


# Entrepreneurial University Challenges and Critical Success Factors to Thrive

Neeta Baporikar, Namibia University of Science and Technology, Namibia & University of Pune, India\*

 <https://orcid.org/0000-0003-0676-9913>

## ABSTRACT

Higher education and universities have transformed due to the evolution of knowledge-based societies. This also led to the rise and growth of the “entrepreneurial university” concept. Factors that promote entrepreneurial universities include funding, self-reliance, academic freedom, better linkage to industry, innovation, provide employment, and promote social and economic development. Hence, worldwide, entrepreneurial universities are increasingly recognized as an important constituent to tackle fiscal and employment issues. However, various reports and studies reflect that entrepreneurial universities have not achieved these objectives. That may be due to the challenges and lack of critical success factors (CSFs) understanding to be entrepreneurial university. Hence, adopting an exploratory approach with a systematic literature review this paper intends to focus on the challenges of entrepreneurial universities and identifies the CSFs to thrive as entrepreneurial universities and provides recommendations to succeed as entrepreneurial universities.

## KEYWORDS

Application, Business, Creativity, Development, Essentials, Ideas, Policy, Programs, Promote

## INTRODUCTION

Entrepreneurship has grown tremendously in recent decades and now encompasses more than economics or commerce. The entrepreneurship field today has become an interdisciplinary area of study that has found a secure niche in humanities, business, sciences, technology, and engineering education (Baporikar, 2014). Credit for this development belongs to many individuals – both practitioners and academicians – who have succeeded in relating entrepreneurial theory to the various problems of entrepreneurship and small and medium enterprise (SME) development (Baporikar, 2016). Hence, worldwide, entrepreneurship education is increasingly being recognized as an important element in the broader efforts to tackle the global youth and graduate employment challenge (Baporikar, 2014). National labor markets’ capacity to absorb the increasing numbers of new and young entrants, as well as provide decent and productive employment opportunities, is far from sufficient (Baporikar, 2011). The promotion of an enterprise culture and the creation of youth with entrepreneurial attitudes and habits of mind require commitment and long-term investments in education. For this, universities themselves must not remain traditional and become entrepreneurial. Entrepreneurial universities will not only contribute to the creation of new and innovative youth

DOI: 10.4018/IJAMTR.300347

\*Corresponding Author

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and sustainable enterprises but also benefits society as it creates social entrepreneurs and green entrepreneurs who provide solutions to current societal and environmental challenges. Yet various reports and studies reflect that entrepreneurial universities have not achieved these objectives globally and more so in emerging economies. That is because of the challenges and insufficient understanding of the critical success factors (CSFs) to become and succeed as an entrepreneurial university. Hence, adopting an exploratory approach with a systematic literature review this paper intends to focus on the challenges of entrepreneurial universities and identify the CSFs to succeed as entrepreneurial universities, and propose strategies to succeed as an entrepreneurial university.

## **Background**

The concept of the entrepreneurial university denotes a major shift from its idealized ‘ivory tower’ model, where universities are free to undertake their activities (e.g. teaching and research) in pursuit (and dissemination) of knowledge for knowledge sake. According to Clark (2001), an entrepreneurial university is a university that can survive and adapt in highly complex and uncertain conditions of the environment in which it operates. As such, the concept of an entrepreneurial university is inter-related with academic capitalism and the scholarship of application and increasingly located within a strong market rationale promoted by increased neo-liberalization of the world order. Academic capitalism refers to how universities (particularly but not limited to public research universities) respond to neo-liberal tendencies to treat higher education policy as a subset of economic policy (Slaughter and Rhoades 2000). It refers to how universities and faculty deal with the market and exhibit market-like behaviors. The scholarship of application, however, is focused on the relevance of knowledge produced and disseminated in universities and its applicability and impact on society (Tang 2014). This can be seen in the increased focus and funding for Science, Technology, Engineering, and Mathematics (STEM) related programs and research across higher education systems, which are perceived to produce the necessary innovation required to sustain economic development and enhance the competitiveness of their respective countries. It can also be seen in the debates related to the relevance of the humanities and the social sciences to economic development and the public vs. private nature of higher education. Overall, the entrepreneurial university should be seen in terms of its ability to adapt and survive within an increasingly market environment, and in terms of its contribution to solutions to societal issues in their teaching, research, and extension functions.

## **LITERATURE REVIEW**

Most universities are operating in the public sector and traditionally they are not suited for an entrepreneurial role (Kirby, 2005). Moreover, over the past few decades, the world over, universities are facing new challenges and rapid changes like the increased pace of technological progress, negative demographic shifts, decreasing public funding, new skills required in the marketplace, fierce competition for attracting students and research funds (Baporikar, 2020). Today, entrepreneurial universities, which are the result of the second revolution in the mission of universities, play a vital role in the economic development of different countries. Universities, especially the entrepreneurial ones, are important actors in the “Triple Helix” of University-Industry-Government relations that promote the science-based innovative sphere of the whole globe (Etzkowitz & Zhou, 2006). Hopefully, there is a vast but fragmented and embryonic literature in this area of research, which could pave the way for proposing a clear and acceptable conceptualization. Entrepreneurial university models are emerging and yet a more holistic view is inevitable (Baporikar, 2019). Clark (1998) enumerates five elements for entrepreneurial universities, which are as follows: A strengthened steering core, an expanded developmental periphery, a diversified funding base, a stimulated academic heartland, and an integrated entrepreneurial culture.

Other studies consider a series of elements which are: Mission, goals, structure, management, governance and leadership, networks, conglomerates, and strategic alliances, and culture. Etzkowitz (2004) considers interdependence with the industry and government and independence from other institutional spheres, hybrid organizational forms, capitalization of knowledge, and renovation as the brilliant elements and factors in an entrepreneurial university. Kirby (2005) mentions incorporation, implementation, communication, organization, encouragement and support, recognition and reward, endorsement, and promotion as the main elements in an entrepreneurial university. Guerrero (2008) investigated the entrepreneurial university with Institutional theory and categorized the elements into two groups: formal and informal. To ensure the anatomy of entrepreneurial university elements like human capital resources, financial resources, physical resources, commercial resources, status and prestige, networks and alliances, and localization is of paramount importance (Baporikar, 2015). Resource-based view to elaborate the internal sectors of an entrepreneurial university and institutional theory as a basis to analyze the environmental factors affecting the formation of entrepreneurial universities show the need for universities to be strategic and compete in the academic world too (Urbano, & Guerrero, 2013).

After all, entrepreneurial universities are the results of the second revolution in the mission of universities and they do play a significant role in the economic and social development of different countries. The first generation of universities dealt with teaching purposes and their main mission was to teach the existing knowledge. In the late 19th century, the first revolution took place in Germany, when universities commenced doing research activities. In the second half of the 20th century, with the advent of science-based innovations in World War II, the second revolution came into existence, and universities added economic and social development to their teaching and research missions (Etzkowitz, 2004). This type of university is called “entrepreneurial university”.

The “entrepreneurial university”, in the literature, has so many implications. Rothaermel, Agung, & Jiang . (2007) provided a taxonomy of the literature on university entrepreneurship. Their definition of university entrepreneurship includes all types of entrepreneurial activities of universities. The result of this study is of paramount importance since it categorizes the researches into four main streams: a) entrepreneurial research university; b) productivity of Technology Transfer Offices; c) New firm creation; and d) environmental context. Urbano & Guerrero (2013) refer to the embryonic nature of the literature in this field and try to propose a framework in this matter. Their proposed model includes environmental (formal and informal) and internal (resources and capabilities) factors. It is incontrovertibly axiomatic that there is not a pure holistic and comprehensive framework in the literature, or if there could be in the future, no one would guarantee its complete acceptability amongst experts all over the world (Baporikar, 2019).

However, an ontological view might be instrumental to understand how the idea of the university has altered over a period and need.

Table 1 gives the altered view of the university.

Thus, it now needs to be reckoned that universities globally are facing new challenges and rapid changes like the increased pace of technological progress, demographic shifts, reduced funding, new skills requirements, competition. These challenges and changes call for academic revolution in universities, which implies an imperative to make these organizations more entrepreneurial in their thinking and approaches, hence the term entrepreneurial universities (Baporikar, 2020).

As it is noted earlier, a series of conceptualizations and models are in the literature which mainly tries to elaborate the evolutionary progress of the entrepreneurial universities or to conceptualize the phenomenon. Also, a series of cases were studied, but in different manners and using different approaches, however, there are hardly any studies that focus on the CSFs, hence as mentioned earlier, this study attempts to elaborate the challenges of an entrepreneurial university and CSFs to succeed as one.

**Table 1. Altered View of University**

Nomenclature	Purposes of Education	Role of University
Traditional University	Civic, cultural and economic goals	Custodian of socio-cultural and national values Socialization of students Supply of qualified manpower Teaching and research
Modern University/ Corporate University	Focus on technical, vocational, and professional education and training	Applied/action collaborative research in collaboration with industries, NGOs. Employability of students Growth and diversification Promotion of professional education The separation between teaching and research
Entrepreneurial University	To meet the diverse needs	Adoption of lifelong learning model Creating science parks, incubators, and industry associations Encouragement of higher education on a lifelong basis Promoting academic capitalism and enterprise culture. Putting knowledge into application. Work-Ready Students

Source: Self-Developed

## Conduit to Transformation Into an Entrepreneurial University

Several universities embody in their mission statements the words “enterprise” and “entrepreneurship”. However, these terms need to be more than a reference (OECD, 2012). The transition from a traditional university into an entrepreneurial one is not smooth; it requires considerable strategies and processes.

Various scholars have provided many pathways for universities to thrive as the entrepreneurial university as shown in table 2.

## CHALLENGES AND CRITICAL SUCCESS FACTORS

Figure 1 gives the challenges of entrepreneurial university below followed by a discussion of these contemporary challenges.

### Commercialization and Incubation

Commercialization generates academic impact because it constitutes an immediate and measurable market acceptance for outputs of academic research (Markman, Siegel, & Wright, 2008). To support commercialization, many universities have established science parks, technology transfer offices, and incubators as these connect a range of challenges identified by a university and are possible solution providers (Baporikar, 2012). Incubators provide a supportive environment for new business ventures as physical incubators use shared rented office space, business services, support for building networks, professional business support, and finance. Virtual incubators focus on online business and network development support (Gibb, 2012). An entrepreneurial university must focus and establish strong links with external initiatives such as science parks and incubators. After all, a university can provide intellectual resources to assist in skills development for existing projects, but can also initiate research to identify solutions for unresolved challenges. Universities are increasingly moving from their traditional primary role as education providers to a more complex entrepreneurial university model (Baporikar, 2015; 2019; 2020). Such universities incorporate the role of commercializing knowledge and actively developing private enterprises as a knowledge-based economy would require

**Table 2. Pathways/Framework to Thrive as Entrepreneurial University**

Author	Pathways/ Framework
Clark (1998)	Establishing a core steering committee. Extending the development periphery. Diversifying the funding base. Stimulating the academic heartland. Spreading an entrepreneurial culture.
Etzkowitz (2004)	Capitalizing on knowledge. Managing interdependence with industry and government. Establishing the autonomy of a particular field. Hybridization between independence and interdependence. Embodying reflexivity through the continuous renewal of internal structures.
Clark, 2004	Diversifying university self-financing. Promoting steering capacity. Increasing the development field. Encouraging academic spirit. Creating an entrepreneurial culture.
Gibb, Haskins & Robertson (2009)	Maximizing independence and individual patent initiatives. Uniting by shared values/mission and not controls systems. Incentivizing innovation and learning from mistakes. Providing extensive opportunities for holistic project management. Organize a reward system for success and create stakeholder credibility. Implementing flexible strategic thinking instead of formal planning and encouraging, rewarding learning by doing. Supporting overlapping and informal integration inside and outside the organization. Delegating responsibility to see things through and encouraging staff to develop external relationships.
Al-Shammari (2010)	Focusing on creating jobs rather than on employment. Building partnerships with stakeholders from the public and private sectors as well as alumni. Transferring technology and knowledge through close contact with outstanding Western and Eastern universities in the field of entrepreneurship. Implementing education based on creativity and innovation. Providing capable leadership for the material and moral potential of entrepreneurs.
EU - OECD (2012)	Leadership and Governance, Organizational Capacity, People, and Incentives Entrepreneurship Development in Teaching and Learning and Pathways for Entrepreneurs University–Business/External Relationships for Knowledge Exchange and the Entrepreneurial University as an Internationalized Institution Measuring the Impact of the Entrepreneurial University.

Source: Developed from Literature Review

a more significant increase in commercializing indigenous capabilities and technologies (Baporikar, 2018). This implies that the focus needs to move to indigenous innovation, rather than absorbing and diffusing technological knowledge from advanced countries to ensure business sustainability (Baporikar, 2021b). Incubators can assist to commercialize indigenous capabilities and technologies. The tendency to commercialize university research may cause universities to neglect research which informs their teaching. Universities may act as incubation facilities to students and staff by stimulating entrepreneurial ideas and creating a link to industry. In this way, universities provide network opportunities for new entrepreneurs and could help potential entrepreneurs'. Patents vary in economic importance across different sectors and many patents do not lead to commercially successful products however, engineering and natural sciences among institutes have a strong inclination to patenting due to its recognition value. Further, with legal mechanisms characterized by formal instruments that involve the legal registration of innovation whereby the innovator obtains temporal exclusive rights

Figure 1. Entrepreneurial University Challenges (Source: Self-Developed)



to use, and produce or exploit the innovation, many businesses choose to not register a patent as they find it difficult to prove the originality.

### **Growing Competitiveness Due to Online Education**

The open and distance learning institutions globally are now experiencing an unprecedented prosperous period while the market is increasingly competitive, which covers all education levels, attracts public and private sectors, and provides various scopes of services (Gaba & Li, 2015). Therefore, with the conventional universities widely joining in open and distance education, it is an urgent issue for entrepreneurial universities to explore their position, advantages, in this sphere of the educational market.

### **Industry Collaboration**

Pressure with funding has encouraged academics into greater collaboration with industry which provides better resources than the business has on its own (Tether, 2002). Businesses offer universities extensive access to expertise in product development, commercialization, and market knowledge and employment opportunities for university graduates (Tether & Tajar, 2008). Different stages of economic development and different innovation systems exhibit different patterns of university-industry relations. There is and will remain a need for continued effort to build and reinforce networks to maximize resources and experience of good practice for the continued benefit to the university (Gibb, 2012). Alumni are described as the most valuable resource for a higher education institution and universities commit to engaging with alumni (Gibb, 2012). It is up to the alumni themselves to embrace their alma mater to develop a lifelong relationship as they too have a vested interest in the reputation of their alma mater as it defines the value of their qualification. Universities can build work-integrated learning into their academic degrees that should be linked to the industry with subsequent internships and alumni can also be targeted to fund university initiatives that are not supported by

the government. They represent their alma mater through the contribution they make to society. Mentoring services and graduate entrepreneurship is perceived by the government as a contributor to sustainable competitive advantage, economic growth, and job creation.

## **Innovation**

Innovation is regarded as one of the main sources of competitive advantage, companies and countries do their best to invest in innovation aiming at reinforcing their competitiveness. Generally, universities are an important source of knowledge and provide the basis for innovation in emerging industries hence; university-industry link has emerged as a key component of the national innovation system in many countries (Temel, Durst, Yesilay, Hinteregger, Sukan, & Uz Kurt, 2015). Universities are becoming an increasingly important component of the national innovation system and innovation is an outcome of entrepreneurial and enterprising behavior (Gibb, 2012). Linking patterns of information from various sources forms the basis of innovation and new opportunities. Innovation can assist to differentiate products as well as improving their competitive position in the market (Baporikar, 2014; 2017). Innovation and knowledge are key factors affecting the competitiveness of countries (Baporikar, 2015). Innovation has direct and indirect value. Direct value refers to what users and producers derive directly from its production and use, while indirect value is found in the production and use of substitute and complementary goods and services (Tether, 1998). This becomes relevant for R&D and works integrated learning for students and staff at entrepreneurial universities. Collaboration with universities in mature and emergent industries differs in terms of market and technology instability, the role of networking, and collaboration for innovation development (Freitas, Marques, & e Silva, 2013). Networks contribute significantly to innovative capabilities by exposing them to a fresh source of ideas, enabling fast access to resources, and enhancing the transfer of knowledge. Models of innovation in which knowledge transfer takes place include a traditional model of innovation where the business generates, develops, and commercializes ideas and knowledge for the innovation may transfer from an external source without the source even being aware that this information is being taken; outsourced innovations model where innovations are developed externally and then implemented and commercialized and open innovation model, where commercialization of ideas derived is internal and external to the business (Tether & Tajar, 2008). Innovation cooperation means active participation in joint innovation projects (including R&D) with other organizations (Baporikar, 2014). According to the systemic view on innovation processes, innovations are created within a complex web of interactions between different stakeholders of the innovation system for effective implementation (Baporikar, 2017). Cooperating with stakeholders in the development of innovations is likely to occur when the development is complex. Organizations can often enhance their image and reputation by associating with a prominent organization or academic institution, and thus share risks. For a university, innovation may include new program development, new forms of stakeholder relationships, new developments in alumni relations, new approaches to research, new developments from research, and/or new organizational design and governance (Gibb, 2012). Collaborative research by academia with industry can be a powerful source of innovation and it is a central competitive element only when the potential innovator can appropriate its profits. Universities are a cheaper resource for innovation than consultants, but many organizations are less likely to collaborate with universities (Tether, 1998).

## **Over-Reliance on Government**

Universities are established by the government for solving the problem of economic and social development of the country. Usually, universities are publically funded out of the government corpus and this has both advantages and disadvantages. On the one hand, it benefits from this support of government but it has on the other hand, indirectly caused policy reliance without the autonomy that universities need so that they can reform and change with times. Governments gave a lot of support to them, such as the increase of funding, infrastructure, and personnel (Hao, 2017). Due to this

universities, in general, adopt a national unified operation model that details enrollment, discipline, curriculum, teaching materials, and assessment. This approach is helpful for strong control and standardization of teaching and learning, as well as training large numbers of people rapidly. However, for the entrepreneurial universities, with the diversification of local economic and social development, and the differentiation of demands, this is unsuitable. Traditional universities are committed to graduation, credit recognition, and transfer, which create some conflicts with the requirements of entrepreneurial university enrollment and management systems. Moreover, the issues of stakeholder cooperation, open and flexible platform, recognition of learning outcomes, and quality assurance may involve breakthroughs and innovations in the existing education system and mechanisms (Cui, 2018). Hence, over-reliance on government support is a serious challenge especially in emerging economies where the need for entrepreneurial universities is vital for regional growth and development.

## **Research and Development**

In the current era of the 21 century, any organization's innovation performance is linked with its research and development (R&D) capacities inside the business. Moreover, research-field-specific experience and competencies can benefit from a specific knowledge base that enhances absorptive capacity (Tether, 2002). It also should allow better exploiting external knowledge and achieving the valuable outcome of R&D activities. Small set-ups are less inclined to conduct collaborative and contract research to access university knowledge due to fewer financial and skills resources (Baporikar, 2018a). Furthermore, they have fewer internal resources, and therefore have a greater need for cooperative agreements (Tether, 2002). Publications, participation in conferences, and collaborative research are particularly important in R&D intensive industrial activities and together with contract research are the best forms of knowledge transfer through knowledge acquired by the university would need to be adapted according to business' specific needs.

## **Stakeholders**

A decision to be entrepreneurial is a process that involves both internal and external stakeholders (Baporikar, 2019), and includes a wide range of individuals, organizations, institutions, representatives of government, commerce, and the wider community (Baporikar, 2020; 2019; 2015). The choice of partners is dependent on business-specific characteristics, the strategy, objectives, innovation efforts, and the costs involved but primary stakeholders continue to be students, teaching and research staff, administrators, and managers directly involved with the university. Secondary stakeholders include parents, alumni, entrepreneurs, and future employers. Tertiary stakeholders comprise representatives from government, industry, and the wider community while the government's role is to support organizations with policies to accelerate localization and to help in the development of new products that are based on transferred technology. To grow the formal economy, stakeholders need to help create value inside the informal economy by investing in education, infrastructure, and the development of programs by knowledge exchange mechanisms that include joint curriculum development and the provision of the internship. Universities should build partnerships with organizations to ensure ongoing knowledge exchange, to incorporate this knowledge into the curriculum. Businesses with different sizes and activities need to engage differently to seek solutions to their problems and build competence. Stakeholder engagement and partnership include engagement with business, alumni, professional bodies, and entrepreneurs (Gibb, 2012). The entrepreneurial role of a university relates to finding innovative strategies to contribute to social, cultural, and community development by focusing on the strength of its relationship with former alumni, and linking graduates with local businesses (Gibb, 2012). Collaboration with universities seems more likely in sectors where technology is developing fast like IT, Big data, health, pharmacy. Building relationships with small businesses demand closer university ties with the local community and local development agencies. Thus a university can do better when there is stakeholder involvement and hence need to enable them to play a key role.



## Strong Culture

A strong competitive approach both internally and externally, a willingness to take bold decisions, and a collegial approach to decision making reflect strong positive organizational culture. Success depends on institutions finding ways of getting a lot of relatively small decisions right over a long period. This is a blueprint for a holistic management style and understanding and attending all the different aspects of management that can create a momentum in which success reinforces success (Shattock, 2010). Factors that distinguish top international universities from their competitors are the presence of a high concentration of talented teachers, researchers, and students and sizable budgets (Baporikar, 2021a; Salmi, 2009). World-class universities recruit students and faculty without concern for national borders and that enables them to focus on attracting the most talented people, no matter where they come from, and open themselves to new ideas and approaches. Strong organizational culture also provides them with several sources of funding: government money for operational spending and research, contract research from public organizations and private firms, and earnings from endowments, gifts, and tuition fees.

## Quality Assurance

Although entrepreneurial universities have the right to independently award degrees, there is a considerable quality gap between top conventional universities and entrepreneurial universities in terms of faculty, subjects, and teaching quality, and these need to be reviewed and standardized. Hence, accreditation and quality assurance would be crucial if entrepreneurial universities have to stand the test of time, develop, contribute and be sustainable to create the growth and innovation for the economies as envisaged.

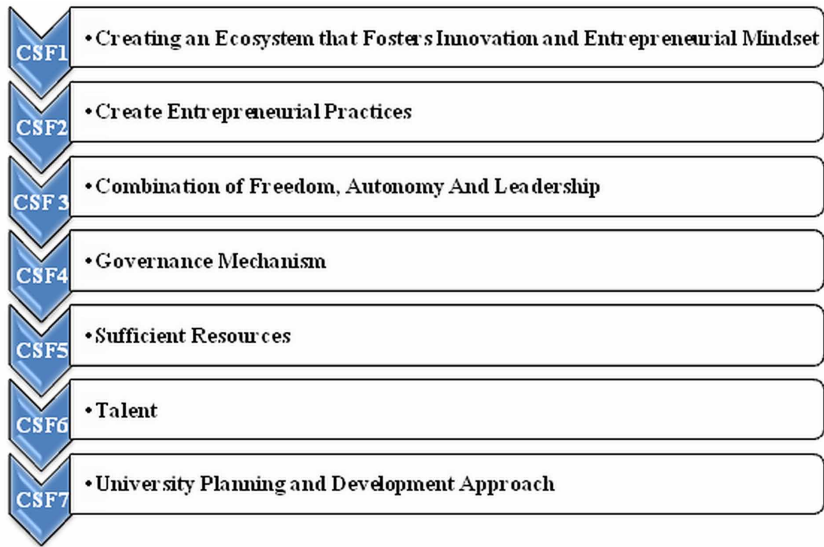
## CRITICAL SUCCESS FACTORS

Figure 2 gives the critical success factors below followed by a discussion of these factors.

Critical success factors represent key performance areas that are essential for an organization to accomplish its mission. In addition, CSFs provide processes that help an organization establish strong ways of thinking, communicating, and making decisions (Baporikar, 2017; 2018). While future scenario and CSFs methods have extensive histories with operational and strategic planning, neither method, on its own, constitutes a strategic planning effort, nor results in a strategy or strategic plan per se, or even has a direct, explicit interface with the achievement of strategic goals (Baporikar, 2013). However, when used together within a strategic planning process, they noticeably enhance the process and help to achieve the goals. So if universities want to be entrepreneurial and succeed in making the set-up so, given below are the CSFs to achieve that goal.

1. **Creating an Ecosystem that Fosters Innovation and Entrepreneurial Mindset:** Students need to learn more than technical abilities if they are to be successful at tackling the current and future pressing global challenges. Graduates need to be able to identify emerging problems, challenge assumptions, collaborate readily, and communicate openly. They must be able to frame opportunities, develop and assess ideas, and create meaningful solutions, as well as be entrepreneurial change-makers ready to lead within diverse work environments. Problem identification, interdisciplinary collaboration, open communication, and the ability to challenge commonly held assumptions are essential skills that must be developed.
2. **Create Entrepreneurial Practices:** There is a need to understand and frame opportunities, develop and assess ideas, and create valued solutions for students to be prepared to lead within diverse professional environments.
3. **Combination of freedom, autonomy, and leadership:** World-class universities thrive in an environment that fosters competitiveness, unrestrained scientific inquiry, critical thinking,

Figure 2. Critical Success Factors (Source: Self-Developed)



innovation, and creativity. Institutions that have complete autonomy are also more agile because they are not bounded by heavy bureaucracies and externally imposed standards. As a result, they can manage their resources efficiently and quickly respond to the demands of a rapidly changing global market.

4. **Governance Mechanism:** Adopt a favorable governance mechanism to encourage autonomy, strategic vision, innovation, efficient resource management, and flexibility.
5. **Sufficient Resources:** Need to have a continuous flow of sufficient resources to provide an extensive and comprehensive learning environment and a rich environment for advanced research
6. **Talent:** Need a high concentration of talent (both faculty and students) to be creative and innovative which the hallmarks of an entrepreneurial university are.
7. **University Planning and Development Approach:** Universities have a significant impact on society and can play a key role in sustainability provision (Dagiliūtė, Liobikienė, & Minelgaitė, 2018). When universities adopt linear models, they neglect to integrate a comprehensive range of approaches. Existing data also indicate that university-level planning has suffered from linear thinking thereby they are not in a position to lead the knowledge economy not meet the requirements (Baporikar, 2021b). Hence adopting modern systemic thinking and approaches in planning with conscientious tailoring to address these complexities in ways that complement the needs and characteristics of all the sub-systems in the university be it research, teaching, and varied academic programs is a CSF if the university has to become entrepreneurial and at the same time continue to play its role and deal with intricacies of the academia and the various disciplines.

## SOLUTIONS AND RECOMMENDATIONS

Based on the discussion of the challenges faced and the identified CSFs for entrepreneurial universities, to succeed, some of the solutions and recommendations are:

- Proper determination of performance indicators and quality standards to illuminate and position the entrepreneurial university.
- Appropriate quality resource sharing mechanism is critical and that needs to be developed between traditional and entrepreneurial universities.
- Become independent and deal with developing own quality educational resources, digital learning environments, quality teaching staff, and online education platforms with functions of teaching, learning, management, research, and services.
- Enhance and develop effective sharing mechanisms among all the players in the field of higher education including the entrepreneurial universities which are still in their nascent stage.
- Explore and work on building and creating models and platforms to share knowledge, resources, and institutional talent, to optimize and better serve the knowledge society.
- Governments must reform higher education and make policies to avoid duplication for optimizing efficiency, cost-effectiveness, and social benefits.
- Develop better cohesion between traditional and entrepreneurial universities as the overemphasis on separating and isolating them from each other will cause difficulties in resource sharing as conflicting positions will be a drain for any higher education system.

## **FUTURE RESEARCH DIRECTIONS**

Entrepreneurial universities are here to stay but there are interesting areas that still need to be explored in their context. Some of the themes and questions which need to be investigated and explored include, what will be the future learning environments, building models to develop cognitive skill levels. The learning and teaching landscape will continue to evolve rapidly. Hence, studies to design approaches to include innovative avenues to learning which make learning more engaging and interesting through active learning are essential. Another area of study that will help improve the learning environment is learning analytics. Institutions around the world are creating very interesting blended models. These blended models seem effective with physical interaction. Each university that intends to be a successful entrepreneurial university must develop its own Personal Learning Environments (PLEs) and put forward new approaches to the development of e-learning tools that are no longer focused on integrated learning platforms such as Virtual Learning Environments (VLEs). These PLEs need to be well integrated and, include Web 2.0 technologies, used for working, learning, reflection, and collaboration with others. As a limitation of this study, it is based on a systematic literature review, hence it is future studies be conducted based on primary data with larger samples from different regions, to draw a better picture of challenges in other parts of the world. Gathering data from a larger research sample and gaining insight on particular challenges that entrepreneurial universities face within the higher education environment can provide further guidance for quality leadership development.

## **CONCLUSION**

After years of overlook, universities and their staffs understand and believe that the gap between implicit knowledge and market needs should be considered as a critical and vital dilemma. They could not choose the prior trend to reach their new mission anymore. In the beginning, so many scholars, researchers, and prominent scientists persisted in the face of this challenge, but finally, the classical Ivory Tower had no choice but “change”. Even governments are becoming increasingly aware of the important contribution that high-performance universities make to competitiveness and economic growth (Salmi, 2009). Clark (1998) introduced the modern entrepreneurial university concept and paved the way for prospective authors. He put his fundamental and impressive ideas in his work:

“Creating Entrepreneurial Universities: Organizational Pathways of Transition”. Etzkowitz (2004) highlighted the “Third Mission” and studied the proper linkages under the “Triple Helix” concept. Afterward, many studies were undertaken and deliberated on issues such as faculty culture, curriculum restructuring, less emphasis on campus, and appropriate systems and practices to reach the third mission. But still, there was no common view about the third mission, and hence it got construed that as anything which is not traditional teaching and research.

To conclude, this paper emphasizes that an entrepreneurial university does not adopt non-traditional approaches or does some new things, or renames old activities. But will be that which will focus on technical, vocational, and professional education and training to meet diverse needs. An entrepreneurial university will be a learning organization that will have to focus on applied/action collaborative research in collaboration with industries, NGOs to ensure employability by creating work-ready students, growth, and diversification, promoting professional education, and adopting lifelong learning model on one hand and the other separate research and teaching by creating science parks, incubators, and industry associations to develop academic capitalism, enterprise culture by application of knowledge as universities are also considered crucial institutions in the regional development dynamics associated with smart specialization strategies (Fonseca & Salomaa, 2020). Thus, this paper attempts to clarify the meaning and make sense of this entity, i.e. “Entrepreneurial University”. In doing so, we reviewed the existing literature on the entrepreneurial university to note the distinctive features and characteristics of this generation of universities, and on the other hand, we delved into the challenges of these universities. Finally, we identified CSFs to aid in becoming a successful entrepreneurial university and provided a few recommendations to become one. It is noticeable that we used systems theory and the identified CSFs elaborate the entrepreneurial university as a system.

## **FUNDING AGENCY**

The publisher has waived the Open Access Processing fee for this article.

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*Neeta Baporikar is currently Professor (Management) at Harold Pupkewitz Graduate School of Business (HP-GSB), Namibia University of Science and Technology, Namibia. Prior to this, she was Head-Scientific Research, with the Ministry of Higher Education CAS-Salalah, Sultanate of Oman, Professor (Strategic Management and Entrepreneurship) at IIT Pune and BITS India. With more than a decade of experience in the industry, consultancy, and training, she made a lateral switch to research and academics in 1995. Prof Baporikar holds D.Sc. (Management Studies) USA, Ph.D. in Management, the University of Pune INDIA with MBA (Distinction) and Law (Hons.) degrees. Apart from this, she is an external reviewer, Oman Academic Accreditation Authority, Accredited Management Teacher, Qualified Trainer, FDP from EDII, Doctoral Guide, and Board Member of Academic and Advisory Committee in accredited B-Schools. She has to her credit many conferred doctorates, is a member of the international and editorial advisory board, reviewer for Emerald, IGI, Inderscience, etc., authored more than 300 scientific publications and 30 plus books in the area of entrepreneurship, strategy, management, and higher education.*