knowledge16

Experience the Service Revolution



# Toyota Motor Manufacturing Canada Experience

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servicenow

# Agenda

Introduction to Toyota Motor Manufacturing Canada

I.S. Portal – “Dynamic Service Catalog in a CMS”

Facilities Portal – “Task Generator”

eMCS – “Table-Driven Approvals and Tasks”

Next Steps, suggestions on getting started

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# Introduction to Toyota Motor Manufacturing Canada

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# Toyota Motor Manufacturing Canada (TMMC)

What We Build - 590,723 vehicles in 2015, 6,744,085 vehicles since 1988




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# Toyota Motor Manufacturing Canada (TMMC)

Quality Awards

**Assembly Plant Awards - 14 total**

- (Most of any mfg. plant in the Americas)
- Platinum: 2011, 2014
- Gold: 1991, 1995, 1996, 2001, 2010, 2012, 2015
- Silver: 1992, 2015
- Bronze: 1993, 2000, 2012

**Segment Awards**

- Corolla: 2001, 2002, 2004, 2006, 2012
- RX 350: 2005, 2007, 2008, 2012




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# TMMC Video Overview

- **Media clip– Intro to the TMMC Service Now system**



eMCS_Intro.mp4

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# I.S. Portal
# “Dynamic Service Catalog in a CMS”

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# TMMC I.S. Portal

CMS Initial Decision - Who should help us build the CMS?

## Vendor that specializes in ServiceNow CMS's

Pro's:

- Relatively quick response
- We liked some of their examples

Con's:

- Not familiar with StyleSheets of our other websites
- Higher quote

## Our local web development company

Pro's:

- Intimate knowledge of our StyleSheets and designs for our other websites
- Very familiar with other CMSs
- Lower quote

Con's:

- Not familiar with ServiceNow CMS

## We went with our local Web Development company

- Familiarization with our styles was very important
- Using a "known quality", local vendor ➔ Build long-term relationship
- Cost effective

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# TMMC I.S. Portal

Dynamic Service Catalog in a CMS

## First Attempt

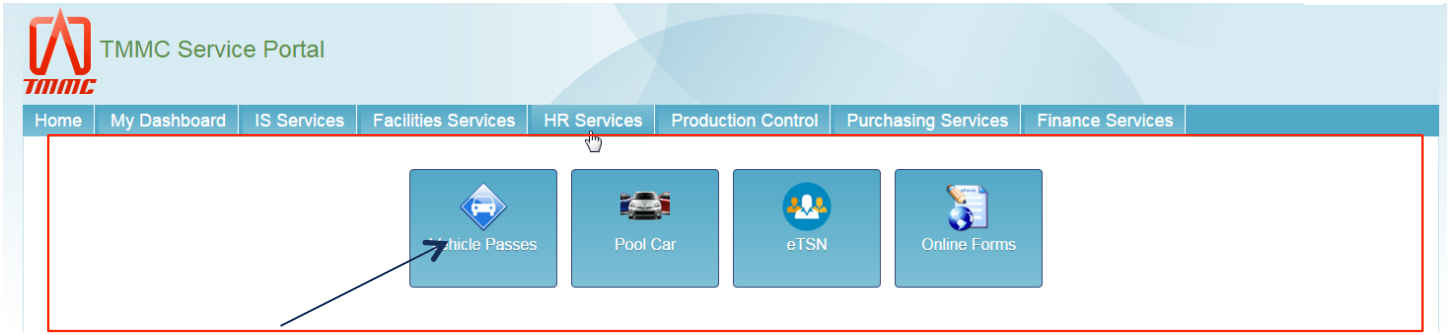
- Wrinkle: Double the work to maintain menus + Service Catalog
- Solution: Dynamic menus based directly on the Service Catalog
  - Excellent help from our vendor Nashco to work with us to make it dynamic

## Concept of a Dynamic Service Catalog in a CMS

1. Define all categories in the respective Service Catalog, along with icons, text, etc.
2. In a content page, in Jelly, loop through the Service Catalog categories and create the <table> cell entry in html
3. The next level (items), use similar logic within the category to loop through the items

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# Sample Jelly Pseudocode to Dynamically Iterate the Service Catalog




**Dynamic Content Block**

Iterates through each Category Item in the Category Table (sc category) for the given Catalog (sc catalog) and dynamically build each anchor object <a> which contains icon (<IMG>) and text (<DIV>) populated by the icon and description attributes in the category record.

PSEUDOCODE

Set RS = "Select category, icon, description from categories where catalog = [**catalog_SYSID**]"
Loop Through Categories
{
  //BUILD DYNAMIC  HTML
  <a class='dynamic_class' href='category_details.do?category=**<cat_sys_id>**'>
    <img src='**<cat_icon>**'</img>
    **<cat_description>**
  </a>
}

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# Sample Jelly Pseudocode to Dynamically Iterate the Catalog Items




**Dynamic Content Block**

Iterates through each Catalog Item in the Catalog Item Table (sc_req_item) for the given Catalog (sc_category) and dynamically build each anchor object <a> which contains icon (<IMG>) and text (<DIV>) populated by the icon and description attributes in the category record

PSEUDOCODE

Set RS = "Select item, icon, description from categories where category = [**category_SYSID**]"
Loop Through Catalog Items
{
  //BUILD DYNAMIC  HTML
  <a class='dynamic_class' href='category_details.do?category=**<item_sys_id>**'>
    <img src='**<item_icon>**'</img>
    **<item_description>**
  </a>
}

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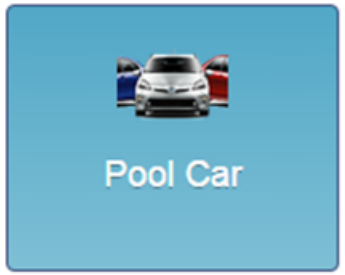
# Interlude: Managing Pool Car Reservations

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# Interlude: Managing Pool Car Reservations

Some Smaller Workflow Kaizens (Japanese word roughly meaning “Continual Improvement”)

- Pool Cars
  - Another big headache for HR Security
  - Wrinkle: Need a “database” of our pool car vehicles
  - Wrinkle: Complex spreadsheets, calendars
  - Very well received by the administrators and HR
  - 4,807 Requests in the first nine months!



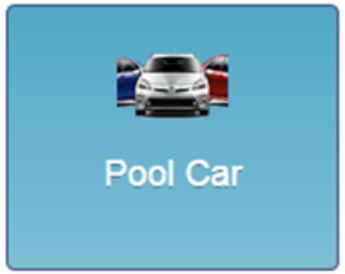

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# Interlude: Pool Cars

Manage a fleet of Pool Cars

**Vehicle Request Management**

- **Pool Car**
  - Request a Pool Car
  - Open Pool Car Requests
  - Pool Car Approval Tasks
  - Approved - Pending Reservation
  - Active Reservations
  - Reservations History
  - Pool Car Request History
- **Assets**
  - Pool Car Transponders
  - Pool Cars




## Pool Car Asset Table

Pool Cars | New | Go to Name | << < 1 to 29 of 29 > | All

| Name | Plant | Available | Year | Make | Model | Colour | GPS | License Plate Number | VIN |
|---|---|---|---|---|---|---|---|---|---|
| CAM_9 | Cambridge | true | 2013 | Toyota | HIGHLANDER | Black | false | BHMT 626 | 5TDBK3EH1DS226165 |
| WOOD_303 | woodstock | true | 2012 | Toyota | HIGHLANDER 4WD V6 | White | false | BCLV 820 | 5TDBK3EH6CS128635 |
| CAM_7 | Cambridge | true | 2008 | Toyota | RAV4 | Black | false | BJSN 988 | JTMBK32V885057834 |
| WOOD_125 | woodstock | true | 2009 | Toyota | MATRIX | Silver | false | BCXZ 676 | 2T1LE40E89C003250 |
| CAM_1 | Cambridge | true | 2013 | Toyota | VENZA | Grey | false | BPCW 499 | 4T3BA3BB0DU035094 |
| WOOD_42 | woodstock | true | 2013 | Toyota | RAV4 | Silver | true | BPXV 352 | 2T3ZFREVXDW001009 |
| CAM_126 | Cambridge | true | 2010 | VENZA | Toyota | Black | false | AXVP978 | 4T3BK3BBXAU037623 |
| CAM_12 | Cambridge | true | 2009 | Toyota | VENZA | Brown | false | BHRW 333 | 4T3BK11A49U023418 |

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# Facilities Portal – “Task Generator”

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# TMMC Facilities Portal

"Task Generator"

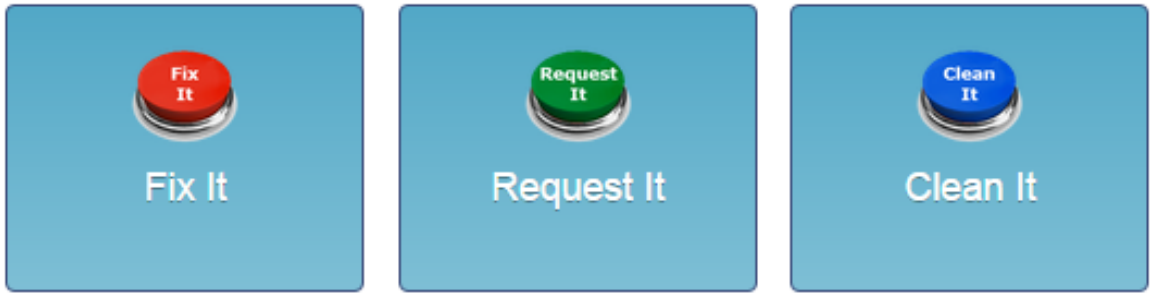
**Decision**: Use ServiceNow out of the Box Facilities App or "Roll our Own"

- After our success with our I.S. Portal, Pool Cars and Vehicle Passes, we built our own
  - Out of the box in Eureka had minimal function (except for the room layouts)

Wrinkle: Do we "ITIL'ize" Facilities? (e.g. incidents, problems, changes, etc.)

Wrinkle: How do we deal with outside vendors? (plumbers, locksmiths, etc.)

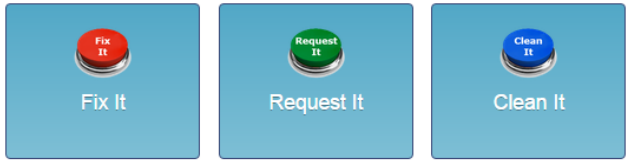
Wrinkle: How do we move tasks among several groups?




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# TMMC Facilities Portal

Do we “ITIL’ize” Facilities?

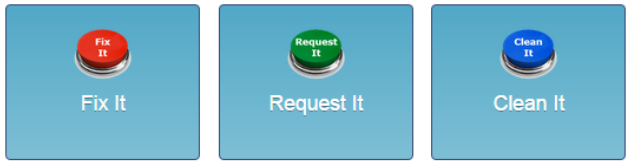



- Facilities wanted a clean user interface
- We broke it down to three categories, based on other CMSs that we saw:
  - Fix it – Something is broken
  - Request it – I need something
  - Clean it – Something needs to be cleaned
- We decided not to “ITIL-ize” facilities
  - No need for Incidents, problems, requests, changes, etc.
  - Consider everything a task

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# TMMC Facilities Portal

Keeping it Simple – the Three Buttons




- "Everything is a Task"
  - "Fix" / "Provide" / "Clean"
- GeoLocation Table – Hierarchical breakdown of sites, plants, areas, rooms
- The "Freddy* the Plumber" problem
  - How do we interact with external vendors?
- The Task Generator Loop
  - The "guts" of the Facilities Portal
- Customer Reception
  - Overwhelming praise – Facilities coordinator, Facilities Group Leaders, end-customers, other affiliates want it!

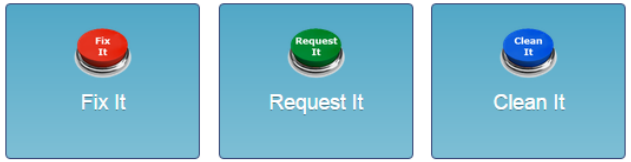
* Name changed to protect the innocent!

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# TMMC Facilities Portal

GeoLocation Table

- All facilities locations kept in a table
- Hierarchical so that the “smart forms” can step the user through the selection
- Choose the plant, only Building areas in that plant show up
- Choose a type of room – limits the type of break/fix or cleaning that can be requested




Facilities Geos | New | Go to Plant | << < 1 to 1

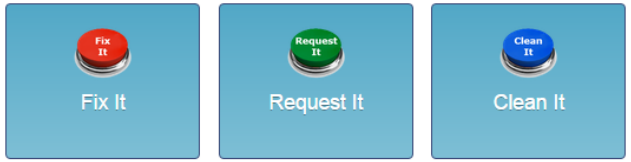
All

| Plant | Geo Purpose | Building Area | Location/Column | Room | Janitor Closet # | Description | Closet Sign |
|---|---|---|---|---|---|---|---|
| North | Team Room | Weld | OO19 | OO19 - Communication Team Room | | Weld - OO19 - Communication Team Room | |
| North | Team Room | Assembly | FF6 | FF6 - Conveyance Hallway UP Team Room | | Assembly - FF6 - Conveyance Hallway UP T... | |
| North | Team Room | Assembly | KK11 | KK11 - Trim 1 Up Team Room | | Assembly - KK11 - Trim 1 Up Team Room | |
| North | Team Room | Paint | SS12 | SS12 - Repair up Team Room | | Paint - SS12 - Repair up Team Room | |
| North | Team Room | Plastics | RR19 | RR19 - Lexus IP T/M Team Room | | Plastics - RR19 - Lexus IP T/M Team Room | |
| Cambridge Exterior Buildings | Exterior | Gate #3 | | General Area | | Gate #3 - General Area | |

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# TMMC Facilities Portal

How Do We Deal With Outside Vendors?

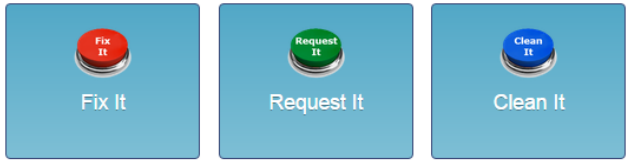



- How can our onsite groups work with off-site, independent vendors? (plumber, locksmith, etc.)
  - Wrinkle: Impossible to issue and manage ServiceNow licenses
  - Solution: Interact via email, facilities always closes the tasks
- Plumber was very happy with the change
  - One email per issue
  - No need for daily spreadsheet
- Extending to Locksmith next

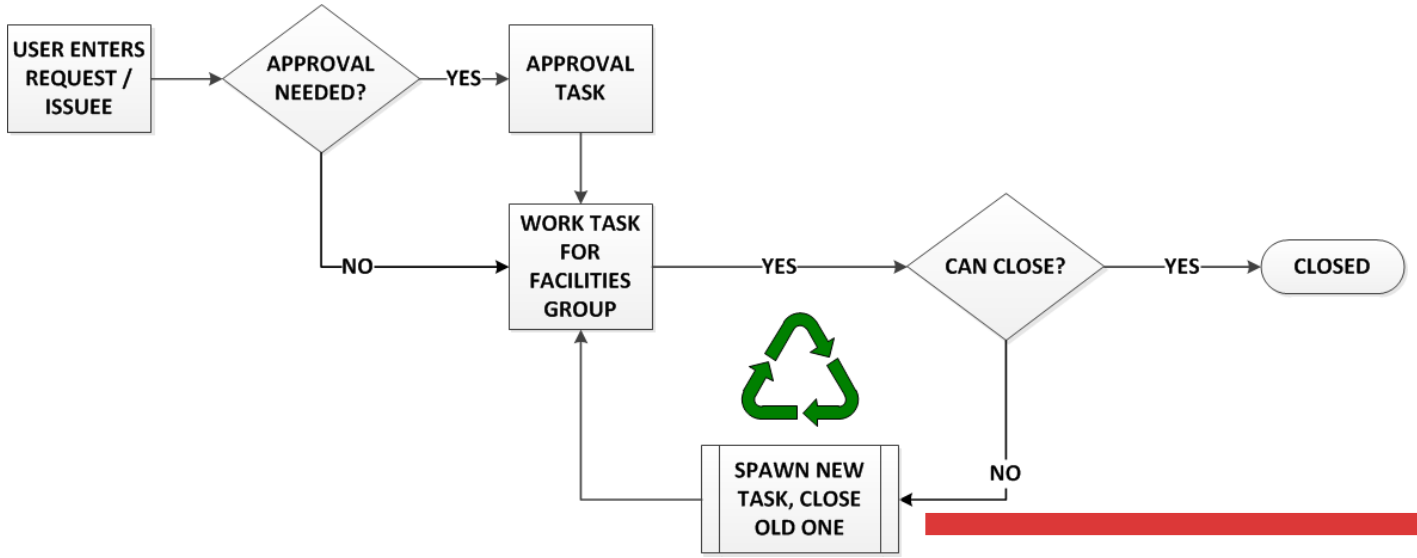
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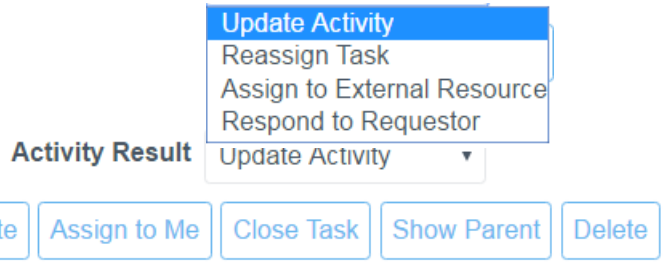
# TMMC Facilities Portal

The Task Generator Loop




"Everything is a task"




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# Interlude: Lunch and Learn Requests, Business Card Requests

Another Few Kaizens!

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# Interlude: Lunch and Learn Requests, Business Card Requests

Another Few Kaizens!

- Lunch and Learns
  - 300+ Group Leaders  hold at least one “Lunch and Learn” each month
  - Paper form that needs approvals and dropped off at the cafeterias
  - Replace with online form
  - Still a work in progress
  - Wrinkle: Expectations of staff assts. on managing their sub-cost centre allocations
  - Requires a few licenses for cafeteria staff




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# Interlude: Lunch and Learn Requests, Business Card Requests

Another Few Kaizens!

- Business card requests
  - Paper form goes to HR for translation into Japanese and check of titles and other fields
  - Replace with online form – can use our “regular” workflow
  - Still a work in progress
  - **Wrinkle:** Dealing with the outside printer
    - We are a very small part of their business, weren’t willing to do any special processes for us
    - Will leave this step manual for the HR specialist
    - Looking at a more responsive vendor
  - Requires a license for HR specialist




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# eMCS
# “Table-Driven Approvals and Tasks”

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# eMCS – Electronic Materials Correction System

Table-Driven Approvals and Tasks

- Current Condition
  - Vendor submits proposal to change characteristic of a current part (price, specification, lot size, etc.)
  - Very complex paper workflow for the vendor and production control
  - Replace with online system
  - Launched March 2016
  - Wrinkle: Complex paper workflow, future possibility of multi-affiliate functionality
    - Solution: Table-driven approvals and tasks
  - Wrinkle: Dealing with the outside vendors
    - Solution: Treat as a normal requestor with very little functionality and visibility

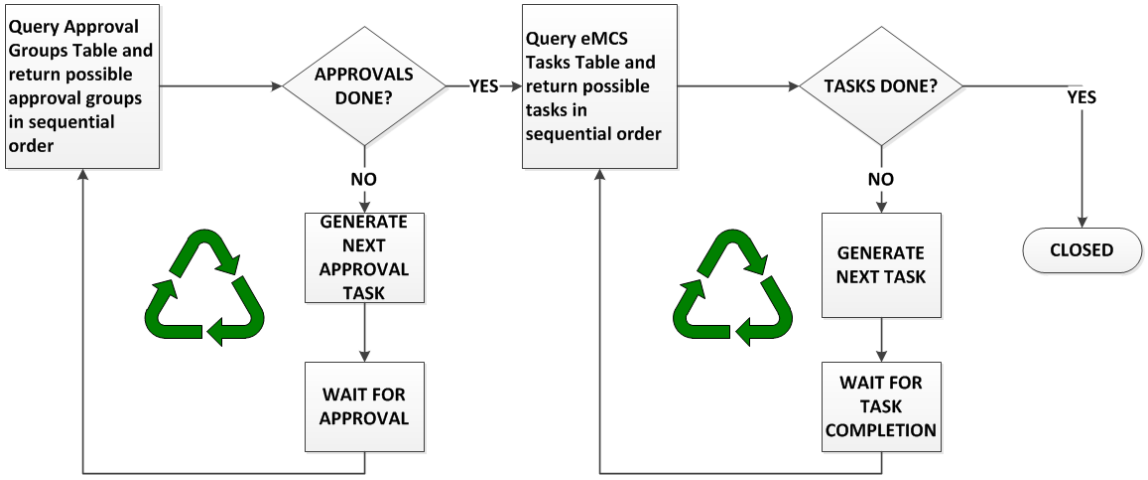
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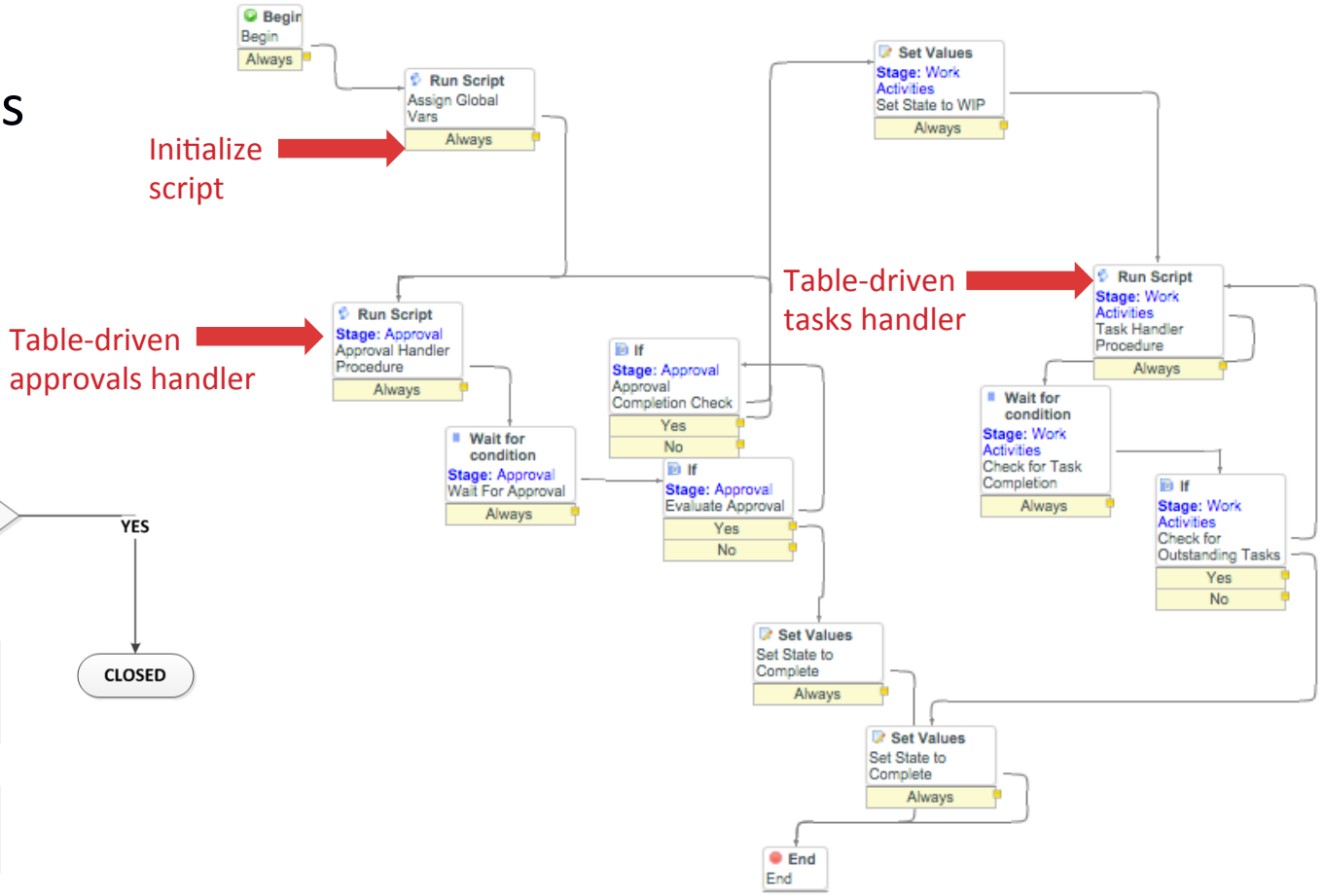
# eMCS – Table Driven Functionality

Electronic Material Correction System

## Single Table-driven workflow, 3 scripts

- Assign global variables
- Approval handler
- Work activities handler




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# eMCS – Table Driven Functionality

Electronic Material Correction System

## Approvals Group Table

MCS Approval Groups | New | Go to Name | 1 to 7 of 7

All

| Name | Approvals | Company | Group Table | Group Type | Sequence | System Group | Tasks |
|---|---|---|---|---|---|---|---|
| End Users | true | TMMC | MCS Groups/Users | Lookup Table | 2 | | false |
| Purchasing | true | TMMC | | System Group | 3 | Purchasing Material Review | true |
| General Stores | false | TMMC | | System Group | 6 | General Stores | true |
| Supplier | false | | | | 7 | | false |
| Environmental | true | TMMC | | System Group | 5 | Environmental | false |
| Health and Safety | true | TMMC | | System Group | 4 | Safety | false |
| Production Control | true | TMMC | | System Group | 1 | Production Control | true |

**Group**

**Type of approval – group or lookup**

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# eMCS – Table Driven Functionality

Electronic Material Correction System

## Single Table-Driven Workflow – sample of Approvals Matrix Table

MCS Approvals Matrixes | New | Go to Condition | << < 1 to 22

All

Approval group

| Condition | Request Type | Group | Approval Type | Condition Description |
|---|---|---|---|---|
| 0 | Re-Instate Part | Production Control | Approval | |
| 2 | Part No Longer in Use | End Users | List Approval | Replacement_Part = "No" |
| 2 | Part Obsolete | End Users | List Approval | |
| 1 | Part Obsolete | End Users | List Approval | |
| 0 | Manufacturer Change | Production Control | Approval | |
| 3 | Part Obsolete | Production Control | Approval | |
| 0 | Price Change | Purchasing | Approval | |
| 1 | Specification Change | End Users | List Approval | Functional Changes Exist - [u_functional... |
| 0 | Order Lot Change | Production Control | Approval | |
| 0 | Description Change | Production Control | Approval | |
| 2 | Part Obsolete | Production Control | Approval | |
| 1 | Part No Longer in Use | End Users | List Approval | Replacement_Part = "Yes" |
| 1 | Specification Change | Production Control | Approval | Functional Changes Exist - [u_functional... |

Sequence

Type of request

Individual or group approval

Optional conditions to increase flexibility

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# eMCS – Table Driven Functionality

Electronic Material Correction System

## Different Types of Tasks

MCS Activities | New | Go to: Activity Description | 1 to 11 of 11

All

| Activity Description | Activity ID | Activity Name | Company | ERP Equivalent |
|---|---|---|---|---|
| (empty) | 8 | Update Info Record | TMMC | |
| (empty) | 7 | Set Deletion Flags | TMMC | |
| (empty) | 2 | Manage Kanbans | TMMC | |
| (empty) | 1 | Update Material Master | TMMC | |
| (empty) | 10 | Update BOMs | | |
| (empty) | 5 | Update Pricing | TMMC | |
| - Add new POs - Update POs - Cancel POs | 4 | Manage POs | TMMC | |
| - Kanbans - Stock - Locations - Orders | 9 | Manage | TMMC | |
| (empty) | 3 | Update Order Lots | TMMC | |
| (empty) | 6 | Update Lead Time | TMMC | |
| - Kanbans - Stock - Locations - Orders | 11 | Manage New Spec | TMMC | |



Type of task

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# Next Steps:
# Suggestions on Getting Started

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# Look at Your Service Catalog and CMS

- Are you ready to do a CMS implementation?
  - Do you have the CMS skills or need to buy it?
  - Consider a partnership – web skills + ServiceNow development skills
- Can you use the dynamic concept to iterate through your Service Catalog and categories?

PSEUDOCODE

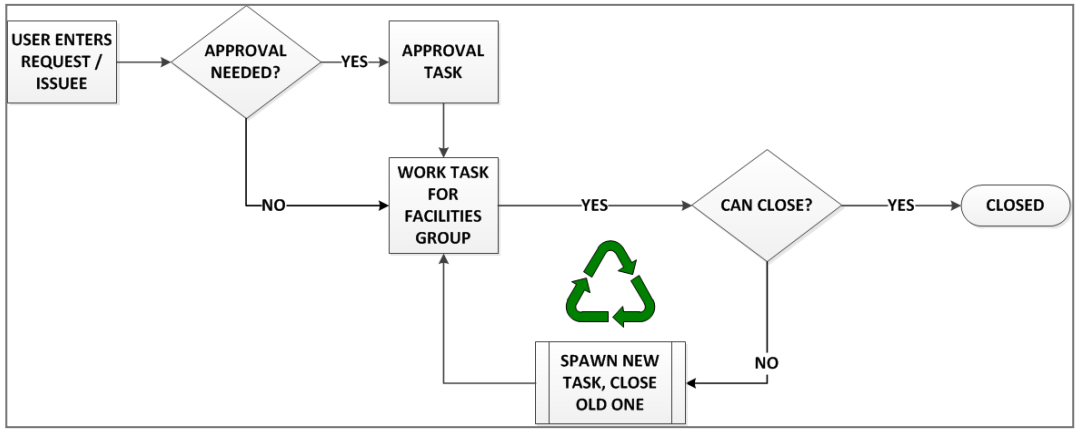
Set RS = "Select item, icon, description from categories where category = [**category_SYSID**]"

```
Loop Through Catalog Items
{
  //BUILD DYNAMIC  HTML
  <a class='dynamic_class' href='category_details.do?category=<item_sys_id>'>
    <img src='<item_icon>'</img>
    <div class='dynamic_class'><item_description></div>
  </a>
}
```

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# Opportunities to Use Task Generator?

- Do you have an application that needs several group to potentially work on a ticket?
- Do they need to be flexible in who to pass it on to?  “Pass the buck”




1. Define high-level flow
2. Determine the groups that are involved
3. Define the workflow
4. Have a good Javascript person to handle the task generator code
5. Don’t forget to “Close the Loop” – someone must close the last task

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# Can You Use Table-Driven Approvals and Tasks?

Does your application have a complex set of approvals and tasks based on known conditions?

1. Define high-level flow
2. Determine the tables needed to control the flow
   1. Approvals
   2. Tasks
3. Define the workflow
4. Have a good Javascript person to handle the approval and task handlers

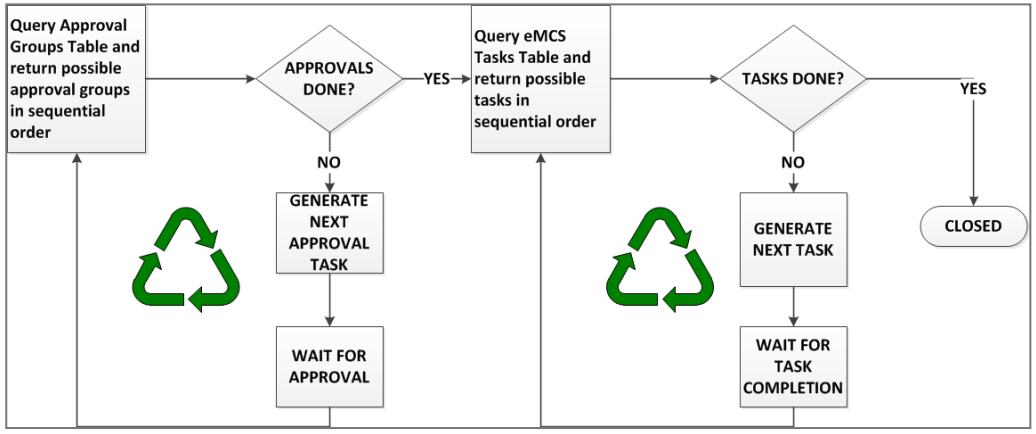



Table-driven workflow simplifies the coding and maximizes flexibility!

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# Top Takeaways

1. Dynamic Service Catalog + CMS – Automate your CMS
2. Task Generator – allow your users to "Pass the Buck" and "Close the Loop"
3. Table-Driven Approvals and Tasks – Simplify Complex Workflows

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## Take the Survey

Please take a moment to complete a session survey in the Knowledge16 app.

# Thank You

**Paul Plato**

*Manager, Technology Engineering Group*

Toyota Motor Manufacturing Canada

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