

# Evaluation Methodology

## Cascadoss approach to OSS GIS evaluation

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# Objective of the Evaluation

- Overall objective
  - To identify Open Source GIS & RS software for environmental applications that could be used by geospatial end-users, especially those users relate to the use of GMES services





# Objective of the Evaluation

- Specific Objective:  
to measure the „*Adaption potential*” for the target group
  1. Market potential
    - Strength of the product from market point of view
  2. Technical potential
    - Software quality – technical view
  3. Economic potentia
    - Economical – financial view

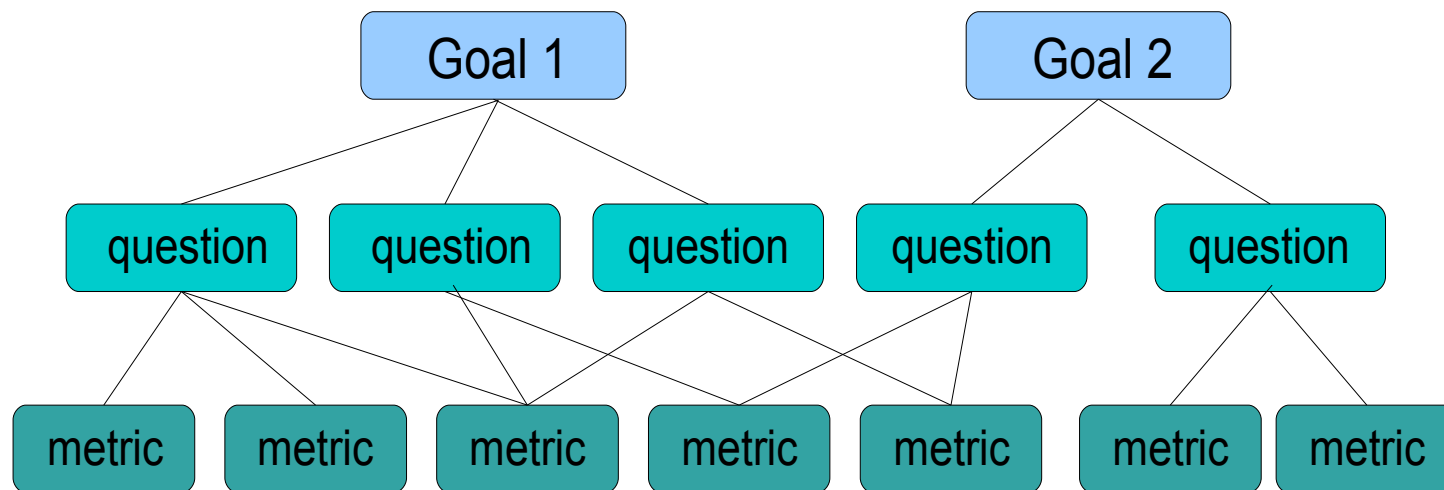


# Goal Question Metric Approach

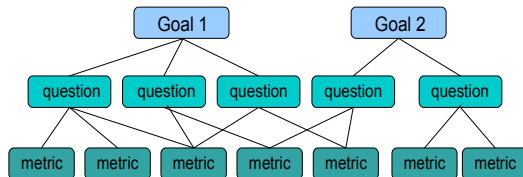
- Goal Question Metric Approach
  - Victor Basili, NASA, Univ. Mariland
  - top-down goal-driven structure
  - defines measurement goals,
  - raises questions to address the goals,
  - identifies metrics that provide answers to the questions



# Goal Question Metric Approach



# Goal Question Metric Approach



<i>GOAL:</i>	<i>Purpose: Identification market(ing) potential Issues: Strength Objects: of Communities Viewpoint: End-user</i>
	<i>(Goal) Strong Vendor Community</i>
<i>Question</i>	<i>What is the number of implemented projects that have adopted the SW in subject</i>
<i>Metrics</i>	<i>Number of projects (0- no 1 - one or more)</i>
<i>..</i>	<i>..</i>
	<i>(Goal) Strong OSS distributor community</i>
<i>Question</i>	<i>What is the number of distribution packages that includes the software in subject?</i>
<i>Metrics</i>	<i>Number of distros (0- no 1 - one or more)</i>
<i>...</i>	<i>...</i>



# Other Principles

- Higher priority for Objective Criteria than Subjective Ones
- Based on standards and best practise
  - *Iso 9126 Software Quality, QSOS, ..*
- Weighted Scoring
- Iteration to refine method
  - *Trial evaluation → Evaluation*
- 3 dimensions:
  - *Market (1<sup>st</sup>), Technical (2<sup>nd</sup>), Economic (3<sup>rd</sup>)*



# Market Potential (1<sup>st</sup>)

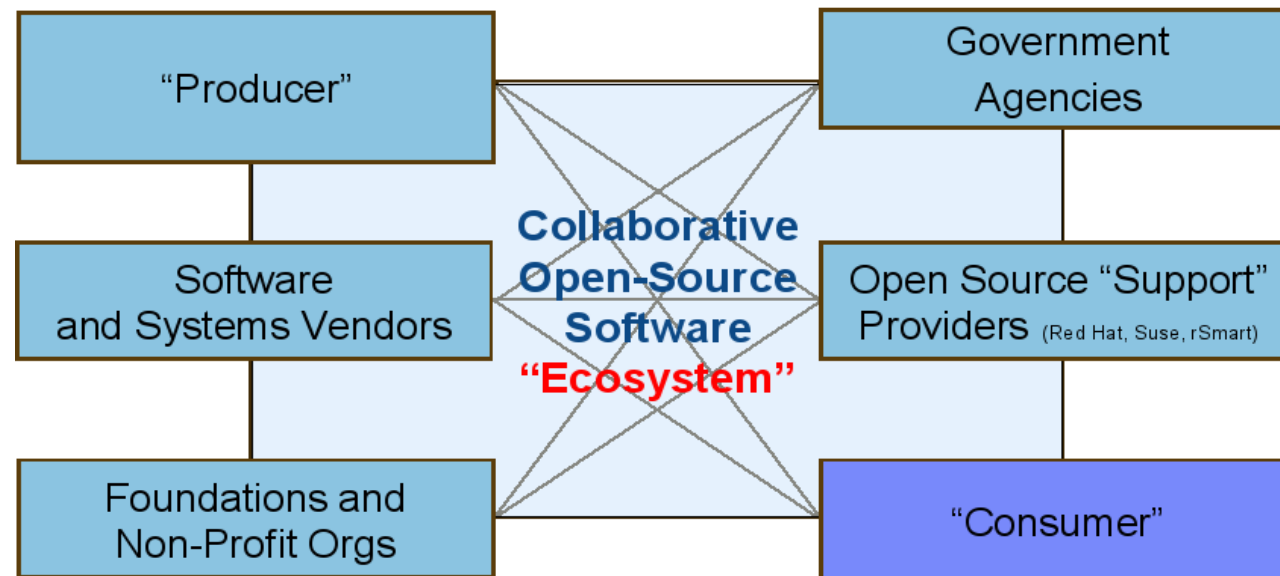
- The goal is to Indicate projects having high market potential for end-users which ones
  - are attractive and most probably sustainable projects
  - have strong, reliable easily accessible services covering, training, publication, help-desk, system integration, distribution network
  - have active and motivated user groups
- Viewpoint: End user level management



# Market Potential (1<sup>st</sup>)

## 1. Strength of Communities

Developer, User, Vendor, Distributor, Non-profit, Government, “Ecosystem”



*Based on: Empowering the Next Generation Of Business and Learning Applications with an "Open Approach" Patrick F. Carey, 2006)*



# Market Potential (1<sup>st</sup>)

## 2. Maturity of the project

- Version Control, Mailing list, Documentation, Testing approach, Portability

## 3. Market Share

- Direct or Indirect (popularity, reputation,..)

## 4. Synergy with other products

## 5. License

- Standard/non-standard, restrictions



# Market Potential (1<sup>st</sup>)

<u>Max Scores</u>	<u>Aspects</u>
15	Strength of Community
15	Maturity of the project
12	Market Share
9	Legal/Licence issues
9	Collaboration
60	Total

# Technical Potential (2<sup>nd</sup>)

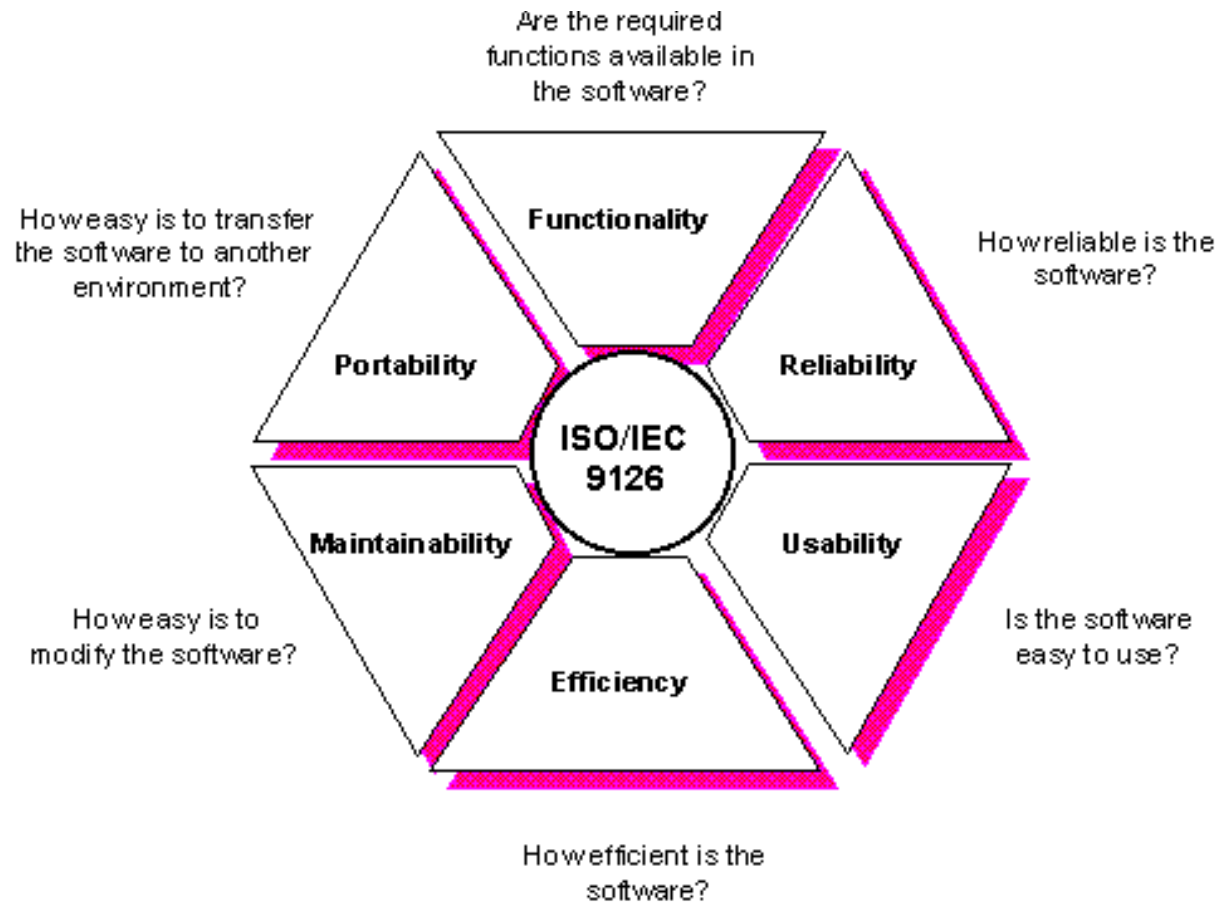


- The goal is to indicate projects that produce high quality products according ISO 9126 concept
- Viewpoint: End user level technical persons such as GIS experts and operators



# Technical Potential (2<sup>nd</sup>)

## ISO 9126





# Technical Potential (2<sup>nd</sup>)

- Categories of Open Source GIS&RS software projects
  - General Interest
  - Development Libraries
    - GIS: Libraries
    - Remote Sensing: Libraries
  - Desktop Applications
    - GIS Applications
    - Remote Sensing: Applications
    - Metadata editors
  - Server Applications
    - Web Services
    - Web Tools



# Technical Potential (2<sup>nd</sup>)

## DesktopGIS Functions:

- Basic Functions
  - create, edit and manage geometric data
  - add, remove, and calculate fields
  - multiuser editing
  - create and manage metadata
- Spatial measurement and analysis
  - Overlay analysis (union, intersect, erase)
  - Proximity analysis (buffer, near, distance)
  - Surface analysis (aspect, hillshade, slope)
- Graphic output, visualization, cartography
  - manage labels
  - predefined map templates
  - manage symbology , design customized symbols, thematic categories, and style sheets
  - create map elements such as north arrows, map surrounds, and graticules for use in designing specialized map series
  - print published map documents including all layer symbology and cartographic map elements



# Technical Potential (2<sup>nd</sup>)

<u>Max Scores</u>	<u>Aspects</u>
15	Functionality
9	Reliability
9	Usability
9	Efficiency
9	Maintainability
9	Portability
60	Total

# Economic Potential (3<sup>rd</sup>)



- The goal is to indicate most economical products created by OSS projects
- View point: End user level financial management interested in short and mid term costs of various activities such as adoption, migration and operation





# Economic Potential (3<sup>rd</sup>)

- Cost of installation
  - Cost of deployment (how standard is the req architecture)
  - Cost of labour (who and how can install)
- Cost of migration
  - Specialists, labour, customisation
- Cost of operation
  - Knowledge: users, administrators, newbies
  - Cost for configuration management

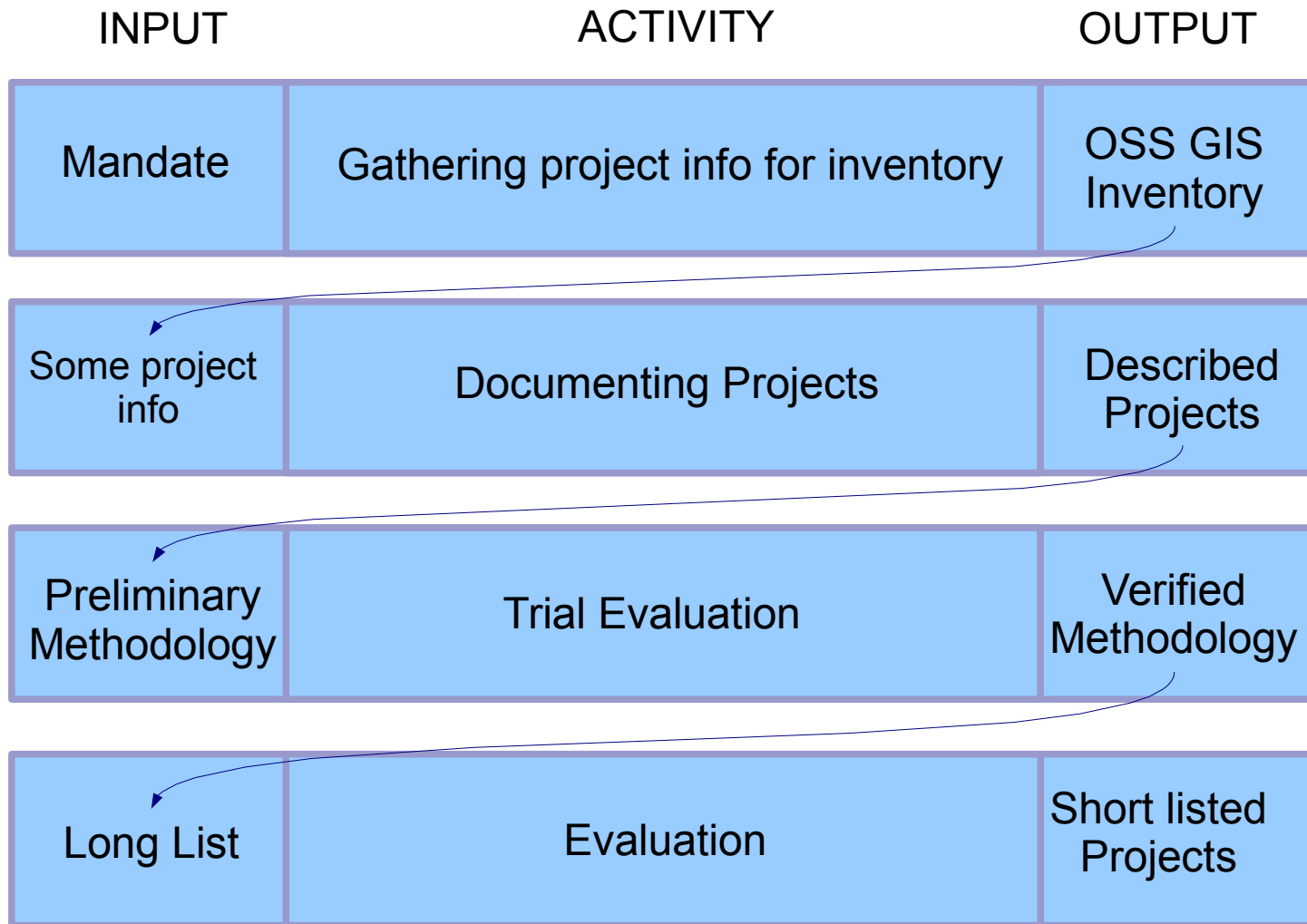


# Economic Potential (3<sup>rd</sup>)

<u>Max Scores</u>	<u>Aspects</u>
24	Cost of installation
18	Cost of migration
18	Cost of operation
60	Total

*Scores mirrors the present value of investments*

# Process to Prioritise OSS GIS Projects for GMES users





Thank you for your attention!

