726in.F3 Software Selection Strategy v1.1

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I. Introduction

The **F3 Technical Solutions** is a BIMe Initiative project [1] to identify, collate, classify, and maintain a comprehensive list of the **software tools** used for designing, constructing, and operating all types of assets across their lifecycle. This document introduces the *draft F3 project strategy* for consultation with the community and project supporters.

II. Project Goals and Objectives

Project F3 has the following **Goals**:

- **Goal 1: Deliver an online module** to search and identify the software tools *most suited* to a practitioner's *Competency Profile*[2] and, an organisation's *Performance Profile*[3], and a project's unique delivery requirements.
- **Goal 2: Deliver a guide** that assists practitioners in analysing their software tool requirements and identifying the best fit for purpose.
- **Goal 3: Engage with researchers, practitioners and software developers** and involve them in developing, maintaining, and extending the deliverables of this project.

To achieve these three Goals, the following **Objectives** are identified and will be further elaborated during the early phases of project development (refer to *F3 Project Programme* once available):

1. Develop a *versioned* **Master Software Tools List** (Master List) for publicly available software tools used by *Built Environment Practitioners* across *Project Lifecycle Phases*[4].
2. Develop *versioned* **Classification Criteria** for organising/labelling software tools within the Master List.
3. Deliver an **Online Module** within the BIM Dictionary for hosting, searching, and filtering software tools according to Classification Criteria.
4. Deliver a **Practitioner's Guide** for software rating and selection.
5. Research, develop, test, deliver, and continuously improve the **Community and Outreach Mechanisms** for maintaining and extending the Master List, Classification Criteria, Online Module, and Practitioners Guide.

[1] Project F3 is part of Project F | Integrated Information Project. Please refer to 103in BIMe Initiative Projects and Projects List.
[2] Competency Profiles - both current and targeted - are part of **BIMe Initiative Project C** | Competence and Learning
[3] Performance Profiles of organisations and team are part of **BIMe Initiative Project D** | Performance Improvement
[4] Software tools will be restricted to those with Asset Scales 40 - 60.

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III. Software Tools

For the purposes of this Microproject, a **Software Tool** is defined[5] as:

> A software application (an executable computer program) *used as a tool by a human actor* for designing, constructing, and/or operating an asset across its lifecycle. The term includes mobile apps, middleware, and extensions/ plugins[6].

A. Software Tools List

A main deliverable of this project is to deliver and continuously update software tool' lists for learning, performance assessment and performance improvement purposes.

Master Software Tool List

The *Master Software Tools List* (Master List) includes the software tools identified by the project team as publicly available for designing, constructing, and operating all types of assets across their lifecycle. The Master List will include an inventory of software tools and their classifications, labels, and attributes as needed to clarify how a tool may be used as well as its availability, functionality, and affordability.

Filtered Software Tool List(s)

Filtered Lists are subsets of the Master List organised according to a specified Information Use or for displaying a custom combination of Classification Criteria. An example of a Filtered List is available for the 4040 Clash Detection - Model Use Template.

Identification of Software Tools

The software tools will be identified through transparent inclusion and exclusion rules. In general, software tools will be considered for inclusion if they are (a) publicly available; (b) stable (not in beta phase); and (c) office or site-ready (not a research project).

To identify these tools and their functions, a survey will be launched - targeting both practitioners and topic researchers - leading to the generation of a draft list. This will then be shared with BIMe Initiative peers to verify the list's accuracy and comprehensiveness. Following verification, a *draft* Master List will be formally released for public use.

B. Software Tool Classification

To organise software for search and retrieval, a robust set of concepts are needed. This project will deliver *Classification Criteria*, a versioned list of labels/tags for organising software tools within the Master List.

[5] The BIM Dictionary description shown below may be newer than the published version.
[6] Please note that equipment-specific software - e.g. software for VR/AR headsets and 3D printers - are excluded from the initial versions of the Master Software Tools List.

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Classification Criteria

The *Classification Criteria* are developed by (a) researching similar classification efforts, benchmarking tools, and relevant standards and norms; (b) interviewing personnel tasked with selecting software tools for their organisations and institutions; and (c) consulting community peers with significant experience in developing general taxonomies. A draft version of the Classification Criteria is provided below and consists of four sets:

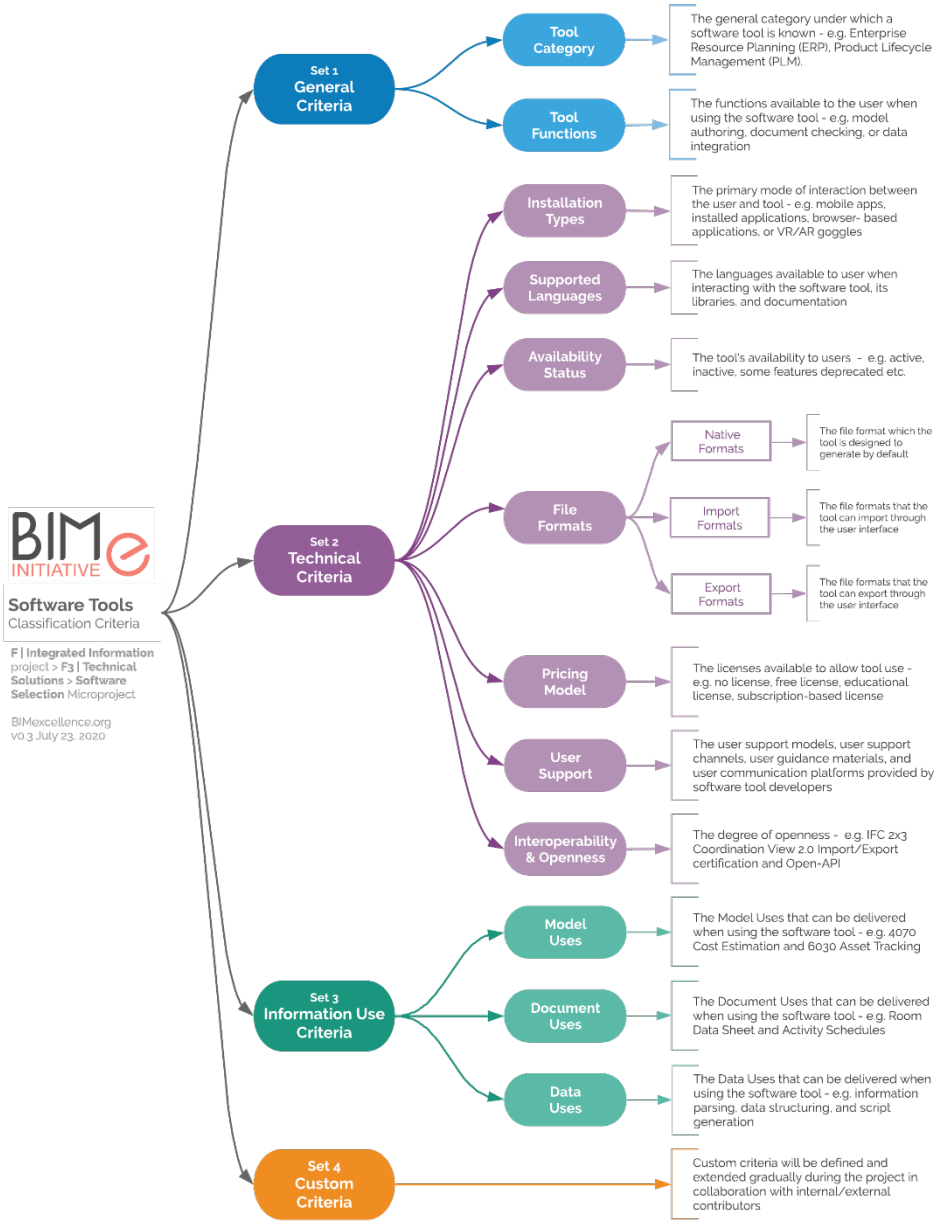

Figure 1. Software Tools Classification Criteria – v0.3

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Populating Criteria Sets

Software vendors will be contacted and asked to review the Criteria Set and to contribute additional classification criteria for consideration. Following this, an updated *Master List* will be shared with the Community for verification prior to publication of the *first version* of the Software Tools Master List as a *BIMei Resource*.

C. Software Tool Selector

The *Software Selector* is a BIM Dictionary module for (i) hosting the Master List (database format to be decided); (ii) providing a user interface to browse, search, and sort software tools according to Classification Criteria; and (iii) creating Filtered Lists for printing, exporting, and reusing across the BIM Dictionary platform (access through an Open API is currently being considered).

D. Software Tools Selection Guide

The *Software Guide* provides checklists, rating scales, and decision-support matrices to assist practitioners in assessing the suitability of software tools for their personal, organisational and project-specific requirements. The Guide will also cover how to best use the Software Selector module.

IV. Project Administration

To meet the microproject's goal and align them with other BIMe Initiative microprojects, a number of workflows and protocols will be developed.

A. Project Workflows

The F3 Project relies on *four concurrent development activities* to deliver the Master List, Software Selector, Practitioners Guide and Community/Outreach Mechanisms. Each of these is illustrated in a BIMe Initiative **Activity Flow** which will be continuously updated. Below is the project's Overall Activity Flow:

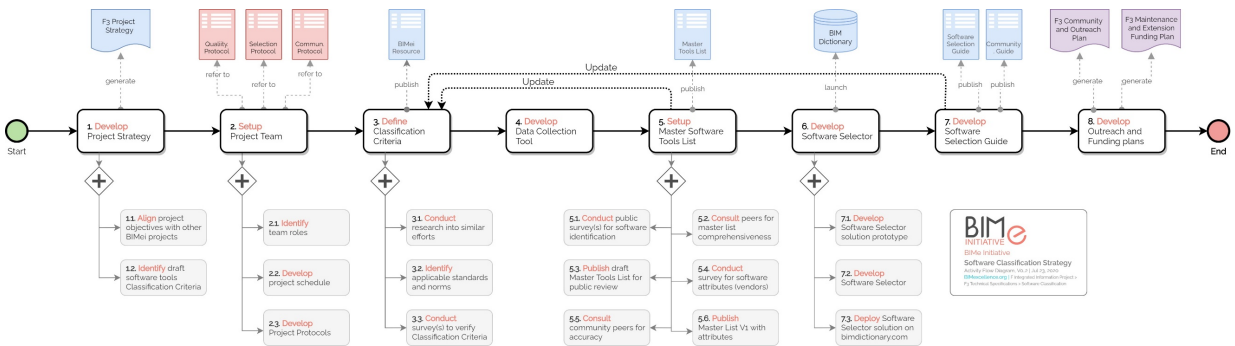

Figure 2. Software Classifications - Project Overview v0.2

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B. Project Resources

The successful execution of the Software Tools Strategy is reliant upon the efforts of the F3 Technical Solutions > Software Classification Microproject team. The team will in turn rely on the support of Project A (BIM Dictionary - Editors) and Project F (Integrated Information - co-Leader) volunteers especially during Microproject initiation. Close coordination with Microproject F3 will be paramount due to content overlap between software tool identification for Model Use Template and the generation of the integrated Master List.

Please Note: The Project Lead role for Project F3 will initially coincide with the Topic Curator role for Project A4.42 within the BIM Dictionary (Topic 42 is Software Tools - please refer to Topics List).

C. Project Protocols

The following protocols are part of the F3 Project Strategy and will be developed and improved over time. These will include clear identification of workflows, roles and responsibilities. Two main protocols will be generated:

Contributor Selection Protocol

This protocol will clarify contributor profiles, selection process, registration requirements, and minimum commitment levels.

Quality Protocol

This protocol will clarify the controls to ensure the accuracy and comprehensiveness of Selection Criteria and the currency of software lists. For the purposes of accuracy, precision, currency, and consistency, all published deliverables will need to satisfy the Quality Management Protocols.

Communication Protocol

When communicating with contributors, the recommended communication templates need to be used (continuously updated - not included in this document). All communications need to adhere to the BIMe Initiative's Privacy Policy and applicable laws and regulations.

Updating Protocol

The project team must request an update - or a confirmation that an update is not needed - from contributors Specialist - once (minimum) or twice (maximum) every calendar year. Errors and contradictions may be corrected by the project team without seeking the contributor's prior approval.

Intellectual Property and Moral Rights Protocol

The project team will need to ensure that the content provided by contributors does not infringe upon third party copyrights or moral rights (according to applicable laws of the Commonwealth of Australia).Any infringement of the copyrights or moral rights of others will be immediately removed.

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V. Acknowledgements

The names of all project contributors will be appropriately acknowledged on the BIMe Initiative website and/or the BIM Dictionary platform.

This document is developed as a collaborative effort between Ms. Burcu Esen Barutçu of *Drees & Sommer GmbH*, **Germany**, and Dr. Bilal Succar, Director of *ChangeAgents AEC*, **Australia**. Review was conducted by Dr. Erik Poirier of *Groupe BIM du Québec/buildingSMART* **Canada**.

VI. License to use

VII. More information

For more information about BIMe Initiative and participation in Microproject F3, please Contact Us.

This document will be continuously updated. For the latest version, please refer to the BIMe Initiative resources page. To cite this document version, please consider using the following:

> BIMei (2020), *726in.F3 Technical Solutions | Software Selection Strategy v1.1*, The BIMe Initiative, http://doi.org/10.5281/zenodo.3971229, Last accessed, [Date Accessed].

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VIII. Change Log

VERSION	DATE	DESCRIPTION
0.6	Jul 15, 2020	Initial draft – for peer review
0.8	Jul 23, 2020	Community and supporters' version
1.0	Aug 3, 2020	First public version
1.1	Aug 4, 2020	Fixed typos and links

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