

# Malta's Higher Education Dimension: Analysing the Extent of Complexity in Change

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**Abstract:** Change is a constant challenge in the higher education sector. Higher education institutions (HEIs) are expected to respond adequately to developing circumstances. This paper focuses on the extent of complexity in change, a factor that at times is overlooked. It brings into light the reality that managerial changes, that were affected to respond to the changing context, could eventually result as an inhibitor towards achieving the desired performance. The first section of this paper outlines the determining changes shaping the Maltese higher education context through a comparative global perspective. Section 2 assesses how contextual changes are influencing the governing and managerial dynamics of higher education. This section also introduces the notion of Key Performance Indicators (KPIs). Section 3 discusses the extent of complexity stemming from institutional structures and through the State-institutional relationship. Section 4 reviews the extent of complexity in a continuum of structures and managerial processes by considering programmes of study, staff, stakeholder involvement, collaborative arrangements, and funding.

**Keywords:** Higher education; change; complexity; governance; managerialism; performance.

## Research Methodology

The research methods employed in this paper are mainly two: the first method involves the analysis of documents and data published in international and local academic journals. Statistics published by the National Commission for Further and Higher Education (NCFHE) and the National Statistics Office (NSO) were the main source of local statistics. The second research method involves national and institutional data that was specifically requested for this study and that has never been published before. The University of Malta (UM) and the Malta College of Arts, Science, and Technology (MCAST) were asked to provide data to substantiate the arguments that are presented regarding the Maltese higher education context. In all instances headcount data is used.

This mixed methodology approach was selected in order to capture the complexity of the subject and to provide a comprehensive outlook to the subject matter. Furthermore, unpublished data that is either provided by institutions strengthens the credibility of the information presented and of the analysis provided throughout this paper. The exact figures that pertain to staff, programmes, and funding provide the possibility for a thorough analysis, especially with regard to the comparative review between the UM and MCAST. The previously unpublished data also provided the possibility for an analysis of data over a period of time in order to understand better the developing context in Malta's higher education. Trend analysis puts also a spotlight on possible future developments.

### **Introduction: Contextual Change and its Influence on Higher Education Governance and Management**

Organization change is as old as the organizations themselves (Burke 2011: 29). Organizations have to rejuvenate themselves if they are to respond effectively to the external environment that is putting so much emphasis on performing organizations. HEIs have changed in two main ways: first by embracing a more scientific, evidence-based approach in order to guide their actions. This essentially meant that HEIs started to embrace a performance-oriented approach by setting targets and gathering data. This paper examines this stance by presenting examples of how has the context contributed towards performance management.

The second major change necessitated that HEIs are being faced with an ever-increasing diversity of external forces. In this continuous changing environment, HEIs are responsible to design courses and embark on research initiatives that reflect the exigencies of the labour market and the dynamics of the modern economy.

The two major causes for change – massification and globalization – have put HEIs on a national economic, political, and social platform. Massification means that, as Austin and Jones (2016) assert, universities educate professionals in a long list of academic fields; from engineering to health science, medicine and surgery to education, commerce to sciences and information technology to new academic disciplines such as digital media. The challenge of massification resulted in a large segment of the population moving up the ladder of social mobility. The direct result has been that the demand for higher education has increased significantly in the last few decades.

Massification within a context of globalization, continuous change, and fierce competition necessitated that one of the main objectives of the EU is to have 40% of all young people achieving higher education or equivalent standards since 35% of all jobs require such a level by 2020 (European Commission 2018). Consistent with this trend, one of the major priorities for the Maltese islands was to attract 85% of students leaving school into post-secondary education by 2015 (from 59% in 2009) and attract 35% of school-leavers into higher education by 2020 (from 23% in 2009) (NCHE 2009: 36).

The Higher Education Strategy for Malta published in 2014 focused not only on the general objective of massification but, as happened in the foreign context, on specific measures such as increasing the participation of unrepresented groups in

higher education. The report cited countries such as Finland, Ireland, Switzerland, and the Netherlands who are getting increasingly closer to achieve an inclusive system. The projection for Malta's higher education population is that the extent of these unrepresented groups will diminish and with it brings a further increase in the students' population (NCHFE & MEDE 2014). This will inevitably put a lot more pressure on the infrastructure of Malta's HEIs, an aspect which was stressed in a number of reports and papers, such as those published by von Brockdorff (2010) and Camilleri (2010).

The second and other main cause of dramatic change in HEIs is globalization. This reality was brought about and largely shaped by the integrated world economy into a boundary-less territory and the deployment of effective IT systems which made it much easier for students to apply at other foreign universities, move from one university to another and increasingly undertake on-line courses which can be followed by the students at their own pace. For HEIs, such a globalization process has entailed inter-institutional partnerships in numerous different forms such as exchange programmes and the setting up of branch campuses overseas (OECD 2009: iv).

This paper analyses the drivers for change and its influence on governing structures, management, and performance. It shows that universities do not operate in a vacuum and have to react to changing student demographics, the change in students' expectations, the indirect and direct competition which exists in today's highly vibrant higher education sector and the ever-increasing problem of limited resources and greater government scrutiny which were highlighted by Scott (2008) when summarizing the changes ahead for all universities.

Governance, management, and performance were outlined in the report entitled 'Governance and Quality Guidelines in Higher Education' published by the OECD (2009: 18). Important overarching changes were proposed and include, first, the diversification of provision, especially from private educational organizations which has increased dramatically over the years, not least in Malta; second, new modes of delivery including online delivery of material to students; third, a more heterogeneous higher education population which is essentially based on the fact that enrolled female students increased substantially over the years; and fourth, the greater focus on research and innovation which shifted the modus operandi of higher education institutions from purely predominantly teaching mode to a more project- and innovation-oriented mode.

Other overarching performance targets were highlighted by Leach (2008) who listed a number of factors as a direct result of a rapidly changing environment and that gave more importance to the governance and managerialism in HEIs. The factors include the view that higher education is to synchronize better with the exigencies of the labour market, the increasing citizens' expectations for accountability, the pressure to increase student retention and graduation rates, the focus on non-traditional students by investing in liberal arts and science programmes and the investment in more in online learning courses.

More specific performance indicators that are intimately related with change and reforms were specified through the Modernisation Agenda document entitled 'Supporting Growth and Jobs: an Agenda for the Modernization of Europe's Higher Education Systems' published by the European Commission in 2011. The document outlined the reforms which are crucial for a successful future of higher education, such as increasing the number of higher education graduates at all levels, strengthening the quality and relevance of human capital development in today's economy, effective

governance and funding mechanisms, strengthening the knowledge triangle between education, research, and business and internationalization of higher education (European Commission 2011: 6).

Change and external pressures also presented a challenge of finding alternative ways of funding the operational and capital budgets, the expectations of citizens for a higher value in the delivery of higher education programmes, the creed for providing a better service to the students, and the reality of relying less on public funding. The report '2020 Vision or Optical Illusion?' written by former University Rector Juanito Camilleri, back in 2010, stressed the problem of funding and agreed with von Brockdorff (2010) that the university needs to find flexible and innovative ways of financing its activities in order to cope with the pace of change and the challenge of massification. Camilleri (2010) proposed the exploration of a market-driven approach and new lines of funding in order for the university to be able to invest more in research; in campuses spread in Gozo, Valletta, and Cottonera; in collaborative programmes; and in its IT systems, including the Student Information Management System (SIMS) which helped tremendously to capture all administrative services into an online portal.

Literature reviewed so far focused on providing answers to the changing and highly competitive environment by exploring different avenues of funding. Governance and effective management comes into play as another important factor for a higher education institution to respond to students' expectations and to achieve its objectives (Austin & Jones 2016) by looking into its managerial and governing engine and assess its operation.

### **The Effect of a Changing Scenario on Governance, Management, and Performance**

Globalization has led to the massification of HEIs and delineated the changing parameters of higher education. However, the question that is of interest to this paper is: how did the changing higher education scenario influence the management and governance of Malta's public higher education? The aim of this section of this paper is to begin dissecting the link between change, management, governance, and the idea of setting performance indicators.

Changes were so profound (Guri-Rosenblit 2007) that, in the second half of the twentieth century, terms such as 'higher education' and 'higher education systems' were being coined. More recent literature shows that HEIs are not immune to the changing global scenario especially following the international financial crisis in 2008. Scott (2015) describes the changing scenario as prompting the strengthening of institutional autonomy, managerialism, the elaboration of management structures, and the focus on a cost-sharing approach by charging higher student fees.

Tougher competition from the private sector and from the international arena, compounded with a broader clientele, has led to dramatic changes in the way HEIs are governed and managed. A number of governing and managerial outcomes can be observed as a direct or indirect consequence of the contextual changes. New structures were established, existing structures were re-designed, new managerial processes were instituted, and stronger quality assurance mechanisms were introduced. HEIs also embarked on outreach programmes whilst engaging more in collaborative arrangements. This meant that public HEIs built an extensive number of relationships with civil society, the research community, and the private business sector. The panorama of governing and managerial changes led HEIs to an increase in the number of academic and administrative staff.

The link between change and managerialism is not only found in academic literature. International reports confirm such a pattern. All reports published by UNESCO, the European University Association (EUA), and by HEIs themselves point out governing and managerial issues, in addition to providing a contextual analysis. In 2015 a Trends seventh edition survey, published by EUA, was conducted in which 451 HEIs participated from 46 countries. It can be considered as a massive survey since it represents a global total of 10 million students and a quarter of students who are enrolled in HEIs forming part of the European Higher Education Area (Sursock 2015). Malta participated in this study through the UM. The Trends survey focused on teaching and learning aspects that are outside the scope of the thesis. However, the report demonstrated that teaching and learning are intimately influenced by management, governance, structures, and decision-making powers. Therefore, governance and management are infiltrating all aspects of institutional operations; it is no longer possible to hold the idea that teaching, learning, and research are a separate domain from governance and management.

Setting the context and studying governance and management in isolation would yield a limited and a half-baked approach, as if these two dimensions operate in a vacuum. On the contrary, effective governance and management must lead to results. Although scholarly literature confirms that effective governance and management undeniably influence the performance of HEIs in a continuum of aspects, international rankings base their rankings methodology on various aspects of higher education but not directly on governance and managerial issues. International rankings are used by HEIs to build and maintain their reputation among students, researchers, and crucial stakeholders that seek factual information concerning scholarships, funding, accreditation, and employee recruitment. Shanghai Academic Ranking of World Universities and Times Higher Education University Rankings are two of the most influential and widely observed university rankings. Shanghai rankings focus on the quality of education (10%), quality of faculty (40%), research output (40%), and per capita performance (10%) (Academic Ranking of World Universities 2015). The Times Higher Education Rankings estimate a weighting of 30% for teaching, 30% for research, 32.5% for citations, 2.5% for industry income, and 5% for international outlook (Times Higher Education, World Rankings 2016).

The University of Malta takes part in the U-Multirank, a ranking methodology that was introduced in 2014 and is fundamentally different from the remaining ranking institutions. U-Multirank is based on a multi-dimensional, user-driven, and stakeholder-ranking approach rather than producing what they call 'an oversimplified global ranking league table' that could be misleading to those students or stakeholders that seek information. In simple terms, users have to opportunity to compare universities, subject areas, and specific institutional standings such as research (U-Multirank 2017).

Whatever the methodology used in international rankings, a specific tool to analyse various aspects of governance and management is absent. This does not mean that facets of governance of management are excluded or that there is no interplay of these two dimensions with the results of international rankings. What is lacking is the focus on structures, transparency, accountability, leadership, management processes, participation of students, staff, and stakeholder involvement that lead to better results in the selected indicators.

Key performance indicators (KPIs) are instruments that were developed in the New Public Management era, intended to assess organizational activities from a procedural and performance-based perspective. KPIs were originally introduced in the private

sector as a tool to assist firms to manage their resources better, to achieve the intended outcomes, and to ensure that an organization is consistent with its own strategy gained significance (Mackie 2008). As from the 1980s, KPIs spread to the public sector in the Scandinavian countries and in the United Kingdom and became a standard tool in almost all EU countries as from 2002 to 2015 (Bezzina, Borg, & Cassar 2017).

In the higher education literature there is limited focus on the inter-relationship between governance, management, and performance indicators. These three facets are most often studied in isolation and not as a comprehensive framework that involves a strong relationship and that could lead to improved results, if each is given due importance. In most instances literature confuses governance with management and fails to differentiate the two different but strongly bonded concepts. In other cases where there is a study of the relationship between governance and management, there is lack of focus on their ultimate influence on performance.

In Malta, KPIs is a relatively new concept that has been in operation in the public service as from 2015. A comprehensive KPIs framework is still in the embryonic stage. In the higher education sector, the same situation is present since the use of KPIs is either totally absent or is in its infancy and sporadic. The idea of creating a culture of excellence and injecting a KPIs approach was fuelled by the signing of the new collective agreement for the public service employees in 2017. The prime minister highlighted the issue in a political forum, at the annual general meeting of the Labour Party that was held in April 2017, by stating that the increase in salaries and the improvement in the working conditions of the public service employees are tied with the introduction of KPIs and achieving the set targets. It remains to be seen whether the implementation of KPIs in the Maltese public service will eventually spread to other public institutions, including HEIs.

The following sub-sections analyse the influence of contextual changes on Malta's higher education governance and management and attempts to examine what would be the ultimate influence on KPIs, if set of performance indicators were to be introduced in Malta.

### **Making Sense of a Wide-Spectrum Student Clientele: Assessing Change Vis-À-Vis Structural Complexities and Performance Indicators**

If HEIs are to successfully introduce and implement a performance-oriented culture, they are to encounter the difficulties stemming from the complexities of their own structures and the intricacy of their relationship with the State. The advent of massification resulted in two major structural challenges: the expansion of the HEIs portfolios and the changing nature of the State-institutional relationship.

Organisational and governing structures had to fit within the changing circumstances of a globalized competitive world and an extensive student clientele. Institutional structures became bigger and, as Sursock (2015) emphasized, they turned into laborious organizational charts. HEIs became much more complex to manage and to monitor in an effective manner given the number of units or departments in operation.

The argument that HEIs are not anymore simple organizations owing to contextual changes was also postulated by Stromquist (2012). The direct effect of multiple structures led to the creation of multiple offices in several administrative areas such as admissions, international office, quality assurance, strategy, and corporate offices.

The UM is a case in point since it consists of more than 220 units or departments. HEIs:

... may require reviewing the number and size of units (faculties, departments, institutes) to ensure, for example, that they facilitate interdisciplinarity, as well as the balance between centralised management and more devolved responsibilities in order to ensure shared institutional quality frameworks and standards while enabling diversity and innovation across the institution (Sursock 2015: 15).

If HEIs do not have a co-ordinated framework of structures that could retain their diversity of actions (Austin & Jones 2016: 1) and a parallel sense of a collective achievement, their ability to become a performance-oriented institution will be seriously limited. Structure is only one variable of the entire complex equation since other issues, such as in the increase in staff and collaborative arrangements, add to the challenge of having effective and efficient decision-making processes (Kezar & Eckel 2004) that are performance-oriented.

In Malta, the reliance on a limited number of public HEIs, as opposed to the international experience that saw the rise of a number of heterogeneous HEIs to cater for the massive increase in the demand and to absorb a large number of students (Guri-Rosenblit 2007), puts more pressure on expanding and creating more structures within the public institutions. Having a large number of structures within an institution could prove challenging in terms of coordination and collective effort.

From a national perspective, HEI governing models around the globe responded to the complex contextual reality by shifting from a 'State control model', that is intended to control HEIs, to a 'State supervisory model' where the State's function is to monitor and supervise HEIs rather than having a direct and controlling involvement. In the 1980s (Zgaga 2012) radical changes in the State-institutional relationship meant that the State's role was not any more focused on 'direct institutional governance' but is rather that of a 'facilitator' by setting general objectives and strategic direction, most often through the a regulatory umbrella. The facilitating role led to what Kenis (2016) described as collaborative governance.

Nevertheless, the role of the State and the relationship between the central State authorities and HEIs are of crucial importance in successfully administering KPIs. This has been confirmed through a survey conducted by Bezzina, Borg, and Cassar (2017) with all EUPAN public administrations, where a total of 27 countries responded and highlighted the importance of a functioning State-institutional relationship when it comes to manage KPIs within a complex and large public administrative framework.

Malta's State's governing model lies between a 'direct institutional governance' or 'State control' model and a 'supervisory' or a 'facilitator' model. On one hand, there is direct control and strong leverage from the government from a resources and policy point of view when considering that a large percentage of the HEIs' budget is derived from the central government and when taking into account that the national higher education policy is the sole responsibility of the central government. On the other hand, the national governing framework has been shifting towards arms-length regulation since the introduction of the National Commission for Further and Higher Education (NCHFHE). The commission, officially launched on 14 September 2012, is governed by the revised Education Act which came into force on 1 August 2012. The previous MQC has been integrated into the National Commission for Further and Higher Education (NCFHE) and is now referred to as the Malta Qualifications Recognition Information Centre (MQRIC) (<http://www.eurashe.eu/about/partners/ncfhe/>).

The question worth investigating is: Are today's HEIs really more autonomous and free to govern and manage? If HEIs are not really autonomous, their ability to achieve the intended performance indicators will be seriously limited. In theory, the shift from 'government' to 'governance' was supposed to bring about greater institutional autonomy and stronger decentralization. Autonomy has to be analysed within the contextual circumstances of the country in question. To cite some examples, in Denmark more autonomy meant less State power, in US more freedom of speech, in the UK more freedom in staff appointments and student selection and more flexibility in the teaching and research agenda (Wright and Williams Orberg 2009).

In reality, the context of globalization and massification led nation states to exercise tighter control on HEIs in order to achieve the national economic objectives. HEIs are today seen as a means towards an end to achieve the national economic targets of the state. At an international level, rankings (even though these instruments are heavily criticized) are dictating the policy and strategic direction of HEIs (OECD 2009). From a societal perspective, the rising expectations of the citizens meant that the government is more involved in order to ensure that the citizens get value for money spent on public HEIs (Austin & Jones 2016). These reasons show the active involvement of governments in the business of HEIs and signify the tendency towards stronger centralization rather than more decentralization.

The EUA studied the state of university autonomy in 2016 by analysing four dimensions: organizational autonomy, financial autonomy, staffing autonomy, and academic autonomy (Privot and Estermann 2017). As a start, this section analyses briefly the organizational and financial autonomy in Malta.

From a financial perspective, Table 1 shows the substantial reliance of the UM's budget on government funding. In fact, the average proportion of the total university budget derived from the central government is approximately 70%. MCAST's reliance on central government financial injection is higher and is at levels of between 96% and 97% when considering the period 2013 until 2016.

*Table 1. The reliance of the UM and MCAST budget on the government's financial allocation. Author: Colin Borg (2018) - Data extracted from UM Financial Audits and MCAST Annual Reports 2014/15 & 2016/17*

<b>Year</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
<b>Central Government Funds</b>				
UM	53,462,326 (70.9%)	58,027,333 (72.1%)	62,069,493 (73%)	68,889,666 (73.9%)
MCAST	18,199,999 (97.3%)	19,799,989 (96.5%)	21,679,985 (95.9%)	23,299,983 (96.6%)
<b>Total Income</b>				
UM	75,420,352	80,476,240	84,993,287	93,191,865
MCAST	18,705,847	20,510,738	22,609,847	24,117,160



From an organizational point of view, although the rector and the executive head are chosen by the university's council, there is considerable lobbying from the central government and, most importantly, the government has the majority of UM's council seats. Furthermore, policies and legislation are determined by the ministry responsible for education following consultations with HEIs. The crucial point is that the ministry is the initiator and HEIs have a limited influence on the strategic direction of higher education. The National Higher Education strategy of 2014, the revamp of the existing 1988 Education Act, and the draft new University Act of 2017 are cases of initiatives that were or are being handled almost completely by the central government.

The Education Act that will be completely repealed and replaced by a new University Act is an example of a mixed dose of centralization and decentralization. On one hand, from a policy-making perspective, the new act is being completely written by the ministry responsible for education and therefore involves a strong element of centralization. On the other hand, from a structural and implementation point-of-view it delineates more decentralization and hence a shift towards a 'supervisory model' when considering that the planned new Education Act is intended to provide more independence and autonomy to the university. The notion of independence and autonomy is being heavily questioned owing to a continuum of instances that shows central government intrusion in institutional affairs (Zgaga 2012).

Taking into account these real-life examples, it is appropriate to present a diagram that incorporates three different models of State-institutional relationships. In the real world, there is neither an absolute direct interventionist model nor a utopian supervisory model. HEIs do not use a model and discard the other in all circumstances. The relationship between the State and HEIs alters in accordance to the circumstance at hand. Figure 1 portrays three different possible relationships varying from a complete institutional autonomy to a more joint involvement and to a high degree of institutional dependence on the state. In all types of relationships there is always a certain level of autonomy, involvement, and dependence.

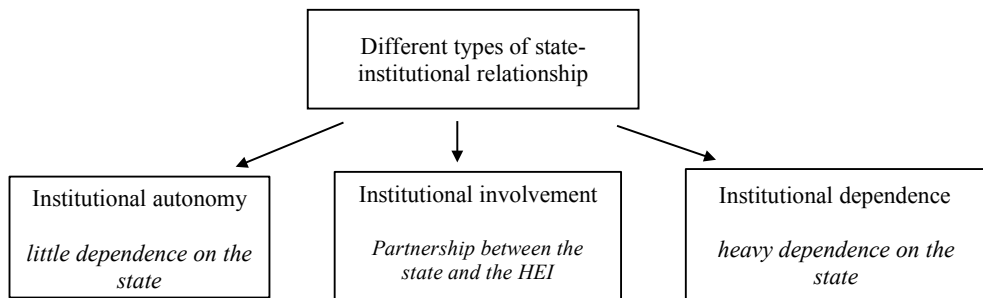


Figure 1. Types of state-institutional relationship in higher education (Colin Borg, 2018)

Malta's State-institutional model reflects these three types of relationships. In instances when HEIs create a new programme there is a high degree of institutional autonomy, although in certain instances the central government is actively involved in influencing institutions to invest in particular academic domains. Investment in the banknote printing facility by Crane and the health sector by Barts were the drivers behind the influence of the central government on MCAST to invest in specialized courses. This example shows that although the general circumstances allow HEIs to design and deliver new courses autonomously, there are economic and societal situations that change the institutional leverage to that of involvement rather than autonomy.

Such a dynamic, elastic, or even volatile relationship can be noticed in other governing and managerial illustrations. The determination of course fees is a case in point. While fees are autonomously determined by the institutions, fees have to be promulgated through a legal notice that requires the minister's approval. This shows that, at the end of this important financial process, the degree of institutional autonomy is reduced dramatically.

In other instances there is a more definite and stable type of State-institutional relationship. The drafting of national strategies reflects a permanent institutional involvement style when considering that the central government is mainly responsible to write the higher education strategy while UM and MCAST are only involved as the two main Maltese HEIs. The financing of Malta's HEIs represent institutional dependency given that 70% of the budget is financed by the government. Institutional dependency is more evident when they require an increase in the annual budgetary allocation. In such cases, HEIs have to present a detailed and comprehensive rationale to ministers in order to be allocated an increase in the financial budget.

Dependence on the government from a resources and a strategic perspective limits the capability of HEIs to achieve the intended performance indicators, especially if these require some form of input from the government.

### **The Influence of Change on Managerial Processes and Performance Management**

The influence of contextual changes and the multiplication or the widening of the existing structures have led to dynamic developments from a managerial point of view. Change in managerial processes can be regarded as having different facets. On one hand, change entailed stronger management in terms of effectiveness, harmonization, simplification, stronger accountability, and adherence to regulations, on the other hand, it added to more managerial complexity in terms of processes, staff, and collaborative arrangements. Contextual change added more value to HEIs considering the wider portfolio of academic programmes on offer and the research initiatives that they have been involved in but this means more complexity when and if Malta decides to introduce a formal set of Higher Education performance indicators at a national and at an institutional level.

### **Complexity through Globalized Higher Education Managerial Processes**

Globalization, through the Bologna Process (Altbach 2016), is an example of the opposite facets of higher education contextual change. It brought about a better governing tool by encouraging student mobility, ensuring more accountability, and adherence to regulations by having uniform programmes of studies. Uniformity compounded with clarity of the course structures meant that courses became more marketable to the intended students' groups irrespective of nationality. Students now have the possibility to view the programmes details well in advance and could seek redress in cases where the course programmes are not consistent with the Bologna requirements. The UM's and MCAST's central administration capitalized on this important academic development since the concept of indicators, although not officially launched, is already being used.

At UM, the teaching academic effort and financial managerial processes such as activity-based costing could be conducted on the strength of the information provided in the programme of study. This meant that the university gradually became more performance-oriented and decisions are taken on the basis of evidence-based

information. These new managerial processes could prove to be the foundation to a future performance mechanism.

Nevertheless, what were the structural and managerial consequences of these steps? New administrative structures and filters were created to facilitate these new processes through the set-up of an administrative unit, the Academic Programmes Quality and Resources Unit (APQRU) and the senate sub-committee, the Programme Validation Committee (PVC). At MCAST two separate directorates were set-up to focus on curriculum and quality assurance. This entailed that programmes are now better planned and more informative but faculties or institutes are experiencing more complexities and more administrative filters as part of the due diligence procedure to publish a programme of study.

The set-up of these new structures and the direction of the university to cater for the exigencies of the labour market and the demands of potential students led to a significant increase in the programmes of study on offer. This development fuelled the complexity of managing an increase of 40% in the programmes between 2002 and 2017. The total number of different programmes of study and routes offered by UM are more than 800. Details of the increase in the number of programmes during this period are provided in Table 3. Although the increase in the delivered programmes could be perceived as a positive performance indicator, it brings about more work and challenges in terms of quality assurance, timetabling, IT technologies, library resources, and, most importantly, administrative and academic staff. The university has to ensure that there are sufficient resources to run the programmes and to check that there is no overlap within an impressive amount of more than 5,000 study-units that are offered each academic year. The administrative structure of the university is to dedicate the necessary vigour in order to update the information concerning the study-units in terms of content, lecturing staff, and methods of assessment in a timely manner before the commencement of the respective academic year.

The set-up of MCAST's University College in 2015 was crucial to cater for a total of 1,600 active full-time students. Statistics show a substantial increase, as was the case with UM, from nil programmes at Level 5 upwards in 2002 to 45 programmes in academic year 2016/17. MCAST figures reflect the full-time programmes only. The change process did not only necessitate an increase full-time programmes but also in MCAST's teaching and learning approach through the introduction of cross-curricular programmes, work-based learning and skilling in business enterprise. Considering the 10% increase in student population in the second year of the university college, new undergraduate degrees were launched in journalism, environmental health, nursing studies, early childhood and education, environmental engineering, and chemical technology (MCAST 2018).

Table 3. The increase in the UM and MCAST programmes on offer at Level 5 upwards. Author: Colin Borg (2018) – Data provided by the University of Malta, SIMS Office and MCAST's Students Admission and Records Office

Number of Programmes	Academic Year 2002/3	Academic Year 2007/8	Academic Year 2012/13	Academic Year 2016/17
UM – full-time and part-time	100	112	157	210
MCAST – full-time only	nil	20	52	45

### Complexity through Staff

Data collected from UM for the period 2002 until 2017, as revealed in Table 4, shows the increase in the number of staff in all categories: resident full-time academics, visiting council-appointed part-time lecturers, and casual *ad hoc* staff appointed on an hourly basis. Data in the below-mentioned table also shows a significant increase in the managerial, administrative, and technical staff.

Table 4. The Increase in the UM's Staff. Author: Colin Borg (2017) – Data provided by the University of Malta, Office for Human Resources Management & Development

Staff Category/Year	2002	2007	2012	2017
<b>Resident Academics</b>	194	381	830	955
<b>Visiting Lecturers</b>	58	94	656	794
<b>Casual Lecturers</b>	No Data	No Data	1205	1213
<b>Admin &amp; Technical Staff</b>	No Data	No Data	702	957

The number of MCAST staff is also significant when considering that in 2018 the College employs 739 staff, which number includes the administrative and academic cohorts. This global number comprises the staff of the three main colleges: the foundation, technical, and the University College. When comparing with the year 2017, the percentage increase in the number of staff has been of 5%. The number of staff at the University College is much more limited in number, just 17, since it is still in its inception and all staff are until now employed on a full-time basis. This number is expected to be on the increase in the near future given that MCAST's vision is to increase substantially the number of courses at a higher education level.

The increase in the number of UM staff is complemented by the number of structures that exist within the UM. The UM consists of 14 faculties, 18 institutes, 11 centres, 2 schools, and an academy. This entails a complexity of 46 different main student

centres within its governing structure and a total of 198 departments, divisions, or units across it.

The multiplication of structures led to what Stromquist (2012) called the expansion of administrative positions. The creation of new structures and the strengthening of existing structures involve the employment of new staff or the redeployment of existing staff. The more staff is employed, the greater the challenge to work collectively, to have the necessary co-ordination, and therefore to achieve fundamental institution-wide indicators, such as increase in student numbers. There are other process-oriented indicators that could prove to be more challenging when there are a lot of structures, staff, and students involved. Speed of decision-making and participation in decision-making are two examples of process-oriented that could prove problematic with a lot of structures and staff employed within a HEI.

Complexity is not only linked to the increase in structures, staff, and students in terms of global numbers. Central-local relations within the institutions are another important critical factor to achieve the intended performance targets. Research conducted among American universities, such as the one done by Greene in 2010, revealed that complexity led to more centralization given that specialized jobs require specific knowledge and skills in order to achieve the performance indicators. This led to more concentration of power at the centre and more focus on increasing the number of employees at the central administration rather than in faculties or institutes. The undesirable result would be that the institutions could become less geared towards achieving the intended targets if the faculties do not have the necessary staff to carry out the work required from their end. The survey carried out by Rhoades during the 1977-89 period found that administrative staff at the centre increased by almost twice that of the faculty (Stromquist 2012).

In an exercise conducted with the data provided by the UM, it was discovered that 345 out of 702 administrative staff in 2012 and 535 out of 957 administrative staff in 2017 were employed within a central administrative support unit that include estates and works, library, finance, procurement, registrar's office, human resources office, international office, IT services, research support services, and other administrative services. These figures show an increase from 49% to 56%, in the span of 5 years of staff that are employed within a central administrative structure and confirms the view that today's specialized jobs are increasing the tendency of HEIs to employ staff at the core of HEIs, leaving faculties with fewer resources. Although central units assist faculties in their day-to-day activities, the risk of rendering faculties with serious deficiencies is real. Faculties are indeed a very important factor to achieve institutional performance indicators, given that most activities require the work and input of faculties. If, for example, one of the targets is to increase student number, the faculties' contribution in terms of marketing and outreach is essential.

### **Complexity through Stakeholder Involvement at International and Local Level**

Complexity is not only an institutional inward perspective. Complexity is multiplied by the contextual developments from a stakeholder point-of-view. As from the turn of the new millennium, HEIs became more involved in the economic, social, and environmental affairs of the State and succeeded to build stronger ties with the social and economic sectors of modern States. Furthermore, more focus on research and innovation was crucial towards strengthening the industry links, an aspect which has become increasingly important for the Maltese economy, especially following Malta's accession to the European Union.

This outward stakeholder perspective can be corroborated to the managerial complexity by considering the required intra-collaboration of the newly set-up institutional structures to cope with the increasing number of collaborative agreements and the rising as well as cumulative amounts of funding. From a governing and a managerial perspective, the absorption of external funds and the collaborative arrangements with local and international authorities at UM and MCAST resulted in the creation of three main central new structures and in the employment of new staff. An elaborate administrative mechanism and a strong co-ordination is required to achieve a particular indicator, such as the number of national and EU-funded projects of a HEI. Complexity is not only measured in terms of new structures and staff but also vis-à-vis the intra-collaboration that is required among different central units and between central units and faculties. This kind of intra-collaboration is essential to manage the significant amount of administrative work that is involved to adhere to the EU regulations that are specific to the funded project and in order to absorb funding at a maximum rate.

The UM is a particular example of how EU accession has opened the door for enormous funding opportunities that were so significant that three new main offices were established: a Project Support Office and Knowledge Transfer Office were introduced in 2008 and a Research Support Services set up in 2016. Projects were originally managed by the UM's finance office but the enormous increase in the amount of such projects meant that that three new offices dedicated specifically to manage collaborative projects had to be created. As shown in Table 5, the number of UM's collaborative arrangements from 2011 until 2017 increased to 1105.

*Table 5. Number of collaborative involvements. Author: Colin Borg (2018) - Data provided by the University of Malta, Legal Office, and by MCAST, Partnerships Office*

<b>Year</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
University of Malta	93	138	158	198	262	256
MCAST	n/a	n/a	n/a	19	37	58

The tripartite model to deal with external initiatives can also be observed with MCAST which has also set up an EU Projects Office, a Capital Projects Department, and a Partnerships Office. The EU Projects Office was instrumental to secure the much-needed funding for the MCAST campus which is changing the entire infrastructural face of the college. A close collaboration of the Capital Projects Department was essential for the construction of main MCAST buildings: the Institute of Engineering and Transport building, the MCAST Resource Centre, and the Institute of Information and Communication Technology. This is a classical case of intra-collaboration of units to achieve a common target.

In terms of collaborative arrangements, MCAST registered a smaller number of collaborative agreements in the period under review, a total of 114. However, there is a strong increase annually. In fact, the number of collaborative arrangement tripled in just three years, from 2014 to 2016. The Partnerships Office was instrumental in establishing various MoUs with educational and industry partners and has become a UNESCO-UNEVOC Centre for TVET in Malta.

As can be noticed in Table 6, the UM absorbed a total of 52.6 million euro in EU research funds that constitute two-thirds of the present university's annual budget. Funding has increased by more than two times from 2004 (2.9 million euro) to 2016 (6.6 million euro). MCAST absorbed a total of 62.5 million in EU funding that includes the structural funds and constitutes three times of total college budget. In just one year, 2013, the level of EU-funded projects was at the same level as that of the annual college budget.

*Table 6. UM and MCAST funding. Author: Colin Borg (2018) - Data provided by the University of Malta, Project Support Office, and MCAST, EU Project Office*

<b>Year Awarded</b>	<b>MCAST EU-Funded Projects (EUR)</b>	<b>UM EU Structural Funds</b>	<b>UM EU/International Research Grants (EUR)</b>	<b>UM Local Research Grants (EUR)</b>	<b>UM Total External Funds</b>
2004	-	-	2,986,366	-	2,986,366
2005	-	-	2,103,876	416,492	2,520,368
2006	-	-	3,233,683	87,724	3,321,407
2007	2,457,132	-	1,105,812	249,471	1,355,282
2008	2,084,273	-	2,345,670	541,151	2,886,822
2009	1,570,318	-	2,194,819	165,228	2,360,047
2010	4,872,113	934,573	2,453,508	146,068	2,599,576
2011	5,191,593	8,765,445	5,439,061	809,098	6,248,158
2012	5,219,660	5,680,120	5,454,175	917,946	6,372,121
2013	15,867,354	7,950,960	5,080,716	943,663	6,024,379
2014	11,224,825	14,996,328	3,895,422	161,500	4,056,922
2015	13,990,294	8,141,585	4,157,686	1,113,019	5,270,705
2016	66,693	3,920,528	6,061,531	543,638	6,605,169
<b>Total Funds</b>	<b>62,544,259</b>	<b>36,889,539</b>	<b>46,512,323</b>	<b>6,094,999</b>	<b>52,607,322</b>

Laborious collaborative agreements are also in place in order to successfully achieve what are deemed as fundamental institutional performance targets such as an increase in the international students. The UM's NOHA (Network on Humanitarian Action) joint master's degree programme in International Humanitarian Action is a case in point. It involves a consortium agreement for the delivery of a joint intensive programme by eight different European universities: Marseille University, University College Dublin, Ruhr-Universität Bochum, Universidad de Deusto, Uppsala University, Rijksuniversiteit Groningen, Uniwersytet Warszawski, and the UM. The joint master's programme, which is spread over 4 semesters, intends to attract European, Canadian, Latin American, Indonesian, African, and Middle Eastern students. The crucial point is that, in order to attract a maximum of 25 international students, the universities had to create such a complex collaborative mechanism involving the contribution of so many different offices (Office of the Registrar, International Office, Scheduling Office, and Project Support Office) from each respective university.

## Concluding Remarks: The Complexity of the Context

Two underlying aspects came out from the analysis conducted in this paper. First, contextual changes are multiplying the structures and increasing the staff within HEIs. This scenario is directly influencing the wide array of performance process indicators that could be potentially determined within institutions. If new structures are created to take care of academic programmes and funded projects, new performance indicators will be designed to assess the performance of these new units. The second underlying aspect is that the more complex the context, the more laborious are the structures and as a result it becomes more challenging to achieve the institutional and national performance targets.

Therefore, the drive towards managerialism brought about changing governing structures and decision-making processes. This managerial evolutionary change channelled HEIs in experiencing a paradox stemming from the development and multiplication of governing structures. The paradox involves the achievement of better performance on one hand and the creation of complex institutional designs and processes on the other hand. The challenges include the difficulty of achieving a widespread power distribution especially by allowing more students' and staff participation in decision-making, the risk of having slow decision-making as well as ambiguous objectives, vague values and principles in complex and chaotic conditions, ambiguity, weak communication, collaboration and coordination, competing entities, overlap, multiplication of effort, overregulation, unnecessary administration, diseconomies of scale, less academic freedom, and less sensitivity to the peripheral units. A separate paper is required to study this phenomenon.

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