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STRATEGIC MANAGEMENT OF ACADEMIC CAREERS: EXPLORING CAREER APPROACH MODELS IN TECHNICAL UNIVERSITIES

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Abstract: *This article examines the perspectives of technical universities in managing academic careers by exploring various career approach models. The study aims to highlight the influences of personal strengths, interests, and commitments, alongside formal career structures, on individual career paths. The objective was to gain a deep understanding of career management strategies implemented by certain selected technical universities. The research process involved identifying and analyzing ten technical universities known for their distinctive career approach models: Mentoring Model, Portfolio Model, IDP - Individual Development Plan Model, Promotion and Retention Model, and Work-life Balance Model. The study employed qualitative research methods, including case studies and analysis of relevant documents. Limitations include the limited sample size and subjective interpretation of data. Nevertheless, the findings provide valuable insights into effective strategies for managing academic careers in technical universities. The conclusions underscore the importance of career scenarios and their role in guiding individuals in building concerted careers. Technical universities play a crucial role in cultivating specialized skills within STEM fields and promoting diversification of the academic workforce. The examined career approach models demonstrate strategies employed by these universities to support academic professionals in their career development and progression.*

Key words: *academic career management, technical universities, career approach models, qualitative research, case studies*

1. INTRODUCTION

In the ever-evolving landscape of academia, managing academic careers has become a critical aspect of the professional journey. This is especially valid in technical universities, where individuals with expertise in science, technology, engineering, and mathematics (STEM) are cultivated. As the academic workforce diversifies, career paths are shaped not only by formal career structures but also by personal strengths, interests, and commitments. Understanding and navigating these career scenarios have become essential for individuals seeking to build successful academic careers.

Technical universities are instrumental in shaping the future of aspiring academics by equipping them with essential knowledge and skills to succeed in their chosen disciplines. However, it is not solely the acquisition of expertise that determines career success. Factors such as mentorship, professional development opportunities, work-life balance, and individual development plans are instrumental in guiding individuals toward their desired career trajectories.

This paper delves into the examination of technical universities and their approaches to managing academic careers. By analyzing various case studies, we explore different career models implemented by these institutions to support and foster career development. Through these models, universities seek to empower their faculty and staff, ensuring that their careers align with their passions, goals, and aspirations.

The concept of career scenarios serves as a guiding framework for understanding how personal strengths, interests, and commitments intertwine with formal career structures. By exploring these scenarios, we can gain insights into how technical universities facilitate the growth and success of their academic professionals.

This study seeks to enrich the ongoing conversation regarding the management of academic careers by exploring the methods and approaches used by technical universities to meet the varied needs of their faculty and staff.

By analyzing how technical universities navigate the management of academic careers, our goal is to provide a thorough grasp of the diverse methods and strategies influencing the professional development of academics. Ultimately, this research aims to provide a foundation for individuals and institutions alike to navigate and excel in the dynamic world of academia.

In the literature, several reviews have focused on topics related to career development, subjective and objective career success such as achieving personal goals, recognition of merit, and tangible rewards such as promotions and support in various occupational fields [1]. However, to date, a comprehensive review of the literature on academic career development has not been conducted, which hinders a theoretical, empirical, and practical analysis of progress in this area [2].

2. REVIEW OF THE LITERATURE

2.1. Literature review of the academic life

A profession constitutes a significant aspect of human existence as it revolves around employment and provides purpose to one's objectives. Beyond these dimensions, employment serves as a crucial avenue for identity, innovation, vitality, opportunity, and societal standing, while also facilitating access to social connections. In general, a career can be seen as a life journey that involves the constant development of skills and knowledge, together with continuous adaptation to changes in the work environment [3].

Technological progress, together with social and economic changes, has led to significant transformations in the academic landscape, creating a complex environment for academics. In contemporary times, there exists an anticipation from the public, policymakers, and academic leaders for university research to align with present societal and economic demands [4].

The academic landscape has undergone significant transformation, presenting academics with a more intricate and challenging milieu. Universities have assumed a heightened role in driving the innovation agenda and serve as critical hubs for knowledge dissemination, both locally and globally. HEIs are perceived as talent development institutions and businesses expect curricular flexibility, innovation and learning outcomes that will allow the graduates to rapidly immerse themselves in a new job [5].

Furthermore, technological advancements are shaped by a progressively intricate and globally dispersed knowledge domain. Biotechnology, IT, and nanotechnology stand out as pivotal domains driving technological progress, amalgamating insights from various disciplines. With the vast reservoir of knowledge available, numerous research entities and scholars have specialized in their fields of expertise, concurrently broadening their influence through networking to encompass the entirety of relevant knowledge pertinent to their research endeavors [4]. These shifts within the realm of academic research are likely to reverberate throughout academic careers. Distinct research orientations emerge, with some scholars concentrating on addressing industrial, economic, or societal exigencies, while others pursue the fundamental enhancement of the underlying knowledge repository. Three such research orientations, according to Stokes [4], are delineated here:

- Bohr research, characterized by a focus on pure fundamental inquiry aimed primarily at advancing the knowledge base within their field;
- Edison research, dedicated to applied research exclusively oriented toward addressing economic and societal challenges;
- Pasteur research, involving application-inspired inquiry with dual objectives of enriching the knowledge domain and furnishing practical solutions.

In the sphere of advancing academic careers, typically, individuals move progressively from the position of assistant professor to that of associate professor, eventually reaching the status of full professor.

In the UK, academic careers are more flexible than in other parts of the world, including continental Europe and the US, where formal tenure models are common, with strict qualification requirements to become tenured [6]. In other countries, academic career models can have four distinct stages: doctoral, postdoctoral, independent researcher/lecturer,

and professor [6]. In the first career stage, individuals who advance directly from the doctorate are usually appointed for a fixed period as researchers or only as professors. However, those who are appointed as researchers may teach some of the teaching work, and those who are appointed to teaching positions may undertake some unfunded research. The aim in both cases is to gain experience and progress to a permanent teaching and research post, as opposed to a temporary appointment [6].

Career theory typically examines the interplay between institutional frameworks and individual aspirations. Within organizations like universities, career trajectories are outlined through entry and progression markers, akin to a navigational guide. Individuals are perceived to possess agency in navigating this trajectory, influenced by their understanding and interpretation of institutional career dynamics. These theories have been developed by researchers such as [6].

In this context, it is important to recognize that individual aspirations and institutional goals are not always aligned. For example, an individual may be motivated to focus on teaching or research, while the institution may need a certain amount of teaching and research activity to maintain funding or to meet its strategic goals. In such cases, individuals may have to navigate between pursuing their aspirations and responding to institutional requirements and priorities.

This tension can be amplified by factors such as political and economic changes, which can affect funding and institutional priorities, as well as changes in individuals' personal and professional lives. It is therefore important that institutions provide flexibility and support for individual career development while remaining committed to their strategic objectives. It is also important that individuals have a clear understanding of institutional career scenarios and the expectations that accompany them so that they can make informed decisions about their career development.

Social cognitive career theory endeavors to elucidate the formation of career interests, decision-making processes, and the interplay of individual and contextual factors shaping career trajectories. The social cognitive theory and the triadic-reciprocal model, which posits mutual influences among individual attributes, contextual factors, and observable actions, underscores the bidirectional relationship between personal agency and environmental influences on career development. By delving into the intricate connections between individuals and their career environments, cognitive processes, interpersonal dynamics, and the interplay of intrinsic and extrinsic influences, social cognitive career theory aims to provide a comprehensive understanding of career behavior.

In the context of higher education, career theory has been applied differently, generally characterized by two major approaches: positional careers, which focus on institutional structures and promotion criteria, thus limiting individuals' career paths within one or more institutions; and non-positional careers, which are characterized by greater freedom and flexibility to choose activities outside institutional structures. These two approaches are also known as 'bounded' and 'unbounded' or 'protean' respectively. This distinction is because individuals pursuing a positional career have a clear career path, whereas individuals pursuing a non-positional career have more freedom to build their careers according to their abilities, interests, and personal values [6].

2.2 Analysis of current patterns and practices in academic career development and progression

The evaluation of research and researchers is an important issue today, both within and outside academia. Unfortunately, discussions in this area are often limited to bibliometric tools used in individual evaluations, without offering many alternatives. In this context, LERU aims to make a positive contribution to the debate by presenting a perspective on how the future of researcher evaluation could be shaped in the context of multidimensional academic careers [7].

The role of academic researchers encompasses various dimensions, extending beyond the mere pursuit of knowledge within

their field. It involves imparting knowledge and research methodologies to future generations through teaching and mentorship, nurturing young scholars into competent professionals. Additionally, academic researchers contribute to society by providing direct services, such as organizing patient care in university hospitals, disseminating research findings to the public, facilitating technology transfer to industry, and offering guidance to policymakers.

The evaluation of an academic researcher's work must therefore consider the three fundamental missions of a university: research, teaching, and service, requiring a multidimensional approach.

LERU talks about these career dimensions, describing them as follows [7]:

- *Research dimension:* This dimension includes not only publishing in highly reputable journals but also other aspects of research activity, such as designing and planning research projects, obtaining funding, managing the research process, and collaborating with ongoing research efforts and the contributions of fellow researchers.
- *Educational dimension:* The development of learning methods and material and practical innovations in education (second criterion) is important to ensure that students receive a quality and up-to-date education. This may include the development of teaching tools such as textbooks, e-learning modules, and continuous training programs for students and teachers. This dimension also highlights the importance of reflecting on teaching practices and curricula to improve the quality of university education.
- *Public engagement and outreach:* universities engage in community development through outreach projects and volunteering programs that involve students in projects that have a positive impact on the local and global community. In general, public engagement and outreach are important for universities as they contribute to creating a positive impact on society and developing a strong link between the university and the community.
- *Service to the institution* refers to the fulfillment of administrative, organizational, and representational tasks and responsibilities at the university level. These tasks may be formal or informal and may be assigned to senior professors who have the experience and skills to perform them.
- *Other dimensions:* One of these dimensions is social and environmental responsibility. Universities are taking increasing responsibility towards the environment and society so that their research and education activities contribute to sustainable development and improved quality of life. An assessment of the quality of work and quality of life can be made by analyzing several indicators covering different aspects of the workplace. These indicators include work intensity, quality of working time, characteristics of the physical and social environment, level of remuneration, career development opportunities, and incentives and rewards offered [8]. Their study examines the perspective of academic staff on the factors that influence their job satisfaction, and institutions should consider these factors to improve academic staff satisfaction and their job performance.

Other essential dimensions in evaluating researchers include diversity and inclusion, international collaboration, and adaptability to changing societal needs. These factors reflect researchers' leadership abilities, teamwork skills, and innovation capacity. Evaluating career success should consider individual and contextual factors such as organizational culture and professional expectations. Recognizing this diversity is crucial, advocating for personalized career planning and management approaches. In addition to these multidimensional careers, there are also unidirectional careers, which can be beneficial for certain individuals and certain areas of work, but it is also important to consider career development alternatives, such as changing careers or diversifying professional experience and skills, to ensure continuous personal and professional development. This study aims to address these significant gaps by delving into the models used by technical universities in nurturing and harnessing the benefits of career management strategies. Our research sheds light on how the identified strategies can assist the higher education sector in strengthening its position as a transformative force for the advancement and well-being of knowledge-based societies.

To achieve these research objectives, we define the following research questions:

1. What are the main career approach models used in technical universities and how are they implemented?
2. What are the institutional policies of career management, activities, and outcomes, as well as the relevant dimensions of career development in technical education institutions?
3. What are the key factors determining the effectiveness of career approach models in this context of multidimensional careers?

3. RESEARCH METHODOLOGY

To explore the different career approach models, present in science and technology universities, this study employed a **qualitative research methodology** with a focus on case studies. The objective was to gain in-depth insights into the career management strategies implemented by selected technical universities.

The research process involved identifying and analyzing **ten technical universities**, or universities with technical faculties, known for their distinctive career approach models. The following top universities in the world were selected as case study examples:

Mentoring Model: **TUDelft, University of Cambridge and Princeton University**. This model emphasizes the importance of mentorship in guiding individuals through their career journeys.

Portfolio Model: **The Technical University of Munich and University of California, Berkeley** were selected to represent the portfolio model, which focuses on enabling individuals to build a diversified portfolio of skills, experiences, and achievements to enhance their career prospects.

IDP Individual Development Plan Model: **ETH Zurich and Johns Hopkins University**. This model involves the creation of personalized development plans that align with individuals' career goals, ensuring a tailored approach to career progression.

Promotion and Retention Model: **KU Leuven, University of Chicago (Booth School of Business)** represents the promotion and retention model, which emphasizes career advancement and retention strategies within the university. This model explores the structures and processes in place to facilitate career progression for academic professionals.

Work-life Balance Model: **Ghent University**. This model highlights the importance of maintaining a healthy balance between professional and personal life.

The analysis of these case studies involved a comprehensive review of relevant documents, such as university policies, career development programs, and faculty testimonials. Additionally, interviews and surveys with faculty members, administrators, and relevant stakeholders were conducted to gather firsthand insights into the implementation and effectiveness of these career approach models.

The qualitative data gathered from these sources underwent thematic analysis techniques to discern prevalent themes, challenges, and best practices linked to each career approach model. By utilizing a case study methodology, this study provides valuable insights into the tangible implementation and results of various career approach models within science and technology universities. These findings contribute to the existing knowledge on effective career management strategies and provide practical recommendations for institutions aiming to enhance their support systems for academic professionals.

4. RESEARCH RESULTS

The analysis of case studies from various technical universities revealed interesting insights into the different career approach models employed by these institutions. The research findings shed light on the effectiveness and outcomes of these models in supporting academic career development and progression. Table 1 shows some key research results.

Table 1

Models in supporting academic careers in technical university.

UNIVERSITY I: TU DELFT [9]	
INSTITUTIONAL CAREER MANAGEMENT POLICY	TU Delft has a comprehensive career development program for faculty members, including mentoring, coaching, and leadership development opportunities. The university also has a clear promotion and tenure process with well-defined criteria and a structured review process that includes regular evaluations and feedback.
ACTIVITIES AND RESULTS	TU Delft prioritizes interdisciplinary research and collaboration, offering resources for faculty to engage across disciplines and with industry partners. Their Centre for Valorization supports staff in turning research into practical applications. The university provides professional development opportunities like training programs and workshops to enhance faculty skills and careers. Their Academic Career Track (ACT) program offers a variety of courses tailored to individual needs, supported by managers, mentors, and colleagues. The program spans three phases: embedding in TU Delft, learning teaching and project management skills, and deepening expertise in research outreach and team management.
RELEVANT DIMENSIONS IN CAREER MANAGEMENT	TUDelft has a well-established mentoring program for Ph.D. students and young researchers. The program offers individual mentoring and group workshops to support career development and research skills.
UNIVERSITY II: UNIVERSITY OF CAMBRIDGE [10]	
INSTITUTIONAL CAREER MANAGEMENT POLICY	1. Academic Career Advancement: Clear policies guide faculty promotions and career progression. 2. Professional Development: Programs enhance career-relevant skills through training and workshops. 3. Mentorship: Mentorship programs support early-career academics and students. 4. Work-Life Balance: Policies promote balance with flexible arrangements and parental leave. 5. Diversity and Inclusion: Initiatives ensure equal opportunities for all in the academic community. 6. Career Services: Comprehensive guidance on job searches, CVs, and networking. 7. Research Funding: Policies support securing grants for academic advancement. 8. Student Career Services: Career counseling and placement services for students. 9. Postdoc Support: Dedicated services aid postdocs in career transitions. 10. Research Ethics: Policies uphold integrity and ethical conduct in research.
RELEVANT DIMENSIONS IN CAREER MANAGEMENT	At the University of Cambridge, career management covers a range of dimensions for faculty, staff, and students. These include Academic Advancement, Research Opportunities, Teaching Excellence, Mentorship, Professional Development, Work-Life Balance, Diversity and Inclusion, Career Services, Student Career Support, Postdoctoral Researcher Support, Research Integrity and Ethics, Global Networking, Leadership Development, Entrepreneurship and Innovation, and Alumni Engagement.
UNIVERSITY III: Princeton University [11]	
INSTITUTIONAL CAREER MANAGEMENT POLICY	Princeton University offers comprehensive career-related policies, including: • Academic Career Advancement: Clear guidelines for faculty promotions and tenure. • Professional Development: Various opportunities for skill enhancement through training and workshops. • Mentorship Programs: Connecting junior faculty and students with experienced academics for guidance. • Work-Life Balance: Flexible arrangements and wellness programs to support well-being. • Diversity and Inclusion: Policies fostering an inclusive environment. • Career Services: Assistance with job searches, resume/CV help, and networking.

	• Student Career Support: Services aiding students in career exploration and internships. • Postdoctoral Researcher Support: Specialized assistance for career transitions. • Research Integrity and Ethics: Policies ensuring high standards of academic excellence. These policies form a robust career management framework, empowering the Princeton community to excel and contribute meaningfully in their fields.
UNIVERSITY IV: TECHNICAL UNIVERSITY OF MUNICH [12]	
INSTITUTIONAL CAREER MANAGEMENT POLICY	TUM offers a structured career development program for teachers, featuring regular evaluations, mentoring, and leadership opportunities. The university employs a portfolio model to assess researchers' activities and performance, considering various criteria like research projects, publications, teaching, skills development, and community service. Evaluation at TUM is transparent and integral to the university's quality management system, impacting career advancement and performance monitoring.
ACTIVITIES AND RESULTS	To promote young talent at TUM, the following are in place: mentoring programs, organization of the Research Opportunities Week event, implementation of training programs, and organization of events to promote young talent: Young Academy, and TUM Holiday Academy. The university also provides support for interdisciplinary research and has a culture of innovation and entrepreneurship that encourages the academic community to pursue research with practical applications.
RELEVANT DIMENSIONS IN CAREER MANAGEMENT	At the Technical University of Munich (TUM), researchers are encouraged to develop a portfolio highlighting their achievements in research, teaching, and knowledge transfer. These portfolios are used to evaluate performance and to help researchers develop their careers. In addition, TUM offers mentoring and professional development programs to support employees.
UNIVERSITY V: UNIVERSITY OF CALIFORNIA [13]	
INSTITUTIONAL CAREER MANAGEMENT POLICY	• Management Development Program (MDP): Equips mid-level managers with leadership skills in people management, employee engagement, and change management. • Management Skills Assessment Program (MSAP): Assesses managerial skills and potential through residential programs. • Other Training: Includes Ethics Briefing and Sexual Harassment Training to raise awareness and comply with California law requirements.
ACTIVITIES AND RESULTS	MY UC CAREER: An online portal open to UC faculty, staff, and students offering six self-paced modules to explore internal career mobility options, highlight achievements, and pursue career goals within UC.
UNIVERSITY VI: ETH ZURICH [14]	
INSTITUTIONAL CAREER MANAGEMENT POLICY	ETH Zurich offers an individual development program emphasizing career planning, skill development, and tailored assistance. Their faculty development system includes mentoring, coaching, and professional opportunities. The university provides counseling, workshops, and structured evaluations for promotion and tenure, supporting research and interdisciplinary collaboration.
ACTIVITIES AND RESULTS	ETH Zurich's Career Center offers diverse opportunities for students to engage with companies, both on-campus and virtually, to explore career entry options. It fosters international networks and leverages creative talents to achieve its goals. The center organizes biannual career events covering various job search strategies, career concepts, and conflict management skills. It also provides a job platform and career guide for the academic community. Acting as a central platform, it facilitates connections between companies and students, aligning with ETH Zurich's Competence Framework to promote transferable skills alongside discipline-specific competencies for students' future readiness.
RELEVANT DIMENSIONS IN CAREER MANAGEMENT	ETH Zurich has developed a career model based on an Individual Development Plan (IDP), which allows researchers to develop their careers, identify their strengths and identify possible gaps. Individual Development Plans usually include specific goals for research, learning, and professional development, together with an action plan to reach these goals. ETH Zurich also offers counseling and mentoring services to help researchers achieve their career goals.

UNIVERSITY VII: Johns Hopkins University [15]	
INSTITUTIONAL CAREER MANAGEMENT POLICY	• Academic Advancement: Clear criteria for faculty promotions and tenure across divisions. • Professional Development: Workshops and training programs to enhance faculty and staff expertise. • Mentorship Programs: Connecting junior members with experienced mentors for guidance. • Work-Life Balance: Flexible arrangements and parental leave policies for a healthy equilibrium. • Diversity and Inclusion: Policies promoting equity and equal opportunities. • Career Services: Guidance for career planning, job searches, and interview preparation. • Student Career Support: Assistance with internships and post-graduation career paths. • Postdoctoral Researcher Support: Specialized programs aiding transitions into academia or industry. • Research Integrity and Ethics: Upholding rigorous standards in academic and research work. • Leadership Development: Opportunities to develop leadership skills for academia and beyond. • Entrepreneurship and Innovation: Resources to support innovative ideas and startups. • Alumni Network: Access to a strong network providing valuable connections and opportunities.
UNIVERSITY VIII: KU LEUVEN [16]	
INSTITUTIONAL CAREER MANAGEMENT POLICY	KU Leuven utilizes a robust performance appraisal system to retain and promote valuable researchers, considering criteria like publications and teaching activities. Recognized with the European Excellence in Human Resources Research Award, KU Leuven emphasizes autonomy and career development for academics from the outset. The university prioritizes professional development and international mobility through initiatives like YouReCa, offering training, career support, and mobility opportunities beyond research.
ACTIVITIES AND RESULTS	Young teachers at KU Leuven receive support through start-up grants and a five-year career pathway as assistant teachers, guided by predetermined criteria and mentorship. Various forms of career support, including coaching and self-reflection tools, help establish both short- and long-term career objectives aligned with individual and departmental objectives. KU Leuven provides a comprehensive framework for professional support to academics, covering research, education, group development, innovation, and communication. Additionally, a range of training opportunities, including language and computer courses, enhance professional and personal development in various skills areas.
RELEVANT DIMENSIONS IN CAREER MANAGEMENT	KU Leuven's appraisal process is part of a comprehensive career development policy that acknowledges diverse career paths. It allows individuals to clarify personal circumstances and choices. The university aims to create an environment where researchers and academics can pursue flexible and sustainable careers while balancing other life aspects.
UNIVERSITY IX: University of Chicago [17]	
INSTITUTIONAL CAREER MANAGEMENT POLICY	The University of Chicago's Institutional Career Management Policy covers Academic Advancement, Professional Development, Mentorship Programs, Work-Life Balance, Diversity and Inclusion, Career Services, Student Career Support, Research and Scholarly Activities, Leadership Development, Entrepreneurship and Innovation, Alumni Engagement, and Global Engagement.
ACTIVITIES AND RESULTS	1. UChicagoGRAD offers personalized career advising services. 2. GRADUCon hosts an annual career conference for graduate students, postdocs, and recent alumni, featuring career panels and networking. 3. Additional events include Alumni career forum, Data Science and Analytics Career Fair, Consulting Spring Training, Academic Job Market Summer Camp, and Pathways to College Teaching Careers.

	4. The Graduate Global Impact (GGI) Pitch Internship Program allows students to create skill-building internships. 5. myCHOICE is a career exposure and professional development program for PhD scientists, broadening their career preparation.
UNIVERSITY X: GHENT UNIVERSITY [18]	
INSTITUTIONAL CAREER MANAGEMENT POLICY	Ghent University prioritizes work-life balance, offering support for parents, program flexibility, and a health and wellness program. The university's talent-driven human resources policy fosters excellence in research, education, and service. Their strategy and action plan focus on career development for all academic staff, especially early career researchers, aiming to enhance prospects both within and outside the university. The policy attracts top postdocs, supports their career development, and prepares them for future leadership roles in various sectors.
ACTIVITIES AND RESULTS	Ghent University acknowledges the evolving nature of academic research in a globalized world and emphasizes interdisciplinary and international collaboration. A talent-oriented career policy is vital in motivating and engaging researchers. The university fosters a supportive environment through initiatives like the Ghent University PostDoC community, facilitating networking and career development opportunities for postdocs across faculties. Managers are pivotal in providing avenues for researchers to enhance their skills and progress in their careers. Researchers are encouraged to take an active role in their career development by utilizing university resources, networking, and exploring diverse opportunities within and outside academia. Ghent University also advocates for the recognition of postdoctoral expertise in the external labor market, promoting the societal value of research-oriented experiences and skills to employers.
RELEVANT DIMENSIONS IN CAREER MANAGEMENT	Ghent University's career policy prioritizes talent development, aiming to cultivate skills that align with broader societal objectives. It goes beyond research skills, recognizing and fostering various competencies and responsibilities across academic and research-related domains. The university's approach focuses on holistic competency development to meet diverse professional challenges.

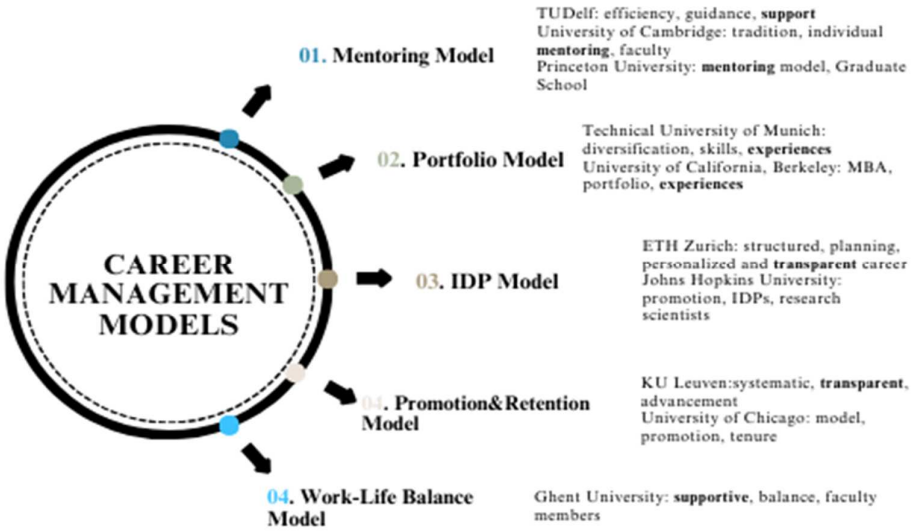

Fig. 1. Career management models.

5. DISCUSSIONS

These research results provide valuable insights and practical implications for technical universities aiming to enhance their career management strategies. By adopting and adapting effective elements from these models, institutions can create a conducive environment that nurtures talent, supports career growth, and fosters a thriving academic community.

Overall, the research results highlight the importance of tailored career management approaches in technical universities. Each model showcased unique strengths and

benefits, catering to the diverse needs and aspirations of academic professionals, as illustrated in Figure 1.

The findings underscore the significance of mentorship, professional development, clarity of career pathways, and a supportive work environment in facilitating successful academic careers.

6. CONCLUSIONS

6.1. Overall conclusions

The examination of different career approach models employed by technical universities provides valuable insights into effective strategies for managing academic careers. The research findings underscore the importance of personalized approaches, mentorship, professional development, and a supportive work environment in fostering successful academic trajectories. The following conclusions can be drawn from the research:

Tailored Career Approaches: Technical universities should recognize the diverse needs and aspirations of their faculty and staff. Implementing career approach models that offer personalized guidance and support enables individuals to navigate their unique career paths effectively.

Mentorship as a Key Component: The role of mentors in academic career development cannot be overstated. Mentorship programs facilitate knowledge sharing, networking, and guidance, empowering mentees to make informed career decisions and navigate the academic landscape successfully.

Continuous Professional Development: Emphasizing the importance of ongoing learning and professional development is crucial. Career approach models that incorporate Individual Development Plans (IDPs) or portfolio-building strategies enable individuals to continually enhance their skills and stay competitive in rapidly evolving fields.

Transparent Evaluation Processes: Transparent promotion and retention criteria, coupled with regular feedback and evaluation processes, contribute to a fair and supportive academic environment. Clearly defined pathways for career progression provide individuals with a sense of direction and recognition, leading to increased job satisfaction and retention rates.

Work-Life Balance as a Priority: Creating a work environment that supports work-life balance is essential for academic professionals. Implementing policies and initiatives that promote flexibility, childcare support, and healthy work-life integration contribute to improved well-being, reduced stress levels, and higher job satisfaction.

In conclusion, effective career management in technical universities involves considering individual strengths, interests, and commitments alongside formal career structures.

By adopting models such as mentoring, portfolio development, individual development plans, promotion and retention strategies, and work-life balance initiatives, institutions can empower their faculty and staff to thrive in their academic careers.

It is crucial for technical universities to continuously assess and adapt their career management approaches to meet the evolving needs of their academic workforce, thereby fostering a supportive and successful academic community.

6.2. Limitations

While this study offers valuable insights into how technical universities manage academic careers, it's essential to recognize certain constraints that might have impacted the results. The following limitations should be considered when interpreting the results:

- Sample Size and Selection - The study examined a limited number of technical universities and their career models, potentially limiting the generalizability of findings to other institutions.
- Bias and Subjectivity - Subjective interpretation and researcher biases may have influenced data analysis and

findings, despite efforts to minimize bias.

- Limited Scope of Models - The study focused on specific career models, possibly overlooking other innovative practices in academic career management.
- Self-Reported Data - Reliance on self-reported data through interviews and surveys may introduce response bias and inaccuracies.
- Contextual Factors - Findings are influenced by institutional contexts, such as funding and organizational culture, which may affect the applicability of results to other settings.
- Long-Term Impact Assessment - The study primarily captured immediate experiences, potentially overlooking long-term effects of career management strategies. Long-term outcomes and impact on career trajectories were not extensively explored due to the limited timeframe of the study.

Additional investigation is required to evaluate the long-term efficacy and endurance of these models in facilitating the development of academic careers. Despite these limitations, the study provides valuable insights into the different career approach models implemented by technical universities and their potential impact on academic career management.

Future research can build upon these findings by expanding the scope of universities and models examined, incorporating longitudinal assessments, and exploring the perspectives of diverse stakeholders to gain a more comprehensive understanding of academic career management in technical universities.

7. REFERENCES

[1] Wang, M., & Wanberg, C.R. *100 years of applied psychology research on individual careers: From career management to retirement*. Journal of Appl Psychol. 102(3):546–563, 2017.

[2] Zacher, H., Rudolph, C. W., Todorovic, T., & Ammann. *Academic career development: A review and research agenda*. Journal of Vocational Behavior, 110, 357–373, 2019.

[3] Baruch, Y. *Transforming careers: from linear to multidirectional career paths: Organizational and individual perspectives*. Career Development International, 9(1), 58–73, 2004.

[4] Ooms, W., Werker, C., & Hopp, C. *Moving up the ladder: Heterogeneity influencing academic careers through research orientation, gender, and mentors.* Studies in Higher Education, 44(7), 1268–1289, 2019. https://doi.org/10.1080/03075079.2018.1434617

[5] Semenescu, A., Manasia, L., Costoiu, M., Udrea, E. *Strengthening University Third Mission Through Education – Enterprise Cooperation: The Value of Innovation Ecosystems* in Akram Soliman Elselmy (ed.) *Sustainable & Innovative Technologies. Towards a Resilient Future* [Proceedings of The International Maritime Transport and Logistics Conference Marlog12, 2023 March, Alexandria-Egipt, Arab Academy for Science Technology & Maritime Transport, 62-73], 2023.

[6] Whitchurch, C., Locke, W., & Marini, G. *Challenging career models in higher education: The influence of internal career scripts and the rise of the "concertina" career.* Higher Education, 82(3), 635–650, 2021.

[7] Overlaet, B. (n.d.). A Pathway towards Multidimensional Academic Careers.

[8] Udrea (Făină), E. C., & Semenescu, A. *Determinants of Academics' Job Satisfaction: Examing The Perspective of Academic Staff.* Nonconventional Technologies Review, 27(1), Article 1, 2023. http://www.revtn.ro/index.php/revtn/article/view/409

[9] University Tu Delft. (n.d.). Retrieved from https://www.tudelft.nl/en/
[10] University of Cambridge. (n.d.). Retrieved from https://www.cam.ac.uk/
[11] Princeton University. (n.d.). Retrieved from https://www.princeton.edu/
[12] Technical University of Munich. (n.d.). Retrieved from https://www.tum.de/en/
[13] University of California. (n.d.). Retrieved from https://www.universityofcalifornia.edu/
[14] ETH Zurich. (n.d.). Retrieved from https://ethz.ch/en.html
[15] Johns Hopkins University. (n.d.). Retrieved from https://www.jhu.edu/
[16] KU LEUVEN. (n.d.). Retrieved from https://www.kuleuven.be
[17] University of Chicago. (n.d.). Retrieved from https://www.uchicago.edu/
[18] Ghent University. (n.d.). Retrieved from https://www.ugent.be

Managementul strategic al carierei academice: explorarea modelelor de abordarea carierei în universități tehnice

Acest articol examinează perspectivele universităților tehnice în gestionarea carierelor academice prin explorarea diferitelor modele de abordare. Studiul își propune să evidențieze influențele punctelor forte, intereselor și angajamentelor personale, alături de structurile formale de carieră, asociate căilor individuale de carieră. Obiectivul a fost de a obține o înțelegere profundă a strategiilor de management al carierei implementate de anumite universități tehnice selectate. Procesul de cercetare a implicat identificarea și analiza a zece universități tehnice cunoscute pentru modelele lor distinctive de abordare a carierei: modelul de mentorat, modelul de portofoliu, modelul planului de dezvoltare individuală, modelul de promovare și reținere și modelul de echilibru între viața profesională și viața privată. Studiul a folosit metode de cercetare calitativă, inclusiv studii de caz și analiza documentelor relevante. Limitele cercetării sunt determinate de mărimea eșantionului și interpretarea subiectivă a datelor.
Cu toate acestea, constatările oferă perspective valoroase asupra strategiilor eficiente pentru gestionarea carierelor academice în universitățile tehnice. Concluziile subliniază importanța scenariilor de carieră și rolul lor în ghidarea indivizilor în construirea unei cariere concertate. Universitățile tehnice joacă un rol crucial în cultivarea competențelor specializate în domeniile STEM și promovarea diversificării forței de muncă academice. Modelele de abordare a carierei examinate demonstrează strategiile folosite de aceste universități pentru a sprijini profesioniștii din universități în dezvoltarea și progresul în carieră.

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