

PROGRAM INCLUSIVE, CREDIT-BASED SWAYAM MOOCS IN HIGHER EDUCATIONAL INSTITUTIONS OF INDIA; A REVIEW

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ABSTRACT

The University Grants Commission, in its recent directions, has advised Higher Educational Institutions (HEIs) to deliver 20 to 40% of the program curriculum through credit-based MOOCs available on the SWAYAM portal. This paper reviews and analyses the various aspects related to this policy initiative. It probes the objectives of launching and delves into student and institutional readiness to implement this policy. The study is based on descriptive research methodology and relies upon bibliometric review and secondary sources such as AISHE (2019-20), UGC notifications, National Education Policy, 2020, MHRD, the Government of India, and a few relevant websites. It analyses the student success rate so far and reviews the possibility of MOOCs as an alternative to traditional educational setup and making them program inclusive. The findings reveal a huge gap between student enrolment and certification so far. The bibliometric review reveals a lack of consensus among researchers on various aspects of MOOCs. Making them program inclusive is a huge challenge with rich dividends attached.

Keywords: Program; SWAYAM; MOOCs; Credits; Higher: Education

1. Introduction

Around the world, today, widening participation policies are being advocated to ensure equal access to education by all learners irrespective of caste, colour, creed, and social background (Lambert, 2020). E-learning platforms are important information sources because of their accessibility low cost, simplicity of use, and intuitive nature (Banji et al., 2021). E- The Sustainable Development Goal (SDG 4) advocates equal and affordable access to quality education at all levels. The Gross Enrolment Ratio (GER) in India stands at 27.1%, in higher education for students between 18 and 23 years of age (AISHE Final Report 2019-20 - English, 2020.). One of the main targets of the National Education Policy, 2020 is to increase GER up to 50% by 2035 (Aithal & Aithal, 2020). To meet this target, there is a need to develop an effective e-learning platform along with a robust mechanism of delivery and evaluation. Massive Open Online Courses (MOOCs) have gained importance over the years and can serve as an effective platform to widen access and ensure equal participation. MOOCs offer e-content, which is free with open admission and global reach (Singh & Chauhan, 2017). Students have a lot of independence and the benefit of self-paced learning from MOOCs because of the features like simple to use, affordable, adaptable, and easily available (Meet et al., 2022).

MOOCs that are well-designed can help to deliver higher education as per the recommendations of the National Education Policy, 2020. MOOCs can be a boon for emerging countries with a resource crunch and high inequality of income. Today, we all live in a digital world and thus e-learning will continue to grow. The Ministry of Human Resource Development (MHRD), Government of India (GOI), has always been at the forefront of devising policies to popularize online education through MOOCs (Bordoloi et al., 2020). The Indian MOOC platforms started their journey with the launch of NPTEL (I.I.T. Madras) in 2003, followed by mooKIT (I.I.T. Kanpur) in 2012, and IITBX (I.I.T. Bombay) in 2014. Swayam Portal is a recent addition in 2017 and has gained immense momentum over all these years. Swayam, as an e-platform, is into developing and delivering credit-based MOOC courses in all disciplines ranging from senior secondary level to post-graduation and offers world-class content for learning (Kundu & Bej, 2020a) This paper reviews and analyses various aspects related to the policy initiative of making credit-based SWAYAM courses a part of program delivery in HEIs of India.

2. Objectives of the paper

In this paper, an attempt has been made to:

- To discuss the evolution and objectives of credit-based Swayam MOOCs.
- To review the student and institutional readiness to execute program-inclusive MOOCs.
- To review the role of credit-based MOOCs in meeting the educational needs of India.
- To analyse the data concerning student enrolment and certification in these MOOC courses.

- To highlight the role of the National Testing Agency (NTA) and Academic Bank of Credits (ABC) in the delivery of a curriculum through credit-based MOOCs.

3. Methodology

This is a descriptive paper that is primarily based on a bibliometric review and secondary data. As highlighted by Porter et al. (2002), bibliometric literature review is applied when a detailed picture is to be drawn of a given aspect of knowledge. As this study aims at analysing the research findings regarding various aspects of credit-based SWAYAM MOOCs as highlighted in the previous section, a bibliometric review is the most suitable method. This paper has been written using descriptive research methodology and analysis is based upon both review and data available from secondary sources namely, All India Survey of Higher Education (2019–20), MHRD, Government of India; National Education Policy, 2020, UGC (University Grants Commission) notifications, and websites such as Swayam Central and Class Central.

4. SWAYAM (Study Webs of Active–Learning for Young Aspiring Minds)

Keeping in mind the importance of e-learning, the concept of digitization of education through a dedicated platform in India started way back in 2003 with the establishment of NPTEL, which proved to be the premise for launching SWAYAM. Sivakumaren et al. (2019) highlight in their exploratory study that its origins may be traced back to 2003, when the NPTEL (National Programme on Technology Enhanced Learning), a joint initiative of I.I.T.s and IISc, was launched formally.

According to Mondal and Majumder (2019), SWAYAM is the cooperative project of the MHRD (Ministry of Human Resource Development) and the AICTE (All-India Council for Technical Education) to develop an online platform for teaching and learning. Recognizing the potential of MOOCs to educate society, MHRD of India launched SWAYAM in 2016, where lecturers from I.I.T.s, I.I.M.s, and central universities provide online courses to the public. Kanjilal and Kaul (2016), highlight that SWAYAM is an India-developed IT platform for hosting MOOCs to increase the GER (Gross Enrolment Ratio). Majumder (2019), also endorses the same and observe that SWAYAM is a feasible alternative with the ability to reform India's education system to improve the GER from 20% to 30%. The estimates now have been revised and NEP, 2020 aims at achieving 50% GER by 2035.

Agnihotri and Pandit (2021), noted that it was created to provide the best teaching-learning materials to all, especially disadvantaged groups, for free, to bridge the digital divide among students who have been left behind by the digital revolution. Parthsarthy (2020), add another perspective that SWAYAM provides an opportunity for the students to earn credits from the courses they pursue and use them in the completion of their respective programs. Chauhan and Goel (2017), In their descriptive study, highlight the potential of MOOCs in India through different platforms and the technology being used and observe that Swayam has offered a viable solution to the problem of MOOC deployment in India. To sum up, SWAYAM has been designed to achieve, free access, and equal opportunities to quality education.

Table 2.1: The objective of launching the SWAYAM portal

<i>Objective</i>	<i>Author/Reference</i>
<i>SWAYAM is an I.T. platform created in India for MOOCs to increase the Gross Enrolment Ratio from 20% to 30% by 2020.</i>	(Sivakumaren & Thangavel, 2019)
<i>SWAYAM is a collaborative initiative of MHRD to develop an online teaching and learning platform.</i>	(Mondal & Majumder, 2019)
<i>Recognizing the educational potential of MOOCs in addressing the educational needs of, India, MHRD established SWAYAM.</i>	(Bordoloi et al., 2021)
<i>The aim of SWAYAM is, to provide the highest quality teaching and learning resources to everyone with a special focus on the disadvantaged.</i>	(Agnihotri & Pandit, 2021)

Source: Author

4.1. Learning through Credit-based SWAYAM MOOCs in Higher Education: Student's Perspective

Chawla and Joshi (2012), in their exploratory study conducted on management students at the IIM-A (Indian Institute of Management, Ahmedabad) discovered that students undertaking e-learning courses must work on their behavioural, attitudinal, social, and technological readiness. Anand Shankar Raja and Kallarakal (2020), also note that SWAYAM MOOCs are only ideal for individuals pursuing higher education because they require technical abilities and rely heavily on self-discipline to study. They also point out that while MOOCs are unsuitable for many students for several reasons, they nevertheless assist millions of people in learning and preparing for the labour market. Kundu and Bej (2020b), through their qualitative survey of students enrolled in Indian state universities, concluded that MOOC awareness is higher among universities in urban regions as compared to the universities in rural ones and that postgraduate students are more aware than graduate students, the latter being more apprehensive about MOOC courses.

Gupta and Sambyal (2013), in their descriptive study, while listing the salient features of MOOCs hold a divergent view that they are flexible, easily accessible in a unique environment, and enhance personal learning. Toeing the same line, Nayek (2018) in his exploratory study on awareness among students about SWAYAM, highlights that the courses will benefit students from rural and remote areas, working professionals, and college dropouts and it would provide Indian students a fantastic opportunity to learn without fear of failing. J. B. Mohan (2017) in his study to identify factors that determine the choice of Indian students for MOOCs notes that one of the most important criteria in deciding whether or not to use them is the capacity to improve skill sets and knowledge and therefore, to attract learners, MOOCs must explicitly state the learning outcomes, skills that will be learned, and topics to be covered by the course.

TABLE 2.2: Student Perception and Feasibility of SWAYAM MOOCs

<i>Student Traits/Feasibility</i>	<i>Author/Reference</i>
<i>Students enrolled in e-learning courses must improve their behavioural, attitudinal, social, and technological skills.</i>	(Chawla & Joshi, 2012)
<i>MOOCs are adaptable and simple to use in a personal setting, and they help students in their personal development.</i>	(Gupta & Sambyal, 2013)
<i>MOOCs are only suitable for those seeking higher education since they need technical skills and rely significantly on self-discipline to be successful.</i>	(Anand Shankar Raja & Kallarakal, 2020)
<i>The SWAYAM platform will assist students who reside in remote/backward regions, working professionals, and college dropouts alike.</i>	(Nayek, 2018)
<i>Students prefer MOOCs that can add skill sets and improve the knowledge base of students.</i>	(M. M. Mohan et al., 2020)
<i>MOOC awareness is high among Indian Students enrolled in institutions in urban areas and less among students from rural areas.</i>	(Kundu & Bej, 2020a)
<i>If the post-usefulness is higher, learners will be more satisfied with MOOCs and more inclined to keep using them.</i>	(Rekha et al., 2022)

Source: Author

4.2 Credit-based SWAYAM MOOCs, an alternative or aid to traditional education.

Halabieh et al. (2022) advocate that flexible online environment has brought quality education to the door steps of the students. Parthasarthy (2020), highlights that MOOCs, along with an alternative to traditional learning, serve as a medium for educators, where they can explore videos and other content and get inspired to improve their teaching-learning style. Bast (2019), in contrast, notes that while the teacher's role is limited to fostering self-learning and peer-group conversations, traditional classrooms place an excessive emphasis on teachers, making them more teacher-centric and encouraging rote learning, whereas 'flip classes' offer a higher level of engagement. Therefore, SWAYAM can prove to be a platform capable of providing millions of people with extraordinary learning opportunities.

Jagetiya et al. (2018) observe that there is a paucity of qualified teachers in India, and an alternative must bridge the gap that exists between teachers and learners, and with advancement in information technology, students can learn through MOOCs in a flexible environment from the institutions like *IITs* (Indian Institute of Technology) and *IIMs* (Indian Institute of Management). Chakravarty and Kaur (2016) on the other hand, contest this view and note that MOOCs alone cannot lead to effective learning, and irrespective of the benefits they cannot claim to replace traditional educational delivery. Instead, a blend of both can only provide a balanced and wholesome education to youth.

Alcorn et al. (2015) observe that traditional higher educational institutions in India are grossly inadequate in addressing the educational needs of the rising student population in India, and there is a need for a high-quality model of education that is cost-effective and capable of catering to a vast student population, but they caution that MOOCs are primarily meant to serve professional training rather than for higher education. Mahajan et al. (2019) also, toe the same line and highlight the enormous potential offered by MOOCs. They advocate that these can be used in medical sciences for faculty development as well as the teaching-learning process, but it must be kept in mind that MOOCs cannot act as a panacea for all problems in the field of education and can never substitute the traditional mode of instruction.

TABLE 2.3: Credit-based SWAYAM MOOCs: An aid or alternative to Traditional Educational Setup

<i>Student Traits/Feasibility</i>	<i>Author/Reference</i>
Flexible online environments provide an opportunity for students to complete their studies from the comfort of their homes or localities leading to easy access to quality education while keeping their family and community connections intact.	(Halabieh et al., 2022)
<i>SWAYAM MOOCs, along with an alternative to traditional learning, inspire teachers to improve their teaching-learning style.</i>	(Parthasarathy, 2020)
<i>The teacher's role is limited to fostering self-learning and peer-group conversations in SWAYAM MOOCs, and the traditional setup overemphasizes the role of the teacher.</i>	(Bast, 2019)
<i>Due to the paucity of qualified teachers, SWAYAM fills the gap, which exists between teachers and learners, and students can learn in a flexible environment from the institutions like IITs and IIMs.</i>	(Jagetiya et al., 2018)
<i>Irrespective of the benefits, MOOCs cannot claim to replace traditional educational delivery; an optimum blend of both can only provide balanced and wholesome education to youth.</i>	(Chakravarty & Kaur, 2016)

Source: Author

4.3. The role of Credit-based SWAYAM MOOCs in meeting the educational needs of India.

Gupta and Sambyal (2013) in their conceptual paper conclude that using MOOCs in higher education would decrease government expenditure along with achieving a better quality of teaching and learning. It will also make education more accessible. The study by Kanjilal and Kaul (2016) highlights the journey of SWAYAM relating it to the establishment of NPTEL in 2003. The authors acknowledge SWAYAM as an indigenous MOOC platform that can revolutionize education and a key driver in achieving 30% GER in higher education. They conclude that it is instrumental in creating opportunities for continuous learning. Ahamed (2022) and (Kumar and Kumar (2020) note that the skill gap in the current Indian workforce may be bridged with the help of MOOCs. These courses are taught by expert professionals and provide students with practical experience along with theoretical conceptual knowledge. Complementing this view, Mondal and Majumder (2019) also observe that the proposed SWAYAM and SWAYAM PRABHA programs work in tandem, augmenting and complementing one another. They further add that making the SWAYAM course program inclusive will have a positive impact on achieving the nation's dream of universal education access and can play a critical role in 'Digital India, and 'Skill India' initiatives, if adequately planned and implemented.

TABLE 2.4: SWAYAM: Role in meeting the educational needs of India

<i>Observation/Finding</i>	<i>Author/Reference</i>
<i>MOOCs will reduce government expenditure on higher education. They will improve the quality of teaching-learning and make it more accessible.</i>	(Gupta & Sambyal, 2013)
<i>SWAYAM, as an indigenous MOOC Platform can revolutionize education and act as a key driver in achieving 30% GER in higher education.</i>	(Sivakumaren et al., 2019)

<i>The inclusion of the SWAYAM program in, the formal education system will help in universal educational access and can play a critical role in 'Digital and Skill India' initiatives.</i>	(Mondal & Majumder, 2019)
<i>The skill gap in the current Indian workforce may be bridged with the help of MOOCs</i>	(Kumar & Kumar, 2020)
<i>The majority of the students agree that SWAYAM courses are helpful in lifelong learning and enhance knowledge and skills.</i>	(Ahamed, 2022)

Source: Author

4.4 What do the data indicate about student enrolment and certification? An analysis.

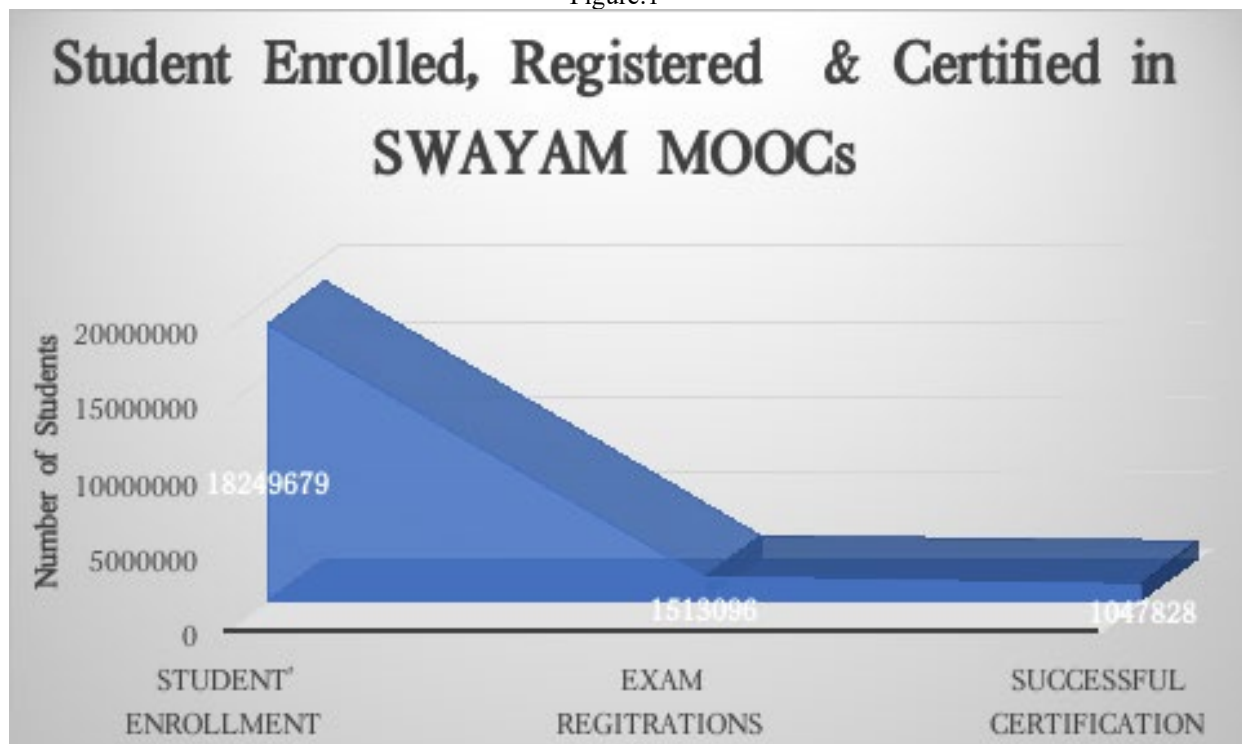
As of 5th May 2022, the total number of students enrolled in credit-based SWAYAM MOOCs is over 18 million, out of which only 8.29% a little more than 1.5 million registered for exams, and around 5.74% i.e., over a million students were successfully certified. Policymakers should make serious deliberations to reduce this gap. Otherwise, the whole purpose of making credit-based MOOCs a part of the curriculum in higher education will be defeated. Assessment through proctored examination needs to be more student-friendly and higher educational institutions should be made part of it.

Table 2.5: Students Enrolled, Registered, and Certified in SWAYAM MOOCs.

<i>Students Enrolled</i>	18249679
<i>Number of Students Registered for Exams</i>	1513096
<i>Number of Students Successfully Certified</i>	1047828

(Source: Author (Data sourced from Swayam Central))

Figure:1



(Source: Author (Data sourced from Swayam Central))

SWAYAM MOOCs are credit-based and students can enrol without paying any fee, however, the learners who desire a SWAYAM certificate have to pay a very nominal amount to appear for proctored tests in person at designated centres on specific days. The learners get certificates after they clear these exams and meet the eligibility condition and can also get the credits transferred to their respective HEIs using the facility to be provided by Academic Bank of Credit (ABC). The National Testing Agency (NTA) was founded as a central, specialised, autonomous, and self-sustaining testing agency to administer entrance tests for admission and fellowship in higher

educational institutions, and has been tasked with administering these proctored tests' conducts various online tests, such as admission exams, regular degrees, refresher programs, and is also playing a significant role in evaluating and analysing students' performance in SWAYAM courses(Ahmed & Panchalee, 2019).

4.5 Credit Transfer and Evaluation of SWAYAM MOOCs: A Challenge

The UGC (Credit Framework for online learning courses through SWAYAM) Regulation 2016 has already been released and HEIs are to ensure the transfer of credits for courses taken on SWAYAM. All India Council for Technical Education (AICTE) published a gazette notification for the acceptance of these courses for credit transfer. To facilitate this process, *UGC (Establishment and Operationalization of Academic Bank of Credits (ABC) Scheme in Higher Education) Regulations, 2021*, has been initiated and the Academic Bank of Credits (ABC) has been set up under the aegis of the MHRD. Initially, to register in ABC, it was mandatory for HEIs to either have National Assessment and Accreditation Council (NAAC) 'A' grade or be in the top 100 National Institutional Ranking Framework (NIRF). Because of these preconditions, only around 20 higher educational institutions could be onboarded till recently.

On January 12, UGC notified through the University Grants Commission (*Establishment and Operation of Academic Bank of Credits in Higher Education) (First Amendment) Regulations, 2021*, notified that the HEIs satisfying sub-regulation 2 of regulation 1 and the institutions of eminence that by an Act of Parliament are empowered to confer or grant degrees can participate and register in the Academic Bank of Credits irrespective of their NAAC or NIRF ranking. This amendment is a welcome step and will give impetus to the registration of higher educational institutions in the ABC. The UGC has also issued an advisory to its affiliate institutions to spread awareness among the students to register their accounts in ABC to avail the facility of credit transfer. The total enrolment is estimated to be 38.5 million in undergraduate & postgraduate programs and if the policy is to cover all in this ambit, it will be a herculean task. Success at this scale will only be possible through proper planning and coordination among NTA, HEIs, and other stakeholders.

5. Findings and Suggestions: The discussion of the various aspects of SWAYAM in the previous section reveals both complimentary and contradictory findings. One set of researchers claims that MOOCs provide an alternative to traditional learning, whereas another concludes that they can be used as an aid to augment learning but they cannot replace the traditional education system. Considering the difference between student enrolment and certification in MOOCs across the various platforms, credit-based MOOCs should become a part of the formal curriculum under the guidance and supervision of a teacher and are most suitable for blended learning. Most students in HEIs are from a rural background and previous studies reveal that students' awareness in urban-centred universities is far more than in rural-entered universities. Therefore, a special drive to make students with rural backgrounds aware of the importance of MOOCs is needed. They should be provided training to enable them to learn from MOOCs. This will ensure that many students who enroll in these courses can get certifications too. The review also highlights that to learn from MOOCs, students must work on their behaviour, and attitude along with social and technological skills. Moreover, it was also found that undergraduate students are apprehensive about pursuing these courses. A campaign must be launched to sensitize undergraduate students about the benefits of MOOCs. They should also be trained to imbibe the skills required to learn from them.

Regarding the universalization of Education in India, Mondal and Majumdar (2019) observe that incorporating SWAYAM courses into the formal education system will help in achieving universal access to education. Phutela and Dwivedi (2020) also observe that the future potential of e-learning in India is high, as the number of students adopting e-learning continues to increase. In contrast, Sivakumaren et al. (2019) discovered that the growth of Swayam courses reflects a decreasing trend. Kundu and Bej, (2020a) observes that despite the low degree of satisfaction among students and teachers at Indian state universities from MOOCs, enrolment rates in these courses are still high. This reflects a contradiction in the behaviour of students regarding the choice of MOOCs. Therefore, a pan-India study on student perception of credit-based MOOCs is warranted to ensure meaningful steps are taken to use MOOCs as an aid in augmenting learning.

The role of ABC is of paramount importance in the successful rolling of MOOCs in the formal curriculum of HEIs. To ensure institutions can adapt to this new change, they should register with ABC. By the end of 2021, only 20 institutions could do so due to the limiting conditions in terms of NAAC certification and NIRF ranking. A recent amendment in January abolished these conditions and allowed Government recognized institutions to register with the ABC. The research suggests that to achieve the inclusion of credit-based MOOCs in programs, HEIs, and other institutions recognized by the Government must register in ABC. There is a need to follow a common policy framework irrespective of rankings for the benefit of students with diverse backgrounds.

6. Conclusion

Significant research and findings indicate that SWAYAM as a MOOC platform is a suitable tool to increase free access to education through e-learning. It is cost-effective and feasible for students who can self-regulate their studies. SWAYAM is a viable option for aiding the traditional educational setup. Flexible and coupled with free enrolment, these courses can be used to aid formal learning and thus can give impetus to Gross Enrolment Ratio in India. Formalization of MOOC courses in higher education is a welcome step and is found to be more suitable for blended learning. Few research findings also indicate that these courses are more suitable for continuous professional learning rather than for regular students. Therefore, these courses need to be designed keeping in mind the learning outcomes and the objectives of the students who enroll. In May 2022, over 18 million students were enrolled in SWAYAM MOOC courses from various parts of India. This reflects that it can be used effectively to upgrade the skill set over the years by ensuring that a large number of these enrolments are converted into certifications. Low certification is a cause of concern. This indicates that a robust program execution coupled with evaluation, and a credit transfer system will have to be put in place to ensure an increase in certifications along with enrolments. Making the SWAYAM MOOCs program inclusive in HEIs is a gigantic task that warrants a proper study to develop a suitable policy, procedure, infrastructure, and mechanism to ensure its success.

Research limitations– The paper's discussion is limited to policy implementation of credit-based MOOCs regarding the indigenous portal, SWAYAM, students, and HEIs in India, and is a general study only.

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