

Software Productization Self-Assessment Checklist



NIC-SQG-CHK-002

Nov-2018

AMENDMENT LOG

| Version | Date | Brief Description | Section Change |
|---------|----------|-------------------|----------------|
| 1.0 | Nov 2018 | | |
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Software Productization – Self Assessment Checklist

Purpose:

NIC is involved in design and development of large scale e-governance applications. Number of these applications are reusable across Ministries/Departments/State Governments/Organisations and can also be replicated for government departments in other countries. For the applications to be reusable it needs to be easily configurable, customizable and should be able to meet the key requirements related to design, usability, performance, scalability, maintainability, security, data management, audit etc. Similarly, for product to be reusable across countries, it should support globalization/localization features.

This checklist has been developed with an objective to assist NIC Groups/Divisions to evaluate their product against listed Productization features. The checklist can also be used as a guide while designing and development of system to make it ready for Productization.

Instructions:

- a) The compliance has to be marked on a scale of 0-10 with 10 for fully compliant feature.
- b) For partially compliance, assign score from 1-9 based on the degree of compliance.
- c) Feature marked as Mandatory(M), if not implemented in the application will be scored as 0.
- d) Feature marked as Desired(D), if not implemented in the application will not be counted in total score.

Please send your valuable feedback/suggestions to Software Quality Group at support-sgg@nic.in

| Product Particulars | | |
|--|---|---------------------------------------|
| Ministry/State/Organization | | |
| Product Name | | |
| Domain/Sector | | |
| Brief Description about the Project (Max. 200 Words) | | |
| List of Features (Enclose sheet of required) | | |
| List of Stakeholders | | |
| Type of Software | <input type="checkbox"/> Web based | <input type="checkbox"/> Desktop |
| | <input type="checkbox"/> Client/ Server | <input type="checkbox"/> Mobile |
| Deployment Architecture (Attach deployment architecture diagram) | | |
| Software Core | <input type="checkbox"/> Software as Service (multi-tenancy architecture) | |
| | <input type="checkbox"/> Software As Service (Separate instance for each organization) | |
| | <input type="checkbox"/> Platform as Service (<i>Platform on which other applications can be built</i>) | |
| | <input type="checkbox"/> Packaged Product | |
| | <input type="checkbox"/> Any Other | |
| Department(s)/Organization(s) where currently implemented | | |
| At what level the solution is reusable | <input type="checkbox"/> Ministry | <input type="checkbox"/> Organisation |
| | <input type="checkbox"/> State | <input type="checkbox"/> District |
| | <input type="checkbox"/> Others (please specify) | |
| If reusable, Pl. Specify the scope of implementation | <input type="checkbox"/> Only in Policy domain | |
| | <input type="checkbox"/> Generalised | |

| Sr.No | Feature Description | Applicable Weightage/ Weightage | Mandatory(M) / Desired(D) | Degree of Conformance | Score |
|----------|--|---------------------------------|---------------------------|-----------------------|-------|
| | | | | (Scale 0-10) | |
| 1 | Configurable Features | 30/30 | M | | |
| | User Interface - The application allows to optimize or make changes to meet user specific needs and priorities by configuring layout, content, or system functionality for easy to use, user interface for best user experience. Select features which are configurable | 15/15 | | | |
| 1.1 | User preference for Colour themes/font/ font sizes - User is allowed to control the colour, font style, size of text content. However, these changes does not affect the readability and accessibility of the application. | 1 | D | | |
| 1.2 | Responsive design - User is able to View and interact with every page of the application on any device with a minimum of resizing, panning or scrolling. | 3 | M | | |
| 1.3 | The menu options are configurable - Users are able to choose and configure their own menu options as per their role. | 2 | M | | |
| 1.4 | Captions for Screen Title, Form Title, other controls(Labels, Buttons etc. wherever applicable) and Table (Header/Column Names) are configurable | 2 | M | | |
| 1.5 | Dashboard - Dashboards are designed and implemented in the application to display exactly what is relevant to different users based on either user role or any other criteria. | 1 | D | | |
| 1.6 | Alerts, Notification, Exceptions can be configured to notify user of events that require attention. Mechanisms are provided to take automated actions based on conditions configured in an alert. | 2 | M | | |
| 1.7 | Error Messages - Depending on user requirement, language preference and display mode of error messages can be configured. | 2 | M | | |
| 1.8 | Search Option - The search option is designed such that the appearance and behavior of the search pages can be configured easily. Like search result grid , personalised search, option to save search criteria etc. | 2 | D | | |
| 2 | Masters Data - The application enables users to configure Master Directories without change in code. | 3/3 | | | |
| 2.1 | The masters like State, District, Block, Village etc. are taken from standard directories like LG directory to facilitate standardization and interoperability. | 1 | M | | |

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| | 2.2 | The application uses Metadata standards (MDDS eGov standards) and standard international codes for country, region etc. along with any domain specific codes like Unit of measurement, port codes, vessel codes, H.S. Commodity codes wherever applicable. | 1 | M | | |
| | 2.3 | The application allows management of Masters Data i.e. the local Code Directories like designation, relation, location etc. and the same are configurable and manageable by the user. | 1 | M | | |
| 3 | The Organization specific options (Organization name, logo, background image and other user specific information) are configurable while setting up the application and are not hard coded. | | 1 | M | | |
| 4 | The Workflow and routing is fully configurable using database or other mechanism without any hard coding. | | 2 | M | | |
| 5 | The Business Rules are configurable using graphical user interface by the user (at Administrative level) without any programming. | | 2 | M | | |
| 6 | The application provides RBAC (Role Based Access Controls). The application Administrator is able to define and manage User Roles and controls using intuitive graphical user interface. | | 2 | M | | |
| 7 | The application provides built-in auto feedback mechanism i.e. option is provided to the user to add feedback at the page/form level directly while using the application | | 1 | D | | |
| 8 | UI/UX, business logic & database are separate and configurable to accommodate frequent business logic/flow change requirements | | 1 | M | | |
| 9 | The application is Unicode compliant (that is, supports multi-linguality). | | 2 | M | | |
| 10 | The Geo-location based user identification (IP Geolocation) is implemented in the application to present localized content. | | 1 | D | | |
| 11 | Globalization Features | | 15/15 | D | | |
| | The users from different local are able to use application smoothly. The application also allows configuration of the following elements to make it usable internationally | | 15/15 | | | |
| | 11.1 | Date and Time Formats - Allow selection of Date Time Format as per standard followed in the country. | 2 | M | | |
| | 11.2 | Currency Formats - exist in both national and international form. The ISO/IEC international standard 4217 specifies the currency symbols used around the world. For example: In Canada, \$ symbol is used with the country and the international abbreviation is CAD | 1 | M | | |

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|-------|---|---|---|--|--|
| 11.3 | Unit of Measurements - Globally different units and scales are used for measurements. The most popular one used is the metric system (meters, litres, grams etc.), the imperial system (feet, inches, pounds etc.). Application allows users to select option as per requirement and the same is displayed to the user for information. | 1 | M | | |
| 11.4 | Number Formats - Globally representation of numeric value and monetary amount formats (negative number representation, decimal, thousand separators etc.) are not in standard format. The application allows selection of number format system as applicable. | 1 | M | | |
| 11.5 | Multiple Calendars - The Gregorian calendar is used in most English speaking countries. Some of the other calendaring systems in use are the Japanese, the Buddhist era, the Hijri, the Hebrew lunar, and the Taiwan calendars. The application allows selection of calendaring system as per requirement. | 1 | M | | |
| 11.6 | Telephone Number formats - Mobile and landline phone numbers are not in the uniform format across world. The application allows configuration of the same as applicable. | 1 | M | | |
| 11.7 | PIN/ZIP Code - The ZIP code (or postal code) depending on country has a particular format or length, or that it comprises only digits. For instance, Canadian postal codes consist of two groups of three characters, such as "M5R 3H5". In French, postal code is a five-digit number say 823400. In some places, country or region code is prefix with postal. The application allows configuration of the same. | 1 | M | | |
| 11.8 | Address Format - Address formats are configurable, taking into account different data requirements, field validation criteria and order of presentation. | 2 | M | | |
| 11.9 | Paper Size - Allows user to select paper size (For example, as per imperial convention i.e. 17-by-22 sheet or metric convention i.e. subdivision of A0 paper) | 1 | M | | |
| 11.10 | Time Zone - Users expect to see information displayed in their own time zone. If a user located in Japan or Australia generates a transaction on a India based server, the time stamp must be adjusted to meet the user's time zone. | 1 | M | | |

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|-----------|---|--|--------------|----------|--|--|
| | 11.11 | Name - Allow the user to select the name format to accommodate personal name variations. e.g. Some cultures state the family name first followed by the given name, double family names by combining the family names of the parents. Cultural conventions for sorting names can also vary. | 1 | M | | |
| | 11.12 | First Day of Week - Countries and regions around the world have different weekends and consequently begin the week on different days. The application allows to configure the same. | 1 | M | | |
| | 11.13 | Any other Globalization feature implemented(Pl. specify) | 1 | D | | |
| 12 | Solution Architecture | | 20/20 | M | | |
| 12.1 | The application is built on modular architecture with clear segregation of presentation, business and data layer as per best practices. | | 3 | M | | |
| 12.2 | The tiers are configurable with minimal effect on other tiers. | | 3 | D | | |
| 12.3 | The application is designed and developed on Service Oriented Architecture to avoid dependencies. | | 3 | D | | |
| 12.4 | The application is compatible with the latest versions of popular browsers (Edge, Chrome, Mozilla Firefox, Safari, Internet Explorer etc.) | | 3 | M | | |
| 12.5 | The deployment architecture provides high availability and is horizontally scalable. | | 3 | M | | |
| 12.6 | The application supports packaged installation with minimum user intervention. The application can be managed remotely. The application provides auto-update features and updates can be pushed from central servers. | | 3 | M | | |
| 12.7 | The application supports external configuration files with run-time management option i.e. the system properties can be set through external configuration files without requirement of compilation and redeployment. | | 2 | D | | |
| 13 | API & Integration | | 10/10 | | | |
| 13.1 | The application support seamless integration with SMS Gateways and messaging systems | | 2 | M | | |
| 13.2 | The application support seamless integration with Payment Gateways and other third party applications like ERP solutions, Identity and Access Management systems using well defined secure APIs. | | 3 | D | | |
| 13.3 | The application implements API versioning and maintains backward compatibility for functionality | | 2 | M | | |

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|-----------|---|--------------|---|--|--|
| 13.4 | The application is designed in such a way that changes to the core software can be made without impacting externally integrated systems/components. | 3 | M | | |
| 14 | Data Management and Security | 10/10 | | | |
| 14.1 | The application implements data segregation and other security features to ensure data security and prevention of unauthorized access to data of one tenant by other tenants. | 2 | M | | |
| 14.2 | The application has facility to identify, classify and protect sensitive data items and implements mechanisms such as encryption, tokenization and access control wherever appropriate to secure data both in transit and at rest | 2 | M | | |
| 14.3 | The application provides the user to maintain full control on their data and use it for any further analysis | 2 | M | | |
| 14.4 | The application has built in mechanisms and provides tools to reduce or eliminate the need for direct access of Database. | 1 | D | | |
| 14.5 | The application allows user organization to securely manage encryption keys including their regular rotation. | 1 | D | | |
| 14.6 | The application implements automatic backup and recovery mechanism and provide tools for the user organizations to backup their data. | 2 | M | | |
| 15 | Reporting | 5/5 | | | |
| 15.1 | The application provides graphical reporting using graphics, dashboards and templates | 1 | D | | |
| 15.2 | The application provides reporting features allowing users to customize existing reports. | 1 | M | | |
| 15.3 | The application provides adhoc query options to generate dynamic reports by selecting parameters. | 2 | M | | |
| 15.4 | The reporting framework provides comprehensive data export feature in CSV, PDF, Excel and HTML formats. | 1 | D | | |
| 16 | Log Management | 10/10 | | | |
| 16.1 | The application is able to audit all system and user actions and ensures that all actions performed on data are recorded keeping track of users, date & time. | 2 | M | | |
| 16.2 | The application ensures that the log captured, includes all of the event and activity logs including the following | 4 | M | | |
| | a. Individual user access | | | | |

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|------|--|--|-----|---|--|--|
| | b. | Rejected system, application, file, or data access attempts and other failed actions | | | | |
| | c. | Privileged, administrative or root access | | | | |
| | d. | Use of identification and authentication mechanism | | | | |
| | e. | Remote and wireless accesses | | | | |
| | f. | Changes to system or application configurations | | | | |
| | g. | Changes to access rights | | | | |
| | h. | Use of system utilities | | | | |
| | i. | Access to audit logs / Reports based on Audit Logs | | | | |
| 16.3 | The application implements mechanism to store and maintain log data securely for audit. | | 2 | M | | |
| 16.4 | Mechanism for real-time monitoring of logs is implemented with alert and notifications to handle security incidents and data leaks | | 2 | M | | |
| | Total Score | | 100 | | | |