

# Translational App and Curriculum Requirements for Enhanced Biomedical Translations Leaders in Medical Tertiary Institutions In Bayelsa State

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## Abstract

*This study is focused on how the use of translational apps and curriculum requirements will foster biomedical translations. Through literature studies and in-depth interviews with two group of stakeholders (Academician and Medical Professionals) in the medical sector in Bayelsa and applying triangulation analysis, this study found the challenges translational apps poses on the practice of biomedical translations, the state of the medical curriculum as related to weather it can cater for the needs of a graduate surviving in a world dominated by translational apps. Finally, the study identified the factors hindering the integration of translational app into the curriculum for relevance in the 21<sup>st</sup> century. It was recommended that the Nigerian University Commission and other stakeholders should as a matter of urgency create an enabling platform to discuss how the medical curriculum can be improved to accommodate the utilization of translational apps.*

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**Keywords:** Utilization, Translation, Apps, Curriculum, Requirements, Medical, Professionals

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## Introduction

Leadership in medical tertiary institutions in Bayelsa State with focus on Bayelsa Medical University (BMU) refers to the ability of individuals or teams within institutions to effectively guide, influence, and inspire academic and non-academic staff including stakeholders toward achieving common goals and objectives. Leadership in BMU is multifaceted, as it involves navigating a complex and dynamic environment characterized by technological challenges, regulatory requirements, geopolitical factors, and environmental considerations. Effective leadership in BMU should encompass the following elements:

a. *Vision and Strategy:* Leaders should have a clear vision for the organization and a well-defined strategy for achieving sustainable growth and profitability while ensuring compliance with Nigerian University Commission regulations and standards.

b. *Stakeholder Engagement*: Leaders in BMU need to engage with a diverse set of stakeholders, including government agencies and international partners, to build collaborative relationships and address socio-political concerns.

However, biomedical translation does not occupy the most central position in the world of medicine, it certainly plays an essential role in knowledge mediation, which involves sharing medical research results, publicizing new findings in the international scientific community and marketing new medical products and services. This situation is not different in the case BMU, but it is an essential area of medical science that has significantly encouraged the consumption of medical research globally. However, Padilla-Cabello (2022) observed that one of the most significant limitations to the practice of biomedical translation is the challenge of the language barrier. Also, Karwacka (2004) noted that the full benefit of the intent of biomedical translation can only be harnessed in a system where language expertise is present.

Communication remains an indispensable endeavour in human existence. It is a social skill that cuts across all areas of human work. These skills are fundamental to human-focused professions, such as nursing, pharmacy, medical laboratory science, etc. (Truglio et al., 2018). Ineffective communication between a patient and members of a therapeutic team can negatively affect the treatment outcomes. Foronda et al. (2016) reported that deficiencies in communication also lead to conflicts between members of the therapeutic team and increase the aggressive behaviour of the staff towards patients. It is worth noting that the presence of conflicts and aggression promotes the development of avoidance, which in turn can cause a deterioration of the long-term relationships between collaborators and patients in the long term, and it is considered one of the rationales for professional burnout.

Alternatively, Ellison (2015) submitted that good communication can enable better diagnosis, increase patient compliance with treatment recommendations, reduce the medical errors committed by personnel, and stir positive mood and satisfaction in patients. As a sequel to the above, improving the quality of communication between medical practitioners and patients has become a global priority. Such translation has been recognized as a means to bridge the language barrier for enhanced communication.

Translation enables people from different languages to communicate effectively. It is all around us, from families, universities, hospitals, courts, and clinics to business meetings. Translation is a bridge for spreading information, knowledge, invention and ideas. In pedagogy, translation is a fundamental basis for language learning. Translation can aid learning, practice what has been learned, diagnose problems, and test proficiency. Translation encourages the students to recognize the relation of new knowledge to existing knowledge, noticing and language awareness, and highlights the differences and similarities between the new and existing language. However, concerning the effectiveness, Kelly (2005) stated that the new technologies should be collaborated with learning strategies. Technology integration in learning should directly encourage the students to practice attaining translation competencies. Thus, designing activities for students aims to build translation competence. The translator's competence ranges from cultural knowledge, specialization in the subject area and self-confidence (Siregar, 2017).

Based on their subject and technology, the translation is divided into human and machine translation. In the first, the translation process is entirely done by humans or with the assistance of computer technology. This type of translation is also known as computer-assisted translation (CAT). In comparison, human-assisted machines do the second. Thus, this kind of translation is also known as human-assisted translation. Technology offers translation memories (TMs), a program to build databases of source-text and target-text that can be re-used anytime. This tool saves the translator time dealing with highly repeated terms and phrases in the translation process. Inarguable, translation memories greatly aid translation services that cut down time and increase productivity (Korošec, 2011, p. 1).

Translation applications, also known as Translation apps, are a series of software designed to assist users in performing single or various related tasks to create communication. The Translation app represents a ubiquitous technology, wireless, highly portable and endowed with multimedia capabilities, bringing a new dimension to the communication process (Falloon, 2010). The last ten years have witnessed an impressive increase in the use of Translation apps in medical practice, and they have attracted interest from the educational communities mainly due to their capabilities to enhance the assimilation of research findings. Using a translation app allows the students to recognize the relation of new knowledge to existing knowledge, notice and language awareness and highlight the differences and similarities between the new and existing language, which will break language barriers in medical practice.

The Nigerian government recognizes the importance of Information and Communication Technology (ICT) as a tool for developing the country. It has stressed that ICT has a role in education both directly as a subject and indirectly as a tool to assist in education delivery and management. To match actions with words, different projects have been launched to enhance the adoption of ICT in various sectors in the country, of which the health sector is a part. Observations have shown that despite the level of understanding of the usage of translation apps for enhanced information sharing amongst medical personnel in developed nations and its availability, the developing countries of which Nigeria is part still need to put it to expected use. Teibowei (2022) reported that the idea of translation is yet to take its central place in the medical curriculum. Also, McCarthy (2019) noted that the curriculum produces after itself; as such, it can only create relevance in the system when the requirements of the financial technology are integrated and systematically implemented. Therefore, this study aims to establish empirical evidence on how the use of translational apps and curriculum requirements will foster biomedical translations in the medical tertiary institutions in Bayelsa State, Nigeria.

### **Objectives of the Study**

The main objective of this study is to examine translational apps and curriculum requirements for biomedical translational practice in Medical Tertiary Institutions in Bayelsa State. Specifically, this study achieved the following:

1. To ascertain if the present curriculum can cater to the needs of the medical profession.
2. To identify the factors hindering the smooth integration of translational app needs in the medical curriculum in Nigeria

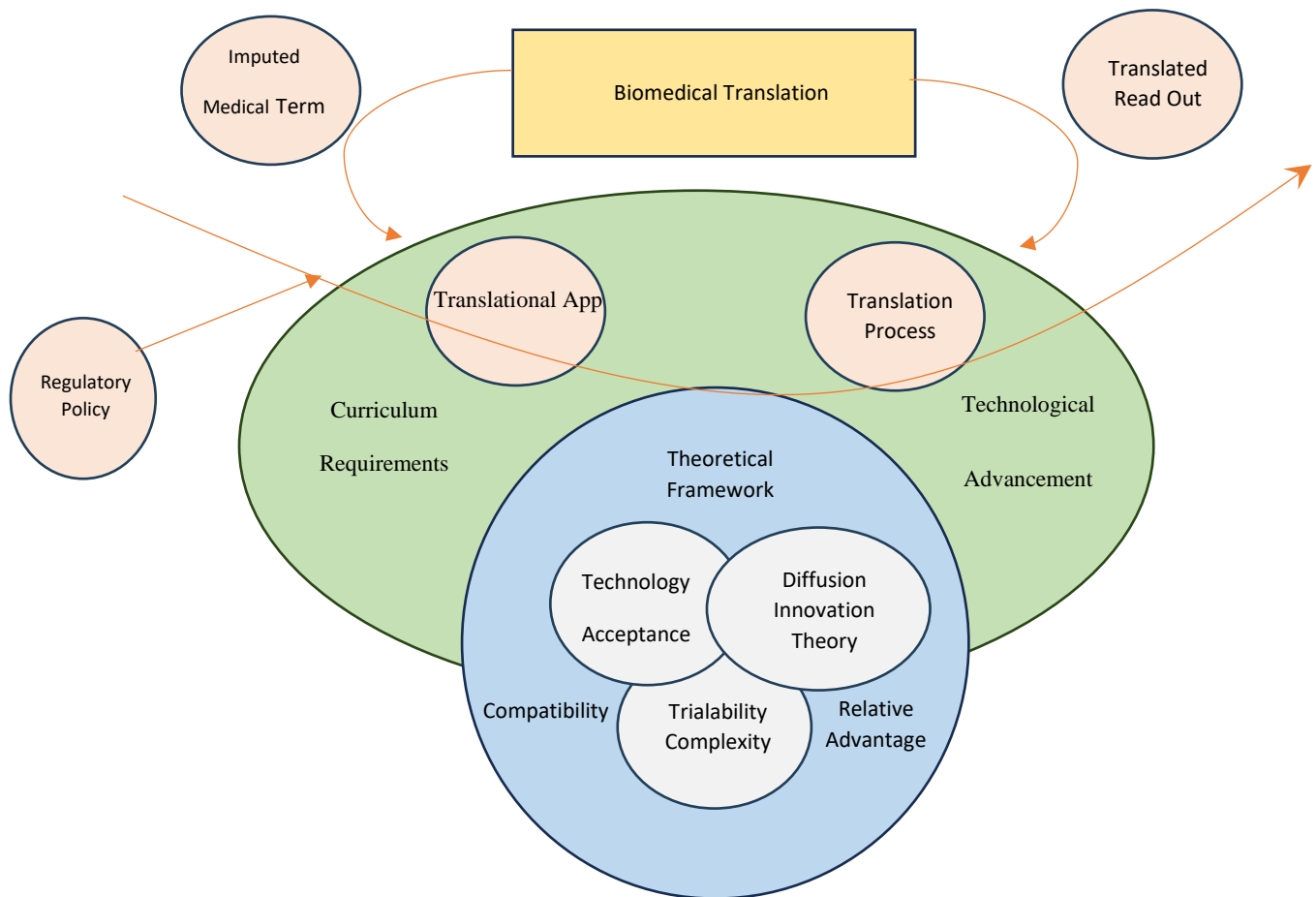


Fig 1: Interplay of Human and Machine Factors in Biomedical Translations Using Technology Acceptance Model and Diffusion Innovation Theory

### Impact of Leadership Styles on Translational App and Curriculum Requirement in BMU

The choice of leadership style in the Medical Institutions in Bayelsa state with focus on BMU can significantly influence the adaptation of translational app and the curriculum requirement to achieve desired outcomes. Below are insights into how each leadership style can impact deployment of the app:

#### ***Transformational Leadership and Project Management:***

- **Pros:** Transformational leaders can inspire project teams developing the translational app to surpass expectations, promote innovation, and build a shared vision.
- **Cons:** Overreliance on charisma may only sometimes align with the medical university's need for meticulous planning and adherence to safety protocols.

#### ***Transactional Leadership and Project Management:***

- **Pros:** Transactional leaders can ensure strict compliance with regulations, safety standards, and established procedures need to develop translational apps.
- **Cons:** This style may not encourage creativity or adaptability, which are increasingly important in the face of technological challenges and turn overs.

***Situational Leadership and Project Management:***

- **Pros:** Situational leadership allows leaders to adapt to the unique demands of each project, potentially improving project alignment and responsiveness when technological turnovers are frequent.
- **Cons:** Implementing situational leadership can be resource-intensive and require strong analytical skills which a medical university like BMU might not have.

***Charismatic Leadership and Project Management:***

- **Pros:** Charismatic leaders can rally teams during crises, inspire commitment, and drive project success during challenging times.
- **Cons:** Overreliance on a single charismatic leader can create dependency and hinder succession planning and knowledge transfer needed for proper implementation of translational apps.

**Biomedical Translation**

Medical translation is a platform for mediating professional communication between patients and medical personnel. It plays an ancillary role in medical research and practice. This is even more serious, knowing that there is a growing tendency in healthcare communication to focus attention on patients (Montalt, 2012). The National Centre for Advancing Translational Science (NCAIS, n.d) considers biomedical translation as turning observations in the laboratory, clinic and community into interventions that will improve the health of the individual and the public from diagnostics and therapeutics to medical procedures and behavioral changes. Wehling (2006) defined *biomedical translation* as the field of investigation focused on understanding the scientific and operational principles underlying each step of the translation process. Apart from books, articles and presentations, translated medical texts primarily include registration documents such as application dossier for registering new machines and medical services and, instruction manuals for medical equipment and instruments, documents for clinical trials.

**Translational App**

Translation enables people from different languages to communicate effectively. It is all around us from families, universities, hospitals, courts, and clinics to business meetings. Translation is a bridge for spreading information, knowledge, invention and ideas. In pedagogy, translation is a fundamental basis for language learning. Translation can aid learning, practice what has been learned, diagnose problems, and test proficiency. Translation encourages the students to recognize the relation of new knowledge to existing knowledge noticing and language awareness and highlights the differences and similarities between the new and existing language.

**Curriculum Requirements**

Curriculum is one of the abstract concepts in educational literature. Radha Mohan (2015) defined *curriculum* as the planned and guided learning experiences and intended outcomes formulated through systematic reconstruction of knowledge and experience (Mohan, 2015). *Curriculum* was also defined as the vehicle through which a country empowers its

citizens with the necessary knowledge, skills, attitudes, and values to empower them for personal and national development (Kabita & Ji, 2017). In this line, the curriculum should meet the needs of the individual citizens and the nation. A high-quality curriculum is the key indicator of effective education. In order to keep pace with the changing global situation and to address issues in conflict with inclusive access to education, there should be regularly updated curriculum for its adequacy, relevance and coherence (REB, 2015).

### **Theoretical Review**

**Technology Acceptance Model** This model was initially put forward by Davis (1986) to expound on the attitude behind the urge to employ technological know-how (Monyoncho, 2015). TAM deals with perceptions and not systems' real usage and argues that when new technological advancement is introduced to the customers, either one of these occurs, that is, Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) influence their decision (Lule et al., 2012). PEOU is the level of confidence people put in a system, and if users perceive a new technology to be beneficial in supporting both the short and long run, there is that encouragement to use the system. Further, the level by which an individual considers a system will boost performance in the short and long run is the PU (Mojtahed et al., 2011).

The TAM affirms that the system's actual utilization is established by each user's behavioural intention for usage and is inspired by an individual's perception of the system. The theory also explains that the perception of new technology is directly related to its functionality and the system's simplicity (Lim & Ting, 2012). TAM considers that acceptance of technology and functionality is influenced by consumers' intentions that establish the customer's perception of the system (Mojtahed et al., 2011). The theory also supports that the recognitions or suspicions about the advancement are instrumental in improving states of mind that will result in system usage conduct (Lim & Ting, 2012).

TAM also explores the attitude of individuals toward a particular system (Lule et al., 2012). The TAM details clarify and portray why clients acknowledge or dismiss an advancement or data framework. TAM is important as a prescient strategy, considering the objective to evaluate the probability of individuals and associations receiving a specific innovation (Mojtahed et al., 2011). TAM can be used to explain digital financial services, which can be applied to clarify the existence of variations in consumer behaviours, especially when it comes to using related digital financial services (Lim & Ting, 2012)

The theory is an adaptation of the Reasoned Action Theory specifically tailored for modelling user acceptance of information systems. The goal of the theory is to explain the determinants of computer acceptance that are generally capable of explaining user behaviour across a broad range of end-user computing technologies and user populations while simultaneously being both parsimonious and theoretically justified. Thus, this study believes integrating financial technology into the accounting curriculum will make the profession relevant.

### **Diffusion of Innovation Theory**

The Diffusion of Innovations (DOI) theory was proposed by Rogers (1995) to explain the approach through which innovation can be passed in different ways over a certain period among different users (Sarker & Sahay, 2014). DOI theory explores how innovative ideas are passed from generation to generation. According to DOI theory, innovation is conveyed



through various channels continually among individuals of the same social beliefs (Echchab & Hassanuddeen, (2013). The dispersion of Innovation hypothesis looks at the rate at which new advancements are spreading, how the new development is spreading and reasons why it is spreading with a specific end goal to research the elements influencing the selection of new data innovation advancement (Monyoncho, 2015). The diffusion of innovations theory explains that innovationists apply a standard distribution curve, which can be partitioned into five segments to categorize users in terms of innovativeness. Diffusion theory explains that the crucial aspect in establishing the implementation of innovation is absolute advantage, companionability, simplicity, trial ability, and ease of detection (Monyoncho, 2015). DOI also classifies users as modernizers, early modernizers, timely mass, late mass and stragglers (Echchab & Hassanuddeen, 2013). DOI theory perceives innovations to be passed on via several ways in a period and a specific system (Sarker & Sahay, 2004). DOI theory tries to explicate and illustrate the approaches in which innovations such as translational apps are adopted and successful.

Innovation Diffusion theory considers a set of attributes:

**Trialability:** The degree to which an innovation may be experimented with on a limited basis.

**Complexity:** The degree to which an innovation is perceived as relatively difficult to understand and use.

**Relative Advantage:** The degree to which an innovation is perceived to be better than the idea it supersedes.

**Compatibility:** The degree to which an innovation is perceived as consistent with the existing values, past experiences and needs of potential adopters.

**Observability:** The degree to which the results of an innovation are visible to others.

Among these attributes, only relative advantage, compatibility, and complexity are consistently related to innovation adoption (Cheu, 2010).

Rogers reviewed nearly 1,500 studies where variants of IDT are used to investigate the adoption of technological innovations in various settings, including agriculture, health care, city planning, and economic development. Smaller studies focus on how these attributes influence behavioural intention and use. Rogers developed his IDT constructs by identifying the product attributes that greatly influenced adoption.

Since Nigeria is a developing nation with several challenges associated with technology acceptance, the theoretical framework that closely explains this study is the technology acceptance theory and, hence, the theory underpinning this study.

## Methodology

The study adopted a qualitative study, which specifically used literature studies and in-depth interviews. Literature studies are conducted through research and analysis of the literature related to financial technology and curriculum requirements for accounting relevance. Literature studies are conducted by gathering several previous similar studies, which include research reports, journal articles and books, and news in newspapers, both online and offline, for library studies. These literature studies are used as a basis for supporting and compiling research terms of reference and questions that will be asked in in-depth interviews and supporting the discussion of the initial problem of this study.

In-depth interviews, meanwhile, were conducted by limiting activities to stakeholders in the medical sector in Bayelsa State, Nigeria. These in-depth interviews aim to explore arguments and opinions about translational apps from 3 (three) sides involved in medical matters, such as medical doctors and medical academics and one member each from the Pharmaceuticals Society of Nigeria, Nursing Association of Nigeria resident in Bayelsa State, Nigeria.

Determining and selecting respondents are done by purposive sampling because of the nature of the research, which leads to the exploration of understanding and opinions on this research topic from the three groups of respondents. Consideration regarding the alignment of abilities and knowledge possessed by respondents in providing opinions related to translational apps and curriculum requirements.

Data and information obtained from both processing qualitative data collection above are then analyzed by applying the triangulation method so that this research is expected to meet the validity, objectivity, and credibility of the qualitative study. In this context, data and information from interviews and literature studies will be analyzed to see differences, similarities, and patterns or trends that can be used as a basis for proof of statements and conclusions from the findings obtained from this study.

#### **4 Results and Discussion**

This study conducts direct interviews with two groups of respondents: academicians and practitioners (medical professionals). For academicians, respondents are from the tertiary institutions which offer medical courses in Bayelsa State, namely: Niger Delta University (NDU), Bayelsa Medical University, Bayelsa State College of Health Technology, Bayelsa State College of Nursing and the representatives of their respective associations.

##### **1. What are the challenges translational apps pose to the medical profession?**

The respondents expressed their thoughts on the translational app's challenges in the medical profession. For example, the representatives of the tertiary institutions admitted that the advent of translational apps has ushered in the need for medical personnel who want to successfully shift focus from routine tasks to more creative, non-routine and non-structured tasks that will require a proactive thought process. They also noted that since the translational app has come with automated tools that ease accessibility to an extensive range of research output, it is paramount for any medical personnel who wants to be relevant to upgrade his/her ICT skills in these areas.

The representatives of various Medical Association of Nigeria submitted that it is almost impossible for any sane mind to consider accessing research findings in the medical field globally by still indulging in the old traditional ways. They further noted that the translational app has successfully reduced the stress accompanying the old ways of accessing medical research output. From the above submissions, all respondents identified creative mind and innovative knowledge bases as the challenges translational app poses in the medical profession.

##### **1. Can the present curriculum cater to the needs of the medical profession?**

The respondents from the tertiary institutions submitted at their entry that the current curriculum cannot equip the medical graduate with the needed skills to navigate the real world of work where translational apps have taken center stage. They further stressed that lecturers have sometimes stressed the use of translational apps and other digital packages to improve work experience, but the extent of its implementation and adoption still needs to improve.



The respondents from the respective associations submitted that the issue of curriculum requirements needs to be more essential. They noted that the Harvard curriculum does not have the elements of a translational app but that their system is flexible enough to accommodate extant certificate courses for students to build relevant skills in a translational app-dominated space.

From the above, all the respondents agree that the curriculum needs what it takes to cater to the medical graduate who can fit into the world dominated by biomedical transition. This also supports the report of Siregar (2021), who reported that translational apps are relatively low among medical practitioners, and McCarthy (2019), who submitted that the curriculum needs to be revised to cater to 21st-century medical needs. Also, McCarthy (2019) supported the submission of the representatives of the respective Medical Association of Nigeria, who reported that to avoid teaching students the “wrong” version of the translational app, which could leave them with out-of-date skills for a dynamic and rapidly changing field, public universities in Massachusetts have created flexible platforms that continually seek input from the industry where the real change occurs and allow students to acquire the required knowledge in the form of the short term certification course.

#### **What factors hinder translational apps' integration into medical curricula in Nigeria?**

Respondents from the tertiary institutions submitted that curriculum changes are still in the discussion stage, and the possibility of updating teaching materials has become a priority. Obeying university and national standards set by the government regulatory body (NUC). Although the rules support the improvement of the curriculum following technological advancement, the bureaucracy and mechanism that must be passed must be done slowly. Also, the accuracy of the learning outcomes that must be achieved with a new understanding of digital business still needs to be discussed with all academia involved in their respective institutions.

Also, the tertiary institutions' respondents acknowledge the need to adjust their knowledge in the current work. This is related to changes in business processes and technological advancement, which they believe the knowledge gained by prospective medical personnel must be balanced between knowledge related to knowledge in technology. This could be an opportunity and an obstacle for medical professionals in this field if they want to avoid learning new things.

The representatives of the Medical Association of Nigeria reported that one major factor hindering the adoption of translational apps into the medical curriculum is how to move away from the old legacy that the professors have relied upon for decades to new technology. Changing the paradigm will result in a situation whereby young medical personnel skilled in Information Technology (IT) will take the lead. This opinion is in line with Dambrin (2017), Scott (2017), and Miller and Freusen (2018), who reported that the ability to manage change is an obstacle to adopting new technology.

The representatives also noted that lack of awareness of the translational phenomenon, inadequate funding, lack of proper collaboration between the industry and schools, lack of right collaboration between the industry and schools, lack of expertise, and structural characteristics are factors that hinder the integration of translational app into the curriculum. This is in line with Gallego (2011), Ben (2010), and Hollensten (2014).

## Conclusion

The findings of this study have established the challenges translational app poses to the medical profession and the state of the medical curriculum as related to whether it can cater to the needs of a graduate in the world of work dominated by technology. Finally, the study identified the factors hindering the integration of translational apps into the medical curriculum for relevance in the 21st century.

## Recommendation

Based on the conclusion of this study, the following recommendations are given;

1. As a matter of urgency, the Nigerian University Commission and other stakeholders should create an enabling platform to discuss the ways of curriculum improvement to accommodate the development of translational technology.
2. The stakeholders should continue to organize workshops, seminars and other platforms for lecturers, irrespective of their ranks, to enable them to adapt their knowledge to the skills required in the industry.
3. The government and other stakeholders should brace up their funding approach to provide the necessary equipment for the smooth integration of translational technology into the curriculum.

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