THE SCIENTIFIC WORK DOMAIN IN THE US UNIVERSITY MANAGEMENT STRUCTURE

Abstract. The study aimed to identify what place scientific activity occupies in the management structure of US universities. This study used the exploratory research methodology approach with some features of a narrative review which was used to collect qualitative data. The study found that scientific work plays an important role in the US university management structure. In many universities, scientific work is at the core of the institution’s mission, with research and scholarship being key components of the university’s academic programme. The study found several management structures that are common in the universities of the OECD countries such as the shared/stakeholder-involved governance/management structure, the state-supervised structure of university management, the collegial governance/management structure, the managerial (corporate) governance structure, and the trustee board governance/management structure. The typical university management structure, USA universities included, was found to be a four-layer hierarchical team-based management structure with some matrix structure features. The domain of scientific work is seen as an institution-level activity which is supervised by the Governance Board and the relevant management team. As the research work reshapes the mission of the US universities, the curriculum and management structure via the diversification of research goals, the university management structure is transforming from a hierarchical type of research and education organisation into a matrix one. This type of structure within the structure of the university consists of a professional research manager-led autonomous quasi-firm because research is becoming interdisciplinary which involves several internal, external, or cross-institutional research units to address the heterogeneous university short-term and long-term goals and missions. The universities are comprising corporate models of management and are adopting more complicated organisational structures, including innovation and technology transfer units with research-purpose managerial positions. These positions are supposed to promote university research to address societal purposes and create “profitable products” so that universities could make money. The attempt to promote research as an income source for the universities increased the proportion and the role of the scientific work domain in the management structure of the US university and, at the same time, allocated it into a separate (more or less autonomous) unit of the structure.

Keywords: higher education; US university; university management structure; scientific work domain; university governance.
Problem statement. The structure of management of the typical US university – either privately owned or public – is a complex hierarchy that involves instructors and administrators who form the backbone of it and perform specified functions to deliver the university’s mission and vision and to address the expectations of the stakeholders. The key task of those employees is to deliver the quality education which is envisioned by the government, employers, and society. Efficient governance and management are seen as the major force in ensuring the quality of educational services. Additionally, they are considered the channels of knowledge transfer from university to the wider society and problem-solving organisations that establish and rely on institutionalised relationships between university and industry. The universities have been considered inflexible structures in terms of management. However, universities have demonstrated to be adaptive to changes in the labour market and society’s expectations. Universities are gradually becoming truly autonomous and self-reliant organisations. Scientific work gradually occupies a greater and greater part of the overall university management structure becoming a priority activity to invest in and promote. However, the study found that the role of scientific work and its place in the management structure of the universities in the USA was revealed limitedly, which created a gap for this research.

Analysis of relevant research. The examination of relevant literature found various university management structures in the member countries of the OECD (the Organisation for Economic Co-operation and Development). These structures are claimed to embed best practices of university governance and allow universities to deliver high-quality educational services (Rowlands, 2017; Trakman, 2008). These management structures are as follows: shared/stakeholder-involved governance/management structure (Bennetot Pruvot & Estermann, 2018; Rowlands, 2017; Shattock, 2002); the state-controlled management structure (Davidovitch & Iram, 2015; Maassen & van Vught, 1994); state-supervised structure of university management (Bundy, 2006); collegial governance/management structure (Emon & Schieder, 2022; Lakehead University Faculty Association, 2020); managerial (corporate) governance structure (Deem, Hillyard & Reed 2007; Bleiklie & Kogan, 2007; Mingle, 2000), and the trustee board governance/management structure (Freedman, 2002). The shared/stakeholder-involved governance/management structure is considered ideal because it resembles the democratic political system which relies on a bottom-up approach to decision-making (Rhoades, 2018; Rosowsky, 2022). This kind of system is supposed to be people-focused, community-good-focused, and mission-driven. It is expected to balance social good and financial priorities while being committed to becoming more comprehensive, unbiased, and fair. The state-controlled management structure of the university is based on the government’s political values, which are embedded in the laws and regulations and enforced by authorities using legal sanctions (Masue & Swai, 2015). This structure used to be common in the 50th-80th in some countries with dictatorship governance systems. The state-supervised university management structure is used to balance the institutions’ autonomy and accountability (Han & Xu, 2019; El-Khawas, 2002). This structure represents the top-down state-university relationship and is justified by the provision of financial support by the state. The structure could be found at the US universities in the settings of the emerging neo-liberalism and early globalisation, specifically in the 1980th (Jones, 2023). The collegial governance/management structure – or in some sources, it is called ‘self-governance’ – refers to the collegium of scholars who are elected to the boards and mainly influence decisions related to academic matters that affect the faculty or department they represent (FAUW news, 2022; Chisholm, 2014). This structure relies on the principles of democratic values and inclusive participation. It ensures some degree of autonomy for the faculty members or department representatives in terms of expressing their views and opinions, avoiding the inappropriate advantage of the decisions made by individuals with higher authority, and ensuring equal opportunity for every staff member to participate in workload planning, academic planning, etc. The managerial governance structure combines corporate governance and corporate management features (Bennetot Pruvot & Estermann, 2018; El-Khawas, 2002). The structure uses best management practices that rely on ethical standards and are aimed at addressing the goals of the internal and external stakeholders. The structure pursues to meet both strategic and routine goals. The structure works well, for instance, at Stanford Business School of Graduate, Harvard University, and the University of Manchester.
The trustee board governance/management structure – this study found this structure to be the most commonly used by the USA universities – refers to the elected internal and external people, who are supposed to supervise the use of assets and resources (Price, 2018).

Although the literature sources and university websites define, classify and specify the US university management structures, the scientific work domain was found to be revealed limitedly, which created the gap for this study. Therefore, the study aims to identify what place scientific activity occupies in the management structure of US universities.

Research methods. This study used the exploratory research methodology approach with some features of a narrative review which was used to collect qualitative data (George, 2023; Sutton et al., 2019). This approach was used because the study sought to obtain a broad view of a topic and, as far as we were aware, the study problem was not addressed in the previous studies. This approach relied on data collection methods used to draw information from secondary research such as literature reviews, university reports, university webpages, blog posts, etc.

Results. The findings obtained from the study were based on the examined sources that revealed the university management structures which were as follows: the shared/stakeholder-involved governance/management structure, the state-supervised structure of university management, the collegial governance/management structure, the managerial (corporate) governance structure, and the trustee board governance/management structure. These structures were chosen because they were found to be used in some randomly selected universities in the USA.

Specifically, the shared/stakeholder-involved governance/management structure was found, for instance, in the United States University (can be accessed via https://www.usuniversity.edu/about/statement-of-shared-governance), Gallaudet University (can be found at https://gallaudet.edu/shared-governance/), and George Washington University (can be found at https://trustees.gwu.edu/shared-governance-task-force). This study found that the state-supervised structure is still associated with state government institutions such as, for example, the Community College of the Air Force (can be accessed via https://www.airuniversity.af.edu/Barnes/CCAF/), the Air Force Institute of Technology (can be found at https://www.afit.edu/), and the Uniformed Services University of the Health Sciences (can be accessed at https://www.usuhs.edu/). The collegial governance/management structure (student self-governance) is used, for example, at the University of Virginia (see the website post at: https://www.virginia.edu/life/selfgovernance), the Lakehead University (can be accessed at https://lufa.org/collegial-governance-what-you-need-to-know/), Emily Carr University (https://ecufa.ca/what-is-collegial-governance/). Examples of the trustee board structure were found at the United States University (see it at https://www.usuniversity.edu/about/board-of-trustees), Johns Hopkins University (can be accessed at https://trustees.jhu.edu/governance/), and Seattle University (can be seen at https://www.seattleu.edu/governance/board-of-trustees/). It should be noted that this study did not find any US university which used the state-controlled management structure.

To address the aim of the study, the above structures were analysed in terms of identifying the tools used by the government to interfere with the practice of higher educational institutions to impose certain requirements that fit the general political concept of governance. These tools are Law, Policy, and Finance (Han & Xu, 2019). They are important because they significantly shape the architecture of the management structures under study. The demonstrations of those interference instruments can be traced in Figure 1.

Law provides the framework for regulating the internal and external processes at higher education institutions, for example, employment. Policy determines the curriculum content and structure, as well as the issues related to access to the university. Finance, seen as a governmental tool, is used by the government to regulate the degree of independence of the institutions and control the tuition fees.

Given the principles of efficient governance of the institution of higher education such as autonomy, flexibility, accountability, leadership, innovativeness, compliance with applicable laws and regulations, and transparency, the literature provides a more or less unified team-based management structure of higher educational institutions in the USA (Bennetot Pruvot & Estermann, 2018; Gupta, 2020) (see Fig. 2).
Figure 1. Demonstrations of the Government Interference with Higher-Education Instruments (Modified from Han & Xu (2019))

Figure 2. Unified team-based management structure of higher educational institutions, the USA included (adopted from Gupta (2020))
As shown in Figure 2, the typical university management structure, USA universities included, is a four-layer hierarchy with some matrix structure features. The above structure is supposed to promote the unique vision of the training system, self-control the quality of their service and improve it continuously, address the expectations of the stakeholders, be financially self-reliant and competitive, contribute to the solution of the problems of the industry and society through the research, projects and collaborative events. The domain of scientific work, according to Figure 2, is seen as the institution-level activity which is supervised by the Governance Board and the relevant management team. Both above-mentioned play a key role in the decision-making process in terms of scientific dynamics (knowledge production and certification) and relation with society. Driven by an entrepreneurial attitude to governing and managing higher educational institutions, the teams from Figure 2 are supposed to keep the balance between problem-solving and career planning as well as amongst organisational elements (research domain included), academic disciplines, and research, and across organisational boundaries. Those teams are also in charge of making the research and studies organised. The data in Figure 2 implies that universities are incorporating corporate models of management. The universities are adopting more complicated organisational structures, including innovation and technology transfer units with research-purpose managerial positions. This trend of creating an environment of organised research at university is reported to have been prevalent in the OECD countries since the late 80th of the previous century and it is considered a challenge for both universities and scientists from that time (Schützenmeister, 2010). The challenge was related to ensuring the autonomy of research which was essential for growing the research activity seen as creative.

The above trend accelerated the growth of research management as an occupation within the structure of the university. The occupation was supposed to promote university research to address societal purposes and create ‘profitable products’ so that universities could make money. The attempt to promote research as an income source for the universities increased the proportion and the role of the scientific work domain in the management structure of the US university and, at the same time, allocated it into a separate (more or less autonomous) unit of the structure. Although being managed...
by the professional research manager(s), it made research somewhat loosely controlled by top university managers due to the uncertainty of the task of a researcher’s work. The activity of the university departments and faculty are organised in a supportive way to the scientific activity and this approach enriches the department’s and faculty’s literature and curriculum content. The scientific activity of university researchers can be rewarded and is often rewarded via several sources such as internal and external. This brings value to those who fund the research, universities, and students if the research output is not pure basic research. However, the problem of the university as the organisation which is involved in the planned and organised research is in being under the influence of the government’s political goals which, in its turn, impacts the university’s autonomy but accelerates the diversification of research goals. This diversification is transforming the university management structure – and the management of the scientific activity, specifically – from a hierarchical type of research and education organisation into a matrix one because research is becoming interdisciplinary which involves several internal, external, or cross-institutional research units to address the heterogeneous university short-term and long-term goals and missions.

The increasing stake of research at universities is reshaping the university management structure making it an institutionalised science organisation. In this regard, the relative detachment of scientific activity from the university management hierarchy seems to be the internal organisational decision that establishes a certain degree of academic freedom for instructors and researchers. The university structures are gradually adopting some features of the corporation non-for-profit business models with academic research which is organised as an activity that is mediated by a professional research manager who embodies the concept of entrepreneurship through organising and maintaining relations and communication between different arenas of science, economy, public, and policy.

The modern US university management structure is an example of structural coupling – either formal, informal, long-term, or short-term – between education and science, economy and science, society and science, and policy and science. The contemporary entrepreneurial culture of the US university research suggests that managerial decisions are driven by organisational autonomy and a scientist’s freedom as well as the availability of money, collaborative networks, and instruments. University professors/researchers are often engaged in the marketing of the planned research, the outcomes of the research, and proprietary knowledge. They play either policy advisory roles, or social advocacy roles (Deem et al., 2007). Due to the above, leading US university professors/scientists raise finance and earn money, they boost university opportunities more than the board members of their universities. This trend led to a greater demand for managers who are closely involved in the research process at the institutional level. University scientific activity is here considered a professional research manager-led autonomous quasi-firm within the structure of the university. The research managers (research administrators) are supposed to generate income for both research and out of the research from government funding, grant providers, investors, stakeholders, donors, or other sources.

Examining the contributing role of the scientific work in the US university management structure, it was found that although the model university structure was expected to be an organisational structure that was to be governed solely by scientists, the modern US university structures are dual and combine collegial teams and administrations. Actually, the study found that many modern US university structures are dual, combining collegial teams and administrative structures. This approach aims to balance the need for academic freedom and faculty autonomy with the need for effective management and accountability.

At the heart of the collegial team approach is the concept of shared governance, which refers to the distribution of authority and decision-making power between faculty, researchers, and administrators. The collegial team approach is an important aspect of conducting research in academia. Research is a complex process that often requires collaboration and cooperation among individuals with diverse expertise and perspectives. The collegial team approach is a collaborative and inclusive approach to research that values open communication, mutual respect, and shared decision-making among team members. In academic research, the collegial team approach is essential for ensuring that research is
conducted in a rigorous, transparent, and ethical manner. It allows team members to work together to
develop research questions, design studies, collect and analyse data, interpret results, and disseminate
findings. By working collaboratively, team members can leverage their respective strengths and expertise to produce high-quality research that is relevant, innovative, and impactful. Moreover, the collegial
approach is important for fostering a positive and supportive research culture. It promotes a sense of shared ownership and responsibility for the research project, which can help to build trust and camaraderie among team members. This, in turn, can enhance motivation, creativity, and productivity, and contribute to a more inclusive and diverse research environment.

Under this approach, faculty members play a key role in shaping the academic program, setting policies, and making decisions related to academic affairs. This can take many forms, such as faculty committees, department chairs, and faculty senates.

At the same time, universities also have administrative structures that are responsible for managing the institution’s operations and resources. These structures include a range of administrative positions, such as the president, provost, deans, and department chairs. They are responsible for overseeing the day-to-day operations of the university, managing the budget, and ensuring that the institution complies with legal and regulatory requirements.

In a dual structure, these two approaches are combined to create a system that fosters collaboration and communication between faculty and administrators. This can help to ensure that the academic program is aligned with the institution’s goals and priorities, while also providing faculty with a voice in decision-making. The exact structure of a dual system can vary depending on the institution, but some common features include:

- Faculty committees or senates that work in collaboration with administrators to develop policies and make decisions related to academic affairs
- A strong emphasis on faculty participation in decision-making and governance
- Administrative structures that are focused on managing the institution’s operations and resources, with clear lines of authority and decision-making power
- Regular communication and collaboration between faculty and administrators to ensure that the institution’s goals and priorities are being met

In addition to the above, the administrations impose rules to follow for collegial teams. At the same time, the power of administration is limited to faculties and departments.

Therefore, the dual structure is designed to balance the need for academic freedom and faculty autonomy with the need for effective management and accountability. It can help to create a dynamic and responsive institution that is focused on academic excellence, while also meeting the needs of its students, faculty, and community.

The relevant literature puts higher educational institutions’ unified team-based management structure under two theories – first, of the neo-institutionalist school and, second, of loose coupling (Ahonen, 2014; Shen et al., 2017). Both are considered reliable when analysing organizations that are involved in research such as universities. Both theories indicated the transition of the university’s organisational structure from being an “isolated” formalised hierarchy towards being a part of the social context.

Neo-institutionalism is a theoretical framework that emphasises the role of institutional norms, values, and rules in shaping organisational behaviour. According to this theory, organisations often adopt similar practices and structures to gain legitimacy and social acceptance. In the case of higher educational institutions, this can mean that they adopt unified team-based management structures because this is seen as a standard and widely accepted way of organising higher education.

In other words, the neo-institutionalist perspective suggests that higher education institutions adopt the unified team-based management structure because it is viewed as the ‘correct’ or ‘appropriate’ way of organising higher education, rather than because it is the most efficient or effective way of doing so.

On the other hand, the loose coupling theory suggests that higher education institutions adopt a unified team-based management structure because it allows for flexibility and autonomy. Loose cou-
pling refers to the idea that different parts of an organisation can operate relatively independently of one another, with limited oversight and control.

In the context of higher education, a unified team-based management structure can allow individual departments and faculty members to operate with a high degree of autonomy, making decisions that are specific to their area of expertise and needs. This can be beneficial for a highly specialised field of study or research, where flexibility and independence are important.

Thus, the unified team-based management structure used by higher educational institutions can be viewed through multiple theoretical frameworks, with neo-institutionalism emphasising the role of social norms and values, and loose coupling emphasising the role of autonomy and flexibility. Both theories provide insights into why this type of management structure is used and can help explain its benefits and drawbacks in different contexts.

Importantly that Max Weber, a German sociologist, attributed the high similarities between organisations within a field to the rationalisation and bureaucratisation within the neo-institutionalist theory (Ritzer, 1975). He argued that as societies became more complex, they needed more formalised structures to manage their affairs. This led to the rise of bureaucracies, which are characterised by a clear hierarchy of authority, a division of labour, and a set of formal rules and procedures.

According to Weber, these bureaucratic structures were highly efficient and effective, but they also tended to be highly standardised and impersonal. This led to a process of rationalisation, where organisations became more and more similar in their structure and operations, as they adopted the most efficient and effective practices.

In the context of higher education, this process of rationalisation and bureaucratisation has led to a high degree of standardisation and similarity between institutions. For example, most universities have similar organisational structures, with a clear hierarchy of authority and a division of labour between faculty and administrators.

Weber argued that this process of rationalisation and bureaucratisation was a necessary response to the growing complexity of modern societies. However, he also recognised that it could have negative consequences, such as reducing individual creativity and innovation and creating a sense of alienation and disenchantment.

Overall, Weber’s theory of rationalisation and bureaucratisation helps to explain why organisations within a field, such as higher education, tend to be highly similar in their structure and operations. It suggests that this is a natural consequence of the need for efficiency and effectiveness, but it also raises questions about the potential drawbacks of such standardisation and the need to balance efficiency with individual creativity and innovation.

The above implies that the role of scientific work and its place in the management structure of the universities in the USA is gradually growing and still studied limitedly, which can be a gap for further research.

Conclusions. This research identified several management structures prevalent in the universities of the OECD countries. A four-layer hierarchical team-based management structure with some matrix structure features was found to be the common university management structure, in the US universities as well. The field of scientific work is considered as an institution-level activity under the supervision of the Governance Board and the management team. Nowadays, scientific work is significantly transforming the mission of US universities, the curriculum and the management structure through the diversity of research goals. Research is becoming interdisciplinary involving internal, external or cross-institutional research units to reach the university’s short-term and long-term goals and objectives. The management structure of universities is changing from a hierarchical type of organization of research and education into a matrix type, and consists of an autonomous quasi-firm under the administration and governance of a professional research manager.

Universities are implementing corporate models of governance/management. Universities are adopting more complex organisational structures, including innovation and technology transfer units with senior research positions. These positions are expected to contribute to the development of uni-
university research for public purposes and for the creation of “profitable products” so that universities could make money. The commitment to promote research as a source of income for universities has increased the share and the role of the area of scientific work in the management structure of the US universities and, at the same time, has identified it as a separate (more or less autonomous) unit of the structure.

The specific role of scientific work in the university management structure can vary depending on the institution and the field of study. In general, however, scientific work is typically conducted by faculty members who are hired to teach and conduct research. Faculty members are often organised into academic departments or programs, which are responsible for managing and coordinating the research and teaching activities of their members. In addition to conducting research, faculty members are also expected to teach courses and mentor students. This is an important part of the university’s mission, as it provides students with the knowledge and skills they need to succeed in their chosen fields.

The scientific work conducted by faculty members can also contribute to the university’s reputation and prestige. Universities are academic institutions that are dedicated to the advancement of knowledge and understanding in various fields. Faculty members are the driving force behind this mission, as they conduct research, publish papers, and make significant contributions to their respective fields. Scientific research conducted by faculty members often leads to the creation of intellectual property, such as patents, which can generate significant revenue for the university. The commercialisation of faculty research can also lead to the creation of new businesses and job opportunities, which can have a positive impact on the local economy and further enhance the university’s reputation. Universities are often ranked based on the quality and impact of their research, and faculty members who produce high-quality research can enhance the reputation of their institution.

Overall, the role of scientific work in the US university management structure is multifaceted and important. It helps to drive the mission of the university, contributes to the education and development of students, and enhances the reputation of the institution.

References
Emon, A. M. & Schneiderman, D. (2022). The storm over academic freedom, collegial governance, and international human rights at UofT’s Faculty of Law (pp. 1–30). SSRN. http://dx.doi.org/10.2139/ssrn.4212802


Schützenmeister, F. (2010). *University research management: An exploratory literature review*. Institute of European Studies for the University of California (pp. 1–31). https://escholarship.org/uc/item/77p3j2hr

СФЕРА НАУКОВОЇ РОБОТИ В СТРУКТУРІ УПРАВЛІННЯ УНІВЕРСИТЕТАМИ В США

Анотація. Мета статті – визначити місце наукової роботи в структурі управління університетами в США. Для збору якісних даних було використано методологію пошукового дослідження з елементами наративного огляду. Дослідження виявило, що наукова робота відіграє важливу роль у структурі управління університетами в США. У багатьох університетах дослідницька діяльність становить основу місії навчального закладу та є ключовим компонентом академічних програм університетів. Визначено найбільш поширені в університетах країн ОЕСР типи структур управління: структура управління за участю та рівною відповідальністю всіх залучених сторін; структура управління під наглядом держави; колегіальна структура управління; корпоративна структура управління та структура управління траєстовою (довірчою) радою. З’ясовано, що типова структура управління університетом, зокрема в США, є чотирирівневою ієрархічною структурою з елементами матричної структури. Сфера наукової роботи розглядається як діяльність на рівні інституції, що контролюється наглядовою радою та відповідною командою управлінців. З’ясовано, що оскільки наукова діяльність завдяки диверсифікації дослідницьких цілей вносить зміни до визначення місій американських університетів, структура управління університетом постійно трансформується з ієрархічного типу в матричну. Такий тип управлінської структури складається з автономною квазіфірми на чолі з професійним менеджером, що зумовлено міждисциплінарністю досліджень та залученням внутрішніх, зовнішніх або міжнституційних дослідницьких підрозділів, що працюють над вирішенням різноманітних коротко-, довгострокових завдань університету. Виявлено, що університети впроваджують корпоративні моделі управління, утворюють більш складні організаційні структури, включаючи підрозділи з інновацій та трансферу технологій з управлінськими посадами для адміністрування наукових досліджень. Ці посади мають підтримувати розвиток університетських досліджень, спрямованих на вирішення суспільних завдань, а також сприяти створенню “прибуткових продуктів”, що приносить доход для університетів. Спроба просувати дослідження як джерело доходу для університетів збільшила частку та роль наукової роботи в управлінській структурі американського університету і відповідно надали її в окрему структурну одиницю.

Ключові слова: вища освіта; університети США; структура управління університетом; сфера наукової роботи; управління університетом.