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TWELVE TIPS

Twelve tips to develop entrustable professional activities

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ABSTRACT

Entrustable professional activities (EPAs), units of professional practice that require proficient integration of multiple competencies and can be entrusted to a sufficiently competent learner, are increasingly being used to define and inform curricula of health care professionals. The process of developing EPAs can be challenging and requires a deep yet pragmatic understanding of the concepts underlying EPA construction. Based on recent literature and the authors' lessons learned, this article provides the following practical and more or less sequential recommendations for developing EPAs: [1] Assemble a core team; [2] Build up expertise; [3] Establish a shared understanding of the purpose of EPAs; [4] Draft preliminary EPAs; [5] Elaborate EPAs; [6] Adopt a framework of supervision; [7] Perform a structured quality check; [8] Use a Delphi approach for refinement and/or consensus; [9] Pilot test EPAs; [10] Attune EPAs to their feasibility in assessment; [11] Map EPAs to existing curriculum; [12] Build a revision plan.

KEYWORDS

Entrustable professional activities; curriculum development; assessment

Introduction

Imagine you have heard or read about Entrustable Professional Activities (EPAs) and your school or program would like your support in the development of EPAs for use. Where do you begin?

EPAs were introduced in 2005 in response to the limitations of assessment of learner competencies, particularly in the workplace (ten Cate et al. 2007; Pangaro and ten Cate 2013). Entrustable professional activities (EPAs) are holistic, profession-specific tasks that integrate multiple competencies (e.g. "assessing and managing unstable patients," "performing colonoscopies"). Within training programs, EPAs can be entrusted to a trainee once sufficient competence is reached to allow for unsupervised execution (ten Cate 2005). Since their introduction, numerous postgraduate medical programs (O'Dowd et al. 2019; Hennus et al. 2022) and an increasing number of undergraduate medical programs have redesigned curricula to incorporate EPAs in clinical training (Meyer et al. 2019; Pinilla et al. 2021). Furthermore, other health professions like nursing, pharmacy, veterinary medicine, physician assistant, midwifery, physical therapy, and dentistry training are exploring the possibilities of using EPAs to help redesign curricula and assessment (Abeyaratne and Galbraith 2021; Acker et al. 2021; Corrigan et al. 2022).

Developing EPAs requires a significant time commitment and dedication. Given this effort, developing specialty-specific and/or national EPAs, if possible, is preferred over local programs as it allows a shared vision of a specialty/-profession, agreement on essential tasks for the next level of training or practice, and pooling of outcome data. Individual programs developing EPAs still may benefit from the use of the framework but do not benefit from the broader effort for longitudinal and continuous quality improvement. Additionally, local programmatic efforts may prove redundant or contrary if or when national or specialty-wide efforts develop. In any case, the time required for EPA development can vary but will typically take at least a year. The timeline may be longer for large specialties and/or national EPA frameworks and potentially shorter for small or local programs. Although refinements during development could continue much longer, at some point, an implementation must start, and further adjustments can be made in practice. In any case, when developing EPAs, it is good to remember the aphorism "perfection is the enemy of good."

While guidelines for the development process exist (ten Cate et al. 2015; ten Cate et al. 2020) the authors, in their work at different institutions and contexts participating, supporting, and advising many different EPA development teams, have witnessed the ways educators can struggle when developing EPAs and their use within programs. The current tips highlight lessons learned and build upon recent literature. They primarily regard programs that focus on training for unsupervised practice. Those include postgraduate medical programs, and many health profession education programs for which a license allows one to work unsupervised (dentistry, pharmacy, veterinary medicine, nursing, physical therapy and others). For medical school or undergraduate medical education (UME) programs, there are two limitations: (a) in western countries, UME generally focusses on acting under supervision and not unsupervised, and (b) EPAs for UME are often already nationally determined, such as in Canada and the USA, leaving little space for individual schools to deviate (ten et al. 2018; Pinilla

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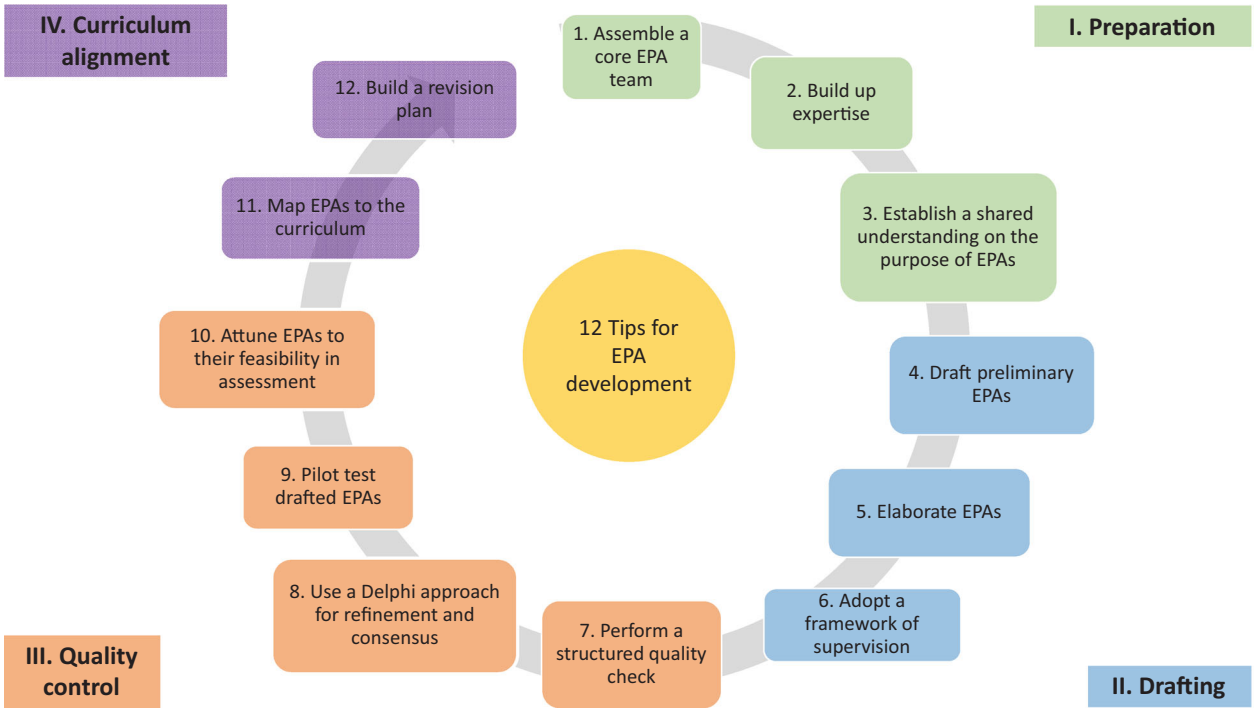

Figure 1. Flowchart with sequential and practical tips for Entrustable Professional Activities (EPA) development.

et al. 2021). With this restriction in mind, the tips are useful for all programs working with EPAs.

In general, the EPA developmental process can be broken down into four sequential phases: I. Preparation; II. Drafting; III. Quality control; and IV. Curriculum alignment (Figure 1). Our aim is to offer practical tips for each of these four phases of EPA development for EPA developers worldwide to support and enable the successful development of EPAs for assessment in health care (Figure 1). Notably, we do not include tips on faculty development or implementation; instead, we focus just on how to establish a fit for purpose set of EPAs. Although these tips are provided in a chosen order, other sequences within a phase are possible and may even be preferable depending on the circumstances.

I. Preparation PHASE

Tip 1

Assemble a core EPA team

Developing a set of EPAs for any training program is a challenging endeavor that starts with a needs assessment, an idea, and a vision, but only comes to life with the labor and brainpower of multiple people. A carefully recruited core team is indispensable and critical for success. While the research on optimal team composition is not conclusive, we suggest a team of five to six members (Klein 2006); more will not necessarily increase the team's productivity and may hinder clarity and timely progress.

Diversity and quality of the team members is pivotal as this impacts the process and outcomes. The ideal mix for an EPA developmental core team includes multiple healthcare practitioners who broadly represent the specialty of interest, and one or more health professions education specialists. Having active practitioners on your team is crucial to ensure EPAs ultimately reflect the essential tasks of your specialty. Lastly, consider whether your EPAs are being developed for local or national use. If national consensus is needed, think of a multi-institutional core team.

Tip 2

Build up expertise

Misconceptions and misunderstandings about EPAs and their use within an assessment framework are common and can track through the EPA development process in problematic ways (ten et al. 2015). Identifying helpful resources to build and expand your expertise on EPAs is pivotal right from the start. Extant literature provides a robust theoretical background (ten et al. 2022; ten Cate 2013; ten Cate 2019) as well as guidelines on EPA development in general (ten Cate et al. 2020; ten Cate et al. 2015; Hennus et al. 2022). Given the wide variety of programs already using EPAs, profession or specialty specific examples are available in many areas (Meyer et al. 2019; O'Dowd et al. 2019; Shorey et al. 2019; Abeyaratne and Galbraith 2021; Bramley and McKenna 2021). Secondly, educational experts or colleagues with experience with EPA development may also serve as valuable sources of information. Most will appreciate sharing their work and thinking about new frontiers for EPA expansion or improvement. Although not all published EPA frameworks meet al.l standards of quality, they can still provide rich information. Finally, online resources, national and international workshops and courses exist that provide you with not only theoretical background but also the hands-on experience and tools to conduct workshops and courses focused on EPAs at your institution.

Tip 3

Establish a shared understanding on the purpose of EPAs

Fostering the development of a shared mental model for all participants in the EPA development process should be

a priority once the core team has been established. Team performance improves with a shared understanding of the task and the teamwork (Mathieu et al. 2000). Attending to potential causes for confusion is pivotal when creating this shared mental model. For example, EPAs were introduced to help bridge the gap between competencies and clinical practice (ten Cate et al. 2007). Many health educators are entrenched in writing learning objectives and granular competencies; it takes a leap to shift mindsets towards an integrated construct like EPAs, which requires the integration of multiple competencies and competency domains for each activity. Remember that an EPA is not an educational concept, but merely a unit of professional practice for which learners must become qualified to perform. Extra time spent up front clarifying both the distinction and relationship between competencies and EPAs is essential to help negotiate this transition. Some key points to consider here include (ten Cate et al. 2022):

a. Competencies are abilities possessed by learners (e.g. ability to conduct clinical interviews using a patient-centered approach), whereas EPAs are units of professional work (e.g. assessing and treating a patient with chronic medical disease).
b. Not all competencies and objectives should be adopted or integrated as EPAs. For instance, "lifelong learning" is a core and important competency, but not a discrete task to be mastered and performed; other examples are: "interprofessional collaboration"; "inclusivity in patient care"; "health consequences of climate change" (ten Cate and Pool 2019).
c. EPAs are tasks entrusted by society to members of that profession to be performed safely and at an accepted professional standard. Beyond clinical abilities, entrustment requires the professional to possess insight, integrity, agency and be conscientious in patient care.

Building this shared understanding reveals the power of entrustment decisions: entrusting a learner to perform an EPA brings the patient into the assessment equation. In fact, the value of entrustment decisions can only be realized if there are risks and consequences for the autonomy and responsibility of trainees in health care. Building this understanding among your EPA development team will strengthen and clarify the purpose of EPA development work being undertaken. We recommend practicing with the EQual Rubric tool (see also Tip 7) prior to developing EPAs, to gain a feeling of what may be useful and quality EPAs and what may not (Taylor 2017).

II. Drafting PHASE

Tip 4

Draft preliminary EPAs

Identifying EPAs can pose challenges because EPAs can be conceptualized differently. Three dominant logics have been used for EPA frameworks, "service provision," "procedures" and/or "disease or patient categories," with most programs using a combination of at least two of these (Hennus et al. 2022). Each approach offers benefits and limitations as described. "Service provision" logic constructs EPAs as broadly described tasks such as "Assessing and treating acute medical patients." This allows for fewer numbers of EPAs but provides less case-specificity when applied to patient encounters. The "disease and patient categories" logic creates EPA descriptions that capture the specifics of patient encounters in a specialty ("Assessing and treating patients with angina pectoris"), but may result in an unwieldly number of EPAs, particularly in broad-based professions and specialties. As you prepare to begin drafting EPAs, consider the scope of your profession or specialty, the challenges you expect with feasibility and case-specificity, and identify the logic(s) best suited for your work—and be prepared to revisit this decision as you progress.

Developing EPAs should start with a clear elaboration of what professionals actually do in practice. Usually, this is done retrospectively by having a representative group of clinicians reflect on and describe their work. Notably, diversity among and quality of these clinicians, especially if the goal is broad scale implementation, is pivotal as this will positively impact both process and outcome. Other methods such as work logs, observation in practice and reviewing published literature can complement this approach. To ensure the collected data represents the work of your profession (and thus EPAs fit for purpose) careful selection of data sources is crucial.

Use of an established consensus method will aid identification and prioritization of key tasks for your profession. The nominal group technique, a structured face-to-face interaction, is a particularly useful brainstorming and consensus method for this purpose (Humphrey-Murto et al. 2017). It offers important advantages of promoting equal participation across team members and leveling power differentials amongst participants. For those less familiar with the nominal group technique we strongly recommend reviewing literature on its application within health professions, including curriculum development (Harvey and Holmes 2012).

The breadth or scope of EPAs is directly linked to their total number; the smaller/more specific they are, the more are needed to cover professional practice, ensuing logistical challenges for supervisors, trainees and administrators alike. The recommended number of EPAs for a complete program is considered to range from 20 to 30 and not more than 10 per program year (ten Cate 2019). As you identify and select preliminary EPAs to move forward, consider combining or splitting some with this general goal in mind. Furthermore, you could establish core EPAs that all graduates must have mastered, and optional or elective EPAs that are available for those who have space to master more.

We recommend discussing the pros and cons of logic, numbers and breadth of EPAs with panel members prior to the nominal group technique.

Tip 5

Elaborate EPAs

The title of an EPA is important and must be intuitive and recognizable to members of your specialty. However, using EPAs to establish the outcome of training for learners, educators, employers and colleagues requires a more detailed

description or elaboration of all that is entailed in achieving competence for an EPA. A recent AMEE Guide elaborated on the eight sections of a full EPA description and provided explanations and justifications for each (ten Cate et al. 2020). These sections are: title; specification and limitations; risks in case of failure; most relevant competency domains; knowledge, skills, attitudes and experiences; information sources to assess progress and support summative entrustment; entrustment/supervision level expected at which stage of training; and time to expiration if not practiced. A well-elaborated EPA can serve to build a mini-curriculum.

All eight sections should be elaborated and written in the language of health care professionals (avoiding overly formal descriptions), but not all need to be filled out at the same time. Most importantly, there must be consensus about the title, specification & limitations, and preferably about required knowledge, skills, attitudes and required experiences. These sections should make fully clear what qualified learners will be entrusted with. Other sections can be filled during the rest of the developmental process. A full description should be one, or maximum two pages as they are primarily intended for use in the clinical setting. If additional information needs to be included, e.g. the linking of specific knowledge, skills and attitudes to the corresponding curricular elements, we suggest using hyperlinks to the relevant documents to keep the EPA descriptions clear and succinct.

Tip 6

Adopt a framework of supervision

The EPA model relies on levels of supervision to define how much autonomy a trainee should be afforded—that is, how much responsibility the trainee can safely be given to perform a task. The decision to transfer responsibility to a learner to perform an activity has been called an entrustment decision (ten Cate 2006; Sterkenburg et al. 2010). These decisions have been operationalized in entrustment-supervision scales (ES scales) ranging from "no permission to execute the EPA" to "ready to supervise others for this EPA." Several other scales have been created to measure "entrustment," each expressing the level or type of supervision a trainee requires or needed for safe and high-quality care in a particular context (ten Cate et al. 2020).

When deciding what scale to use, or developing a new specialty-specific scale, it is important to remember their purpose: making decisions about the autonomy of trainees (ten Cate et al. 2020). Too often we talk about entrustment scores, when in fact a proficiency grading is given without entrustment consequences. For some EPAs, a different framework of supervision may be more suitable than for others, and frameworks do not have to be identical for all specialties (Hatala et al. 2019; Spencer et al. 2022). For instance, on-call activities (especially home-call) potentially require different supervision models than daytime work where a supervisor may be more accessible when needed as well telemedicine versus in-person activities. Likewise, entrustment in surgery may use a different supervisory framework than in medicine. Finally, consensus should be reached on when which level of supervision should reasonably be reached by the learners in a certain setting and which level of autonomy is expected at graduation (this level may differ across EPAs). We recommend standards for supervision within specialties on a national level.

III. Quality control PHASE

Tip 7

Perform a structured quality check

To determine whether your EPAs are fit for purpose, useful and comprehensive, a structured quality check is indispensable. A new framework of EPAs, even after a thoughtful and careful development process may show flaws. A simple first step can be to formulate: "From tomorrow you will be allowed to [EPA title]." If that sounds nonsensical, the EPA might not be useful (Mulder et al. 2010). Tools that evaluate proposed EPAs using objective quality metrics and that can identify areas requiring further revision are the superior choice for quality control of drafted EPAs (Post et al. 2016; Taylor et al. 2017). The EQual rubric measures the alignment of EPAs with standards from the literature, identifies points for revision, and provides developers with information regarding areas of strengths and weaknesses in the structure and content of EPAs (Taylor et al. 2017). Quality in the construction of proposed EPAs is important throughout the development process. Ensuring proper EPA structure from the outset (prior to consensus methods) helps avoid difficult to correct problems later. Application of EPA quality testing (e.g. EQual rubric) is, therefore, not only important as a final checkpoint, but we also recommend evaluating the quality of proposed EPAs prior to their inclusion in consensus methods such as Delphi. This initial check need not be involved; it can be a focused evaluation by 2 or 3 people with expertise in EPAs and the practice area. But ensuring quality construction going into your consensus process will help ensure quality coming out.

Tip 8

Use a Delphi approach for refinement and consensus

Once a preliminary set of EPAs is established, refined and checked for quality, achieving broad consensus is the next step. The Delphi technique, a consensus method that deploys iterative consultation of independent content experts regarding a topic or series of topics (Humphrey-Murto et al. 2017) is a frequently used method in EPA development (O'Dowd et al. 2019). A common modification in EPA development provides respondents with a set of carefully crafted initial EPAs from the outset (Custer et al. 1999). To ensure the comprehensive nature of the final EPA set, Delphi respondents should comment on individual EPAs, comment on the set as a whole, and have the opportunity to add EPAs.

Experts constitute the cornerstone of the Delphi process. The criteria for expertise and number of panel members must be carefully set. Anywhere from 10 to 50 have been described as adequate (Turoff 2002). Panel members must be knowledgeable about both the EPA concept and the specific clinical content. A credible, representative panel is likely to include experienced clinician educators, such as program directors, responsible for curricular implementation within their specialty. Delphi panel members may be

aware that they will have to work with the resulting EPAs themselves, which could increase their interest to participate but may also introduce bias. Conversely, involving Delphi participants who have suboptimal understanding of EPAs or only a modest level of interest can lead to high consensus scores for EPAs of questionable validity—scores which offer the appearance of a high-quality product and drive adoption and implementation of poor EPAs. Consensus ratings resulting from Delphi studies therefore, do not only reflect content expertise, but balance considerations of feasibility, implementation and political acceptability. EPA developers should be aware of this potential trap when selecting Delphi experts (Humphrey-Murto et al. 2017).

Tip 9

Pilot test EPAs

Once a set of EPAs has passed quality control and gained broad consensus, their suitability and feasibility for assessment on both faculty and trainees should be tested. Pilot testing provides low-risk and high return and can be seen as a final rehearsal for your drafted EPAs. It is generally conducted with a small sample of intended users in real-world conditions to test the feasibility of implementing a new initiative and the likelihood of reaping its benefits at scale. If a set of national EPAs are being developed, consider using one to three (small) institution(s) as a pilot center, for local EPAs pilot testing by 5–10 users (learners and assessors) will probably suffice. When pilot testing, however, it is important to do more than simply deploy EPA-based assessment tools. You must interview learners and assessors seeking feedback on the EPAs themselves, the assessment tools used, the impact on workflow, and any barriers identified. This will allow you to make modifications and address challenges before proceeding to full implementation.

Tip 10

Attune EPAs to their feasibility in assessment

When developing EPAs, at some point practical rules must be established about using assessments to support summative entrustment. Key points to consider when attuning EPAs to their feasibility in assessment include:

a. Ensuring alignment between clinical tasks assigned to learners and the EPAs assigned to each rotation.
b. Ensuring the total number of satisfactory assessments required is feasible for supervisors and learners. For example, some rotations may have many learners per supervisor, affecting feasibility for multiple assessments each.
c. Allowing for several approaches to assessment in the clinical setting including: direct observation, longitudinal monitoring, discussions with the learner, and product evaluation (Chen and ten Cate 2018). Consider your clinical workflow when determining workplace-based assessment rules and tools for a given clinical rotation
d. Mobile technologies linked to an electronic assessment platform that supports EPA-based assessment are essential in supporting institutions and programs implementing EPA-based curriculum (Marty et al. 2023). Such systems allow direct feeding of workplace-based assessment data into learners' electronic portfolios. When well organized, such portfolios equip learners to engage in self-regulated learning, programs and advisors to monitor trends and growth, and competence committees to make data-driven decisions. It is essential programs pay careful attention when adopting and operationalizing an assessment platform for EPAs.

IV. Curriculum alignment PHASE

Tip 11

Map EPAs to the curriculum

Entrustable professional activities require a constellation of competencies that professionals need to possess to perform a task, and to connect competence to clinical practice. Not all competencies are equally prominent across EPAs. Mapping of EPAs to curricular competencies, sub-competencies, and their milestones can provide a longitudinal roadmap for progression over time and build meaning for each EPA along the way (Carraccio and Burke 2010). Furthermore, it allows for uncovering potential gaps or topics insufficiently covered by the drafted EPAs. For each EPA the requisite knowledge, skills and attitudes should have been determined through elaboration, so the next step is to determine where in a curriculum preparatory study and training can take place. We recommend making a distinction between classroom teaching, skills training, clinical rotations and postgraduate training. Ideally, key teachers from these phases should convene to determine how best to prepare learners for the EPA. Using a matrix to map these creates a tangible curricular roadmap, which may also allow incorporate milestones if needed (ten et al. 2020) (Touchie and ten Cate 2016).

Expectations for learner progress can be drawn on this map to determine expected matriculation or timing of awarded responsibility for a task. Initially, you will need to determine what types of assessment tools are appropriate information sources to inform entrustment decisions along this roadmap. Inevitably, with these tools identified, teams then determine the number of satisfactory assessments to support summative entrustment decisions, where a learner can be awarded increased responsibility and less supervision (ten Cate et al. 2020). This mapping with EPAs, competencies, and assessment tools can support determination of the level expected at various stages of training. These benchmarks can help identify underperformers earlier and serve as individualized learning plans that target specific activities and workplace-based assessments within the mapped EPA/competency framework.

Tip 12

Build a revision plan

Developing and implementing EPAs requires a fundamental change to clinical training programs. Careful evaluation of the new EPA framework will be needed at specific time points after implementation to determine its' effectiveness

in (a) meeting the stated purpose; (b) identifying issues in need of attention or opportunities for improvement and (c) supporting continuous improvement. Numerous methods for effective evaluations of educational programs have been proposed (Goldie 2006; Cook 2010).

We suggest that a critically important evaluation and revision of an EPA-based curriculum should be planned one year after implementation. Making this part of the overall plan protects against a "fear of imperfectionism" and procrastination during development. This evaluation should investigate whether or not the EPA-based assessment program is meaningful for those involved: is the number of EPAs workable? Do EPAs reflect essential daily tasks? Are they usable in daily practice and what are facilitators and inhibitors? Do the entrustment-supervision scales work as intended? Are there any EPAs missing or redundant, etc.? Questionnaires and or focus group meetings targeting learners and faculty are excellent means to collect meaningful feedback on these topics. Avoid major reactive changes in an early stage. Instead, use data to make improvements aligned with your purpose and to ensure faculty feel engaged in the process.

Any adjustments made to the EPA framework will, of course, need evaluation and revision in due time. It is important to realize that for EPAs, just like for most educational activities, continuous evaluation and revision cycles are essential and full implementation will likely take several years to achieve.

Conclusions

EPAs help bridge the gap between the theoretical aspects of competency-based education and daily clinical practice. The developmental process of EPAs however, can be challenging and requires a deep understanding of the EPA concepts. The 12 more or less sequential tips provided in this article build upon recent literature and emphasize the authors' practical experiences and lessons learned in the complex area of EPA development.

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