PROMPTING AN EOSC IN PRACTICE

Making EOSC a Minimum Viable Ecosystem

Žiga Turk, member of the 2nd HLEG

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EOSC should have some quick and easy wins

» The EOSC should implement "whatever works" and do "whatever it takes"

» to increase

- the availability and
- volume of quality &
- user-friendly scientific information on-line.

NOW ☑
LATER ☐

The way to do it is through MVP strategy

» Minimum Viable Product is
  - "a version of a new product which allows a team to collect the maximum amount of validated learnings about customers with the least effort."
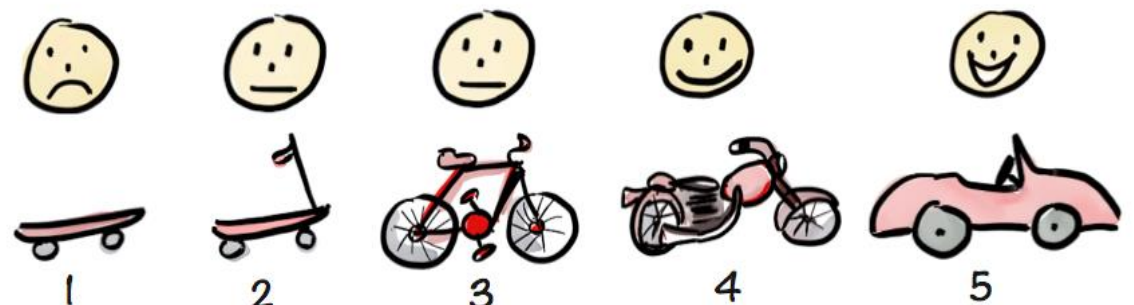
» MVP includes
  - "the feature or features required to solve a core problem for a set of users and be released to market".

Not like this....

1   2   3   4

Like this!

1   2   3   4   5

by Henrik Kniberg

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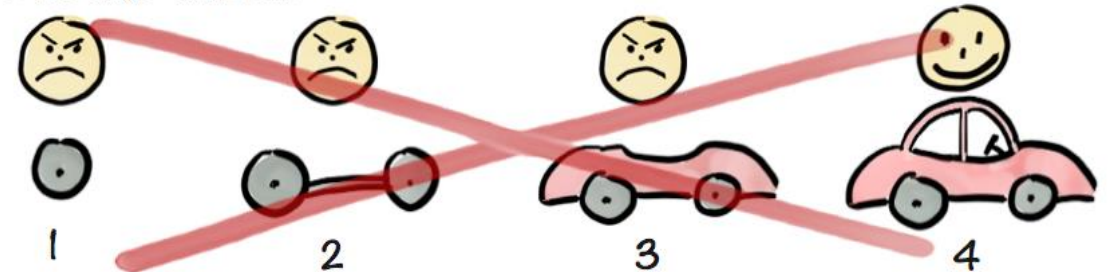
EOCS is an ecosystem

» Minimum Viable Ecosystem would enable EOSC to emerge as

» a collaborative effort,
» in an iterative way.

Planning a MVE includes

» Identification and Understanding of the Business Needs

» Finding the opportunities which includes

- identification of <u>users</u>,
- their <u>actions</u> and
- desired <u>results</u> as well as
- identification of <u>pains</u> and <u>gains</u> of each action.

» Deciding what features to build –

- what <u>pains</u> to remove with product that
- gives <u>gains</u> to the user.

There are three+one key user groups

» Researchers
- they are the customer and customer is king

» Software developers
- they are the makers of the whole thing
- they make the ecosystem rich or poor

» Infrastructure providers
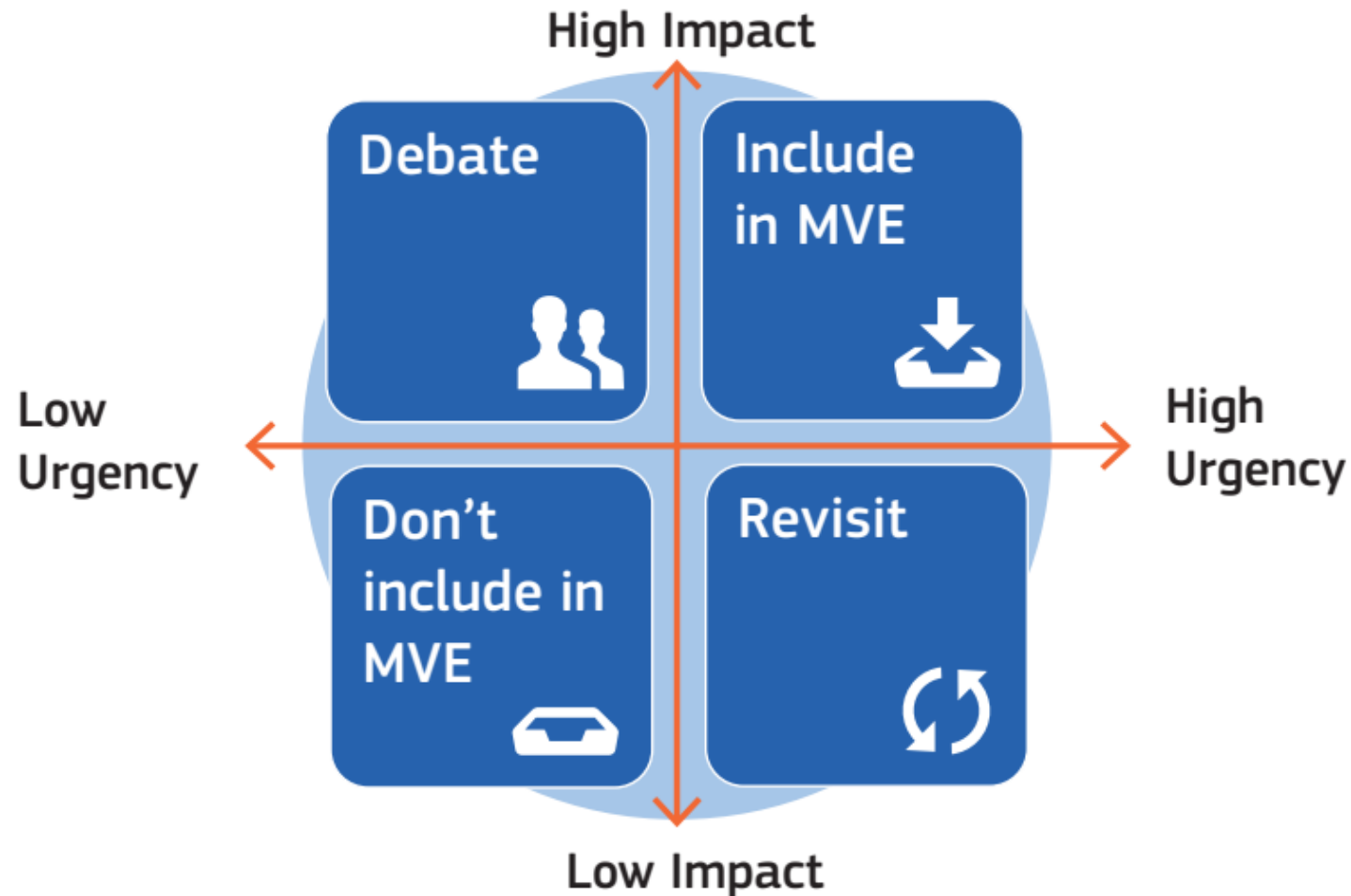- they get an opportunity for new businesses on their platforms

» Research funding organizations
- they foot the bill
- they care for efficiencies of the system

Not all features are equally important

Focus on end-user for the final report

User / Provider	Actions	Story ending
End User	Register for use Discover service Find data Transform data Run analysis Store results Pay for service Sponsored to use a service	Evidence based on research accomplished, followed and cited
Service developer	Identify user needs Create services Publish service Provide consulting about service Charge for service	Investment into development of service returned
Research funding organisation	Identify user needs Recognition opportunities Aggregation services	Acknowledgement of the EOSC as central reference in research funding themes
Core Infrastructure provider	Attract service hosting Charge for hardware resource use	Well exploited, secure, interoperable and searchable infrastructure

Objectives of EOSC

(1) to increase value of scientific data assets by making them easily available to a greater number of researchers, across disciplines (interdisciplinarity) and borders (EU added value) and

(2) to reduce the costs of scientific data management,

(3) ensuring adequate protection of information/personal data according to applicable EU rules (e.g., REGULATION (EU) 2016/679).

A key task of the governance framework is a set of rules of participation that support these objectives by setting the rights and responsibilities of participants to the EOSC.

Three-layer governance model

Strategic layer

EOSC Board

appoints, endorses & supervises

reports, advises & oversees

Executive layer

Executive Board

Working Group 1   Working Group 2   Working Group N

Stakeholder layer

advises

Presidency

Stakeholders Forum

advises

CSA Structure

CSA

steers

supports

Project 1   Project 2   Project N
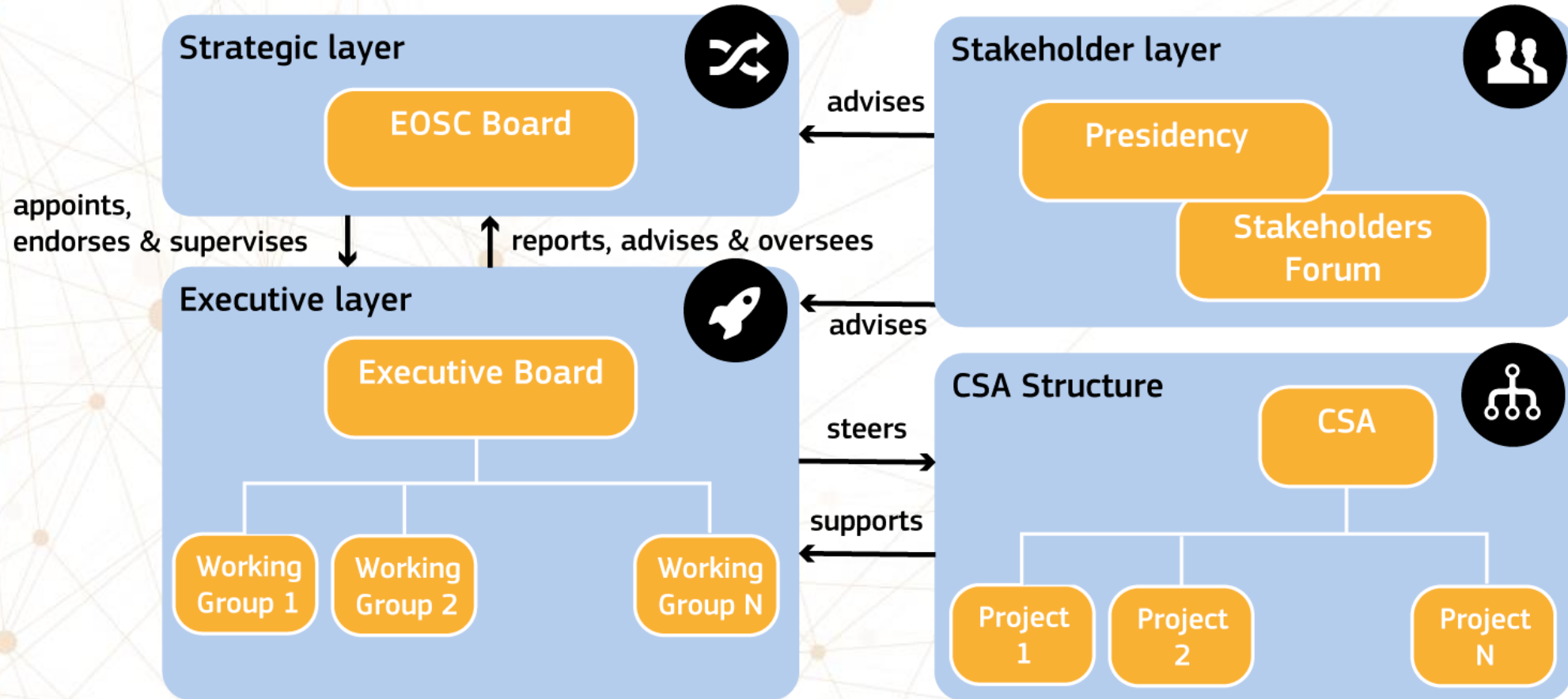
Transparency and accountability

The EOSC Board

The EOSC board will have the ultimate responsibility for defining the requirements for participation, as well as oversee that EOSC service providers operate according to the rules of participation.

The key is complete transparency of that the marketplace for cloud services for all stakeholders: CSPs, academic providers and users of the EOSC.

Transparency dictates that all participants and providers in the EOSC have the same basic access rights to the marketplace so that they can make appropriate decisions on the use of the various EOSC capabilities.

Transparency also demands open interfaces that are specified for all users.

The Stakeholders Forum

» The Stakeholders Forum has to grant all stakeholder groups the possibility to determine the requirements, policies and principles of participation. The Stakeholders Forum should on the one hand advise both the EOSC Board and the Executive Board, while appraising the work of the two Boards on the other.

» The Stakeholders Forum has to have a suitable organisational structure that enables consumers, providers and intermediaries of all sizes to participate and it will be interacting with the Boards by means of its Presidency. The Stakeholders Forum Presidential board proposes the rules of membership and participation and processes and acts as the key contact point for the Strategic and Executive Layers.

The EOSC Executive Board

The EOSC Executive Board should provide an annual report that provides insights into the relative use of various CSPs and services.

All data and service providers need to comply with the applicable EU data protection regulations and other requirements in terms of technical and organisational measures and ensure the protection of the rights of the data subject. Compliance with some of these regulations may be subject to certification, whether this is to be self-certification, or an accredited certificate, lies with the governing board and depend on the level of security.

List of WG of the Executive Board for discussion

1)   The Rules of Participation WG

2)   Architecture WG

3)   Open Standards in Service Development and Seamless deployment WG

4)   Resource Allocation WG

5)   EOSC Business Models WG

6)   FAIR Principles over Data & Services WG

7)   Data Management Policies WG

8)   International Liaisons WG

9)   Open Science Policies WG

10)   Data Security & Compliance WG

Business Model - Requirements

» The EOSC Business model is a critical non-technical element that will determine the success of the EOSC vision

» The EOSC Business model must (selection):

- **Support the rapid acquisition and delivery** of a variety of cloud services
- **Ensure sufficient interoperability** to consent movement of digital objects between environments for reuse elsewhere
- **Maintain appropriate requirements** on providers of both digital objects and services
- **Limit the scope of the federation of scientific clouds** to a reasonable number to help ensure that critical masses of digital objects exist
- **Ensure that the private sector re-invests in R&D** to stimulate innovation and create new markets

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Model for provisioning access based on Charter for Access

» Excellence Driven Access
- **exclusively dependent on the scientific excellence**, originality, quality and technical and ethical feasibility of an application, evaluated through peer review conducted by internal or external experts

» Market Driven Access
- is **defined through an agreement between the User and the e-Infrastructure** that will lead to a fee for the Access

» **Wide Access Mode**
- **guarantees the broadest possible gateway** to scientific data and digital services provided by the e-Infrastructure to Users, wherever they are based

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Governance, Transparency, Accountability

» **EOSC board** will have the ultimate responsibility
- for defining the business model
- the requirements for participation,
- and will oversee that EOSC service providers operate according to the rules of participation

» **Transparency** dictates
- that all participants and providers in the EOSC have the same basic access rights to the marketplace and
- that actual costs are clear to end users

» **Accountability**
- All data and service providers need to comply with the applicable EU data protection regulations and other requirements

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Funding Model and Payment Mechanisms

» **Direct Support Model**
  - an institute receives a grant from a funding entity to build/operate the resource and make it available to other grantees of the funding entity
  - Ability of certain researchers to **access these resources may be restricted** (i.e. non-grantees of the funding entity cannot access to the resource)

» **Cloud Coin Model**
  - based on a certification programme for commercial and non-commercial providers of scientifically useful services
  - Accept specific, EOSC-defined financial transactions in payment ("cloud coins")
  - dictates that providers of services will have to appeal to **thousands of individual scientists** and research groups

» **Hybrid Model**
  - Combination of Direct Support Model and Cloud Coin Model

PROMPTING AN EOSC IN PRACTICE

	PROS (selection)	CONS (selection)
Direct Support	1. **Simple to operate** and implement, based on current funding mechanisms 2. Provides EOSC nodes with core revenue to develop **services that might not be economical**	1. Resources can have internal foci, **reducing access from outside stakeholders** 2. Constant funding stream **reduces incentive to innovate** , to attract users…
Could Coins	1. Enables **maximum choice for researchers** by operating in a competitive marketplace 2. **Enforces innovation** by requiring services to support themselves via 'cloud coin'-based cost recovery	1. **Complicated to implement**, requiring payment management networks. 2. **More difficult for non-commercial organizations** due to a lack of venture capital in such environments
Hybrid	1. **Provides necessary resources** for the management of high value data sets. 2. Supports **access** by both commercial and non-commercial organizations **into market** 3. Provides **maximum choice to researchers**	1. **Increased complexity** due to the nature of a mixed market 2. **Implementing the 'cloud coin' market remains complex** but can be built even as other resources utilize more conventional funding

Outlook on Final Report

» The final report will also analyse the **externalities** for research funders in terms of
- **decreasing overheads**
- **increasing aggregation of user demands**
- what **human resources would be necessary**
- the **potential of re-use** across fields