This article can justly be called a vision, although it already contains some of what could be identified as elements of a proposal, such as concrete deliverables or aspects of funding. Reviewing a “vision” (which may become a full proposal anytime soon) should certainly be different from reviewing a “normal” (ESSD-)article. Due to this, and the obvious merits of the vision (see below), I recommend publication, and leave it to authors whether to incorporate response to critical observations below in the final paper (or perhaps address it when writing their proposal).

The authors are to be commended for presenting a vision which is audacious not only in its financial dimension but as well in the ambition to serve society from the global to the local scale. They strive to provide not only climate projections of “much greater fidelity, with local granularity” (line 19), but the technical basis (“software and infrastructure-as-a-service”, line 28) for local communities to derive the impacts of climate change to their living conditions, around the world (“a world where everyone knows how climate and climate change affect them, and where this knowledge empowers them to act.” line 14/15 and hint at the scope of projections – from hydrology, agriculture to biodiversity- in lines 55 ff).
The broad diversity – along many dimensions - of “summit participants”, line 159, and authors’ affiliations support the ability of this group to judge whether it is realistic to deliver on this vision.

Furthermore, it clearly identifies (“Efforts to know more, and plan better, are severely under-resourced, and inequitably distributed” line 11) and strives to address the problems of equitable access to these capabilities. In particular, the vision requires each EVE to “establish and maintain equitable access to a space of interoperable data and software” (line 35) and to “include a strong component of well-tailored capacity development, … to bridge divides to train and employ new developers and users of climate information globally.” (line 42/43) and “Ideally EVE would give every country in the world the capability to train people to develop models, AI algorithms, and tailor climate information to meet their needs.” (line 100/101).

The visionaries are aware of the broad range of societal needs (lines 55-59) and describe some of the challenges EVEs would face (such as their apparently being in competition with existing organizations, line 135 ff).

However, some of those challenges faced by EVEs are just mentioned or hinted at, leaving the reader guessing (or hoping), how they would be addressed. The three major topics this reviewer sees are:

- As authors explicitly refer to the principles of ESSD (lines 173-176), a lack of clarity about the commitment of EVEs to openness of their outputs must be noted: “open delivery of value”, line 51, is a bit too broad, if not vague.
  Is there a clear commitment of EVE’s envisioners that all of it outputs - texts, data and software - are to be openly accessible, *in a timely fashion*? Just as crucially, how would scientists from “all countries” be allocated equitable access to the computing infrastructure?

  Leaving these topics to be resolved by “Global governance” under the terms of an “international treaty”, line 49, might results in a – from a scientific standpoint -

mindless struggle for each country's piece of the pie and perhaps even to suppression (or delay) of uncomfortable truths.

- The matter of trust (trustworthiness?) or quality/"fidelity" of projections is named, but not addressed by consequences in this article. It would help if some required measures – such as curation of software and data, (organization of) systematic reviews or model-model and data-model intercomparisons - would be named as regular tasks of the EVEs. Methods chosen for systematic scrutiny may need to be unfamiliar, particularly if EVEs would attract a major part of the "projection community" (See the methods of the High Energy Physics community which clusters around the powerful instruments of the CERN LHC.)
  The necessity of such measures is evident from the FAQ notes on surprises (lines 64-73) and also when generative AI, well known for hallucinations and going MAD (Model Autophagy Disorder), comes into play (line 104/105).

  Moreover, even those surprises themselves would only be trusted if not just the models are deemed trustworthy, but the observed data stem from similarly trusted parties (Authors seem to note that there is a major gap between something being actually trustworthy and it being finally trusted). Why not suggest that at least some essential data be co-located with EVEs, and treated to the same standard of fidelity?

- EVEs are described as three to five "centers of excellence", and it might appear to readers that a concentration of physical and human resources in just as many locations is meant to be implied. But the discussion about power needs reveals that is not necessarily so ("The compute resources need not be sourced from a dedicated site" line 128). However, federated systems, popular as they are for matching funding structures and not hurting current operators, still have to prove that they are indeed effective and efficient.
  (E.g., a recent attempt to port a large-scale analysis from Google Earth Engine to EOSC, paid for by EOSC, failed quite miserably, while the observation that a growing share of ESSD articles is based upon the Google Earth Engine might indicate that scientists indeed flock to an infrastructure which is powerful and convenient at the same time.)

  Also, new co-operation between large numbers of scientists from different scientific domains, different continents and cultures etc. will be hampered by physical distance. Since authors refer to "international organizations whose profile overlap with parts of EVE's remit" (line 132/133): To which extent are those institutions distributed?
  Even having just 3-5 EVE sites and to manage that those stay interoperable and do not develop on divergent paths will be challenging (if that is a goal of the vision??).

Some individual observations:

- It appears that EVEs will hold just models (and a copy of some reanalysis data which is used as boundary condition?) The need for access to observed data (remote or in-situ) is acknowledged ("observed changes behave differently" line 71) but the means to achieve that remain vague while hinting at obstacles ("catalyse" line 15, "embed"

line 18, “link” line 20, “strengthen these services by making it easier to access” line 77)

- The answers to “Aren’t there already a great number of digital twinning activities, what makes EVE different?”, line 89, and “How was EVE’s budget estimated?”, line 131, omit to mention the elephants in the room, commercial actors such as Google Earth Engine and Microsoft Planetary Computer, particularly Microsoft ClimaX. To defeat a purely economic argument about potentially lower cost, publicly built and operated EVEs need to be at least similarly attractive as those (ease of use, efficiency).