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Skillnaden som gör skillnaden



# Minimising the impact of new requirements on your automation solution

SAST Q4

20th November 2008

# Agenda

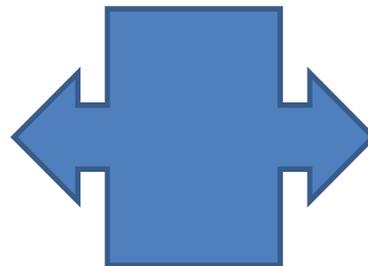
- Setting the scope
- Test Automation in a nut shell
- More than just a time saver!!
- Why change hurts!!!
- Lemontree's Solution (Part 1)
- Demonstration
- Summary
- And finally.....

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## Setting the scope

## Setting the scope - what is covered?

- How Test Automation can be viable even for systems under change
- Why change can have a disastrous impact and reduce the return
- How Test Automation can be rolled out incrementally
- How the Lemontree MDS solution facilitates change
- How the Lemontree SDS solution simplifies test data creation



## Setting the scope - what is not covered?

- About Lemontree
- Integration with Test Management or ALM tool
- Test Automation demonstration
- All bells & whistles

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# Test Automation in a nut shell

# How Automation Works

- Automation has three main drivers:
  - Automation Tool (with 3rd party tools)
  - Input Data
  - Configuration Data

## Automation Tool

- Drives the applications and processes you are automating
- The performed “actions” are recorded and captured (not test cases)
- They are then cleaned up and edited for dynamic use
- Coding skills and experience are needed
- Automation is not limited to one GUI during the same execution run
- Integration can be done with almost anything e.g. GUIs, databases, FTP servers, web services, UNIX, MSDOS etc
- Output data and results can be retrieved from GUI, files, databases

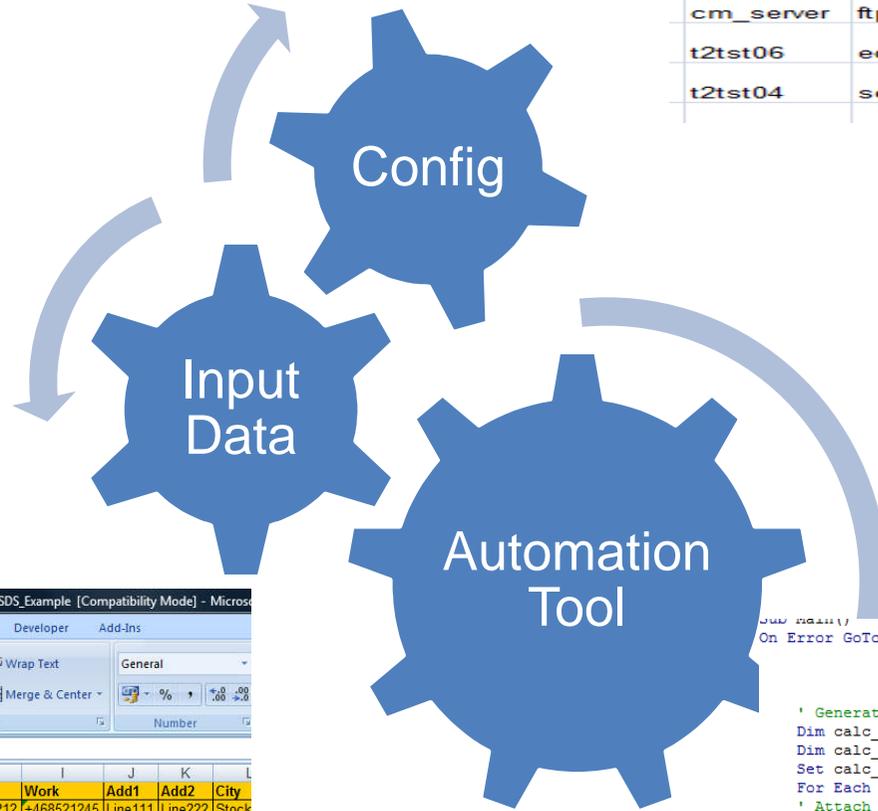
## Input Data

- Contains the data that the tool uses for performing “actions”
- Makes the scripts dynamic e.g. not all customers should be hard coded as “Matthew Lapsley”
- Also used to store output data that is collected during execution

# Configuration Data

- Contains all the details for test environments, servers, folder locations, database names, user names, passwords etc
- Tester can specify which details are relevant for each test run
- Also used for other driving features such as screenshots, error handling etc

# How Automation Works



Y	Z	AA
cm_server	ftphost	ftpuser
t2tst06	edna.tele2.se:22	semlapsl
t2tst04	selma.tele2.se:22	semlapsl

ID	CNO	Title	FirstName	Last	DOB	Occupation	Home	Work	Add1	Add2	City
1	1	Mr.	GEN CRE CUS1	3att9	1990-01-17	Job	+4678545212	+468521245	Line111	Line222	Stock
2	1	Mr.	GEN ACC ENQ1	3att9	1990-01-17	Job	+4678545212	+468521245	Line111	Line222	Stock
3	1	Mr.	GEN DEPOSIT1	3att9	1990-01-17	Job	+4678545212	+468521245	Line111	Line222	Stock
4	1	Mr.	GEN WITHDRAW1	3att9	1990-01-17	Job	+4678545212	+468521245	Line111	Line222	Stock
5	1	Mr.	GEN TRANSFER1	3att9	1990-01-17	Job	+4678545212	+468521245	Line111	Line222	Stock

```

Sub main()
    On Error GoTo Error

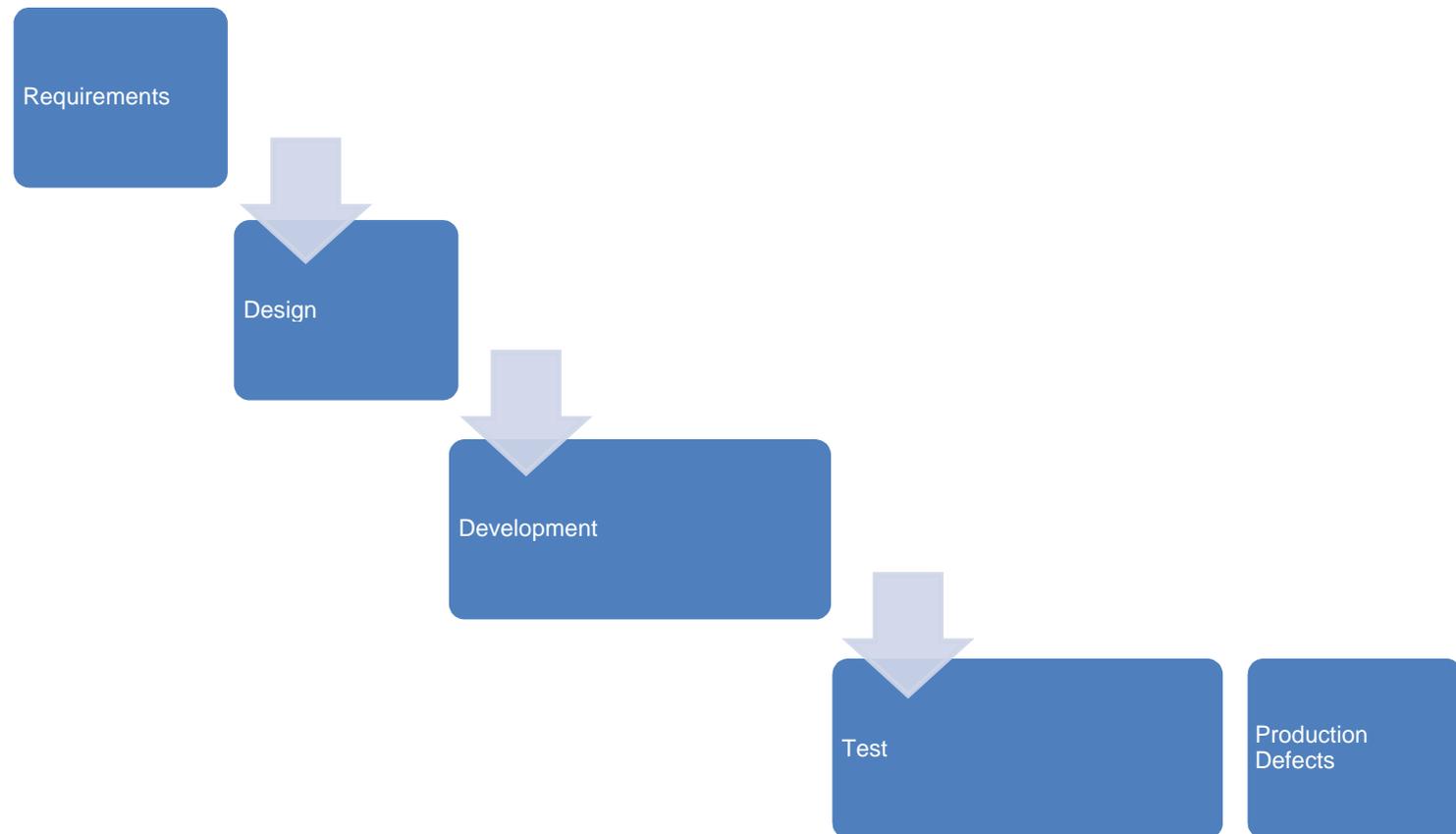
    ' Generated commands for "calc" ActiveData type 2. Do :
    Dim calc_Row As TActiveDataRow
    Dim calc_ActiveData As TActiveData
    Set calc_ActiveData = LoadActiveData("calc")
    For Each calc_Row In calc_ActiveData
        ' Attach to Calculator Window
        Dim RetVal
        RetVal = Shell("C:\WINDOWS\system32\calc.exe", vbNormalFocu

        Window("Calculator Window").Attach
        Button("Caption=" + calc_Row.GetString("n1")).Click
        Button("Caption=" + calc_Row.GetString("a1")).Click
        Button("Caption=" + calc_Row.GetString("n2")).Click
        Button("Caption=" + calc_Row.GetString("a2")).Click
        result = TextBox("Index=1").CaptureText
        calc_Row.SetString "result", result
        Window("Calculator Window").Attach
        Window.Close
    
```

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More than just a time saver!!

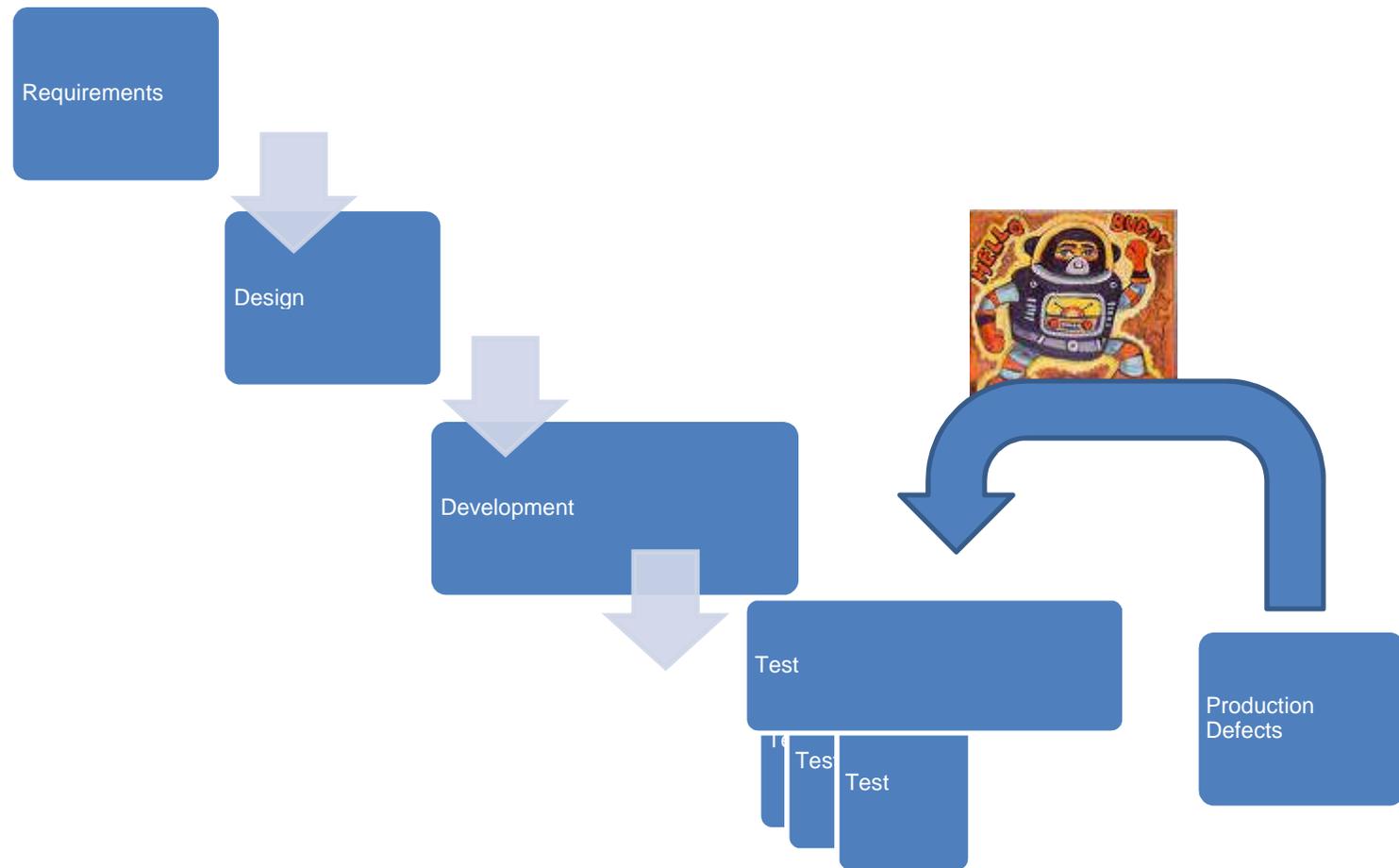
# What usually happens



## More than just a time saver!!

- Reduced test execution time
- Testing earlier in the development lifecycle
- Tighter control and more consistent tests
- Wider test coverage possible
- Misses can be added with ease
- Ability to run several regression test runs
- Allows more time to be focused on planning and testing the delta
- Gives confidence to make changes
- Employee retention

# Combine the benefits offered



## Status Check

- Automation is not just about cloning the current test process
- Time can be saved but the savings can be re-invested
- It provides organisations with a competitive edge
- It allows testers to focus on the future
- If it so great why is there so much bad press?

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Why change hurts!!!

## Why change hurts!!! – change is required

- Changes in your system(s) can lead to an impact on the tool and/or the input data
- Enhancements will also be needed in both the tool and input data
- Defects in your solution will be found and need to be corrected
- Regression Tests need to evolve with the business and systems
- Change is inevitable!!!!

## Why change hurts – tool vs input data

- Changes in the tool are relatively simple to code and update:
  - New GUI fields
  - Solution enhancements
  - New system process and flows
- The problem is they require input data to be aligned
- Changes in the input data would be simple.....if we only had one Input Data source
- Typically, however, test teams have multiple Input Data sources
- How do you update multiple Input Data sources? You don't!
- This is where failure and frustration is experienced

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# Lemontree Solution

# Lemontree Solution

- The Lemontree solution is comprised of:
  - Structured Data Solution (SDS)
  - Master Data Solution (MDS)
  - Technical Framework
  - End User Process
  - Integration with other tools

## Lemontree develop “actions”

- Coding test cases individually reduces the ability to maintain
- Test Automation implementations should be treated as software development projects
- Lemontree follows standard project phases
- System(s) and Test Cases are evaluated to define specific actions
- Actions are coded individually
- Test cases use the actions in the required sequence via Input Data
- If changes occur only the impacted actions need to be modified

## Why Excel?

- Easy to link data to each other for different actions
- A familiar tool which most people use and understand
- In many cases Excel is already used to store test cases, data and even generate input files
- Powerful set of functions included with ability to develop user defined functions through VBA
- Creating data in a pure database solution is not as flexible
- Presenting and reading data is more intuitive
- Easier to work offline

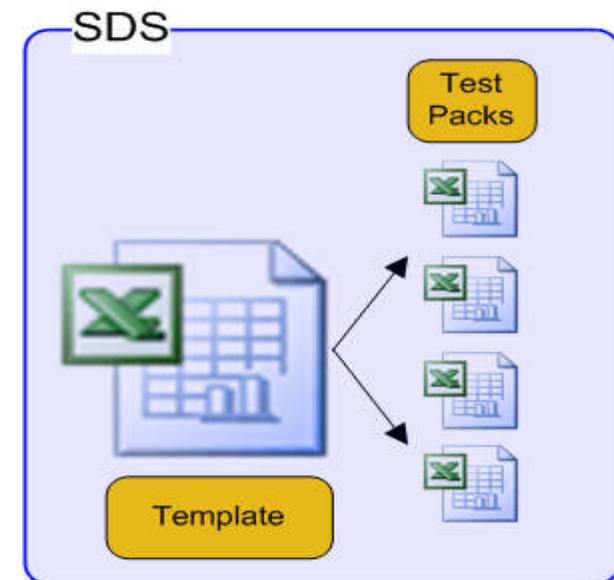
# Problems with Excel

- Many actions need to be linked together
- Creating direct links between actions is time consuming
- Using column and row identifiers adds risk when making updates
- Having unique formulas affects readability, maintenance and updates

Action	TC1	TC2	TC3	TC4	TC5	TC6	TC7	Links
Create Customer	Y	Y	Y	Y	Y	Y	F	Date
Make Deposit		Y	Y	Y	Y			Accno, Date
Make Withdraw			Y					Accno, Date, Dep Amt
Transfer					Y			2 Accnos, Date, Dep Amt
Close Account						Y		Accno, Date
Make Enquiry			Y	Y		Y	Y	Accno, Date
Make Deposit2		Y						Accno, Date

# Lemontree's Structured Data Solution

- Enables simple test data creation, readability and maintainance
- Connects data together intelligently
- Test time lines that are easy to follow
- Minimises data preparation efforts for each execution
- Able to run a selection of test cases
- Quick and easy result compilation
- ...

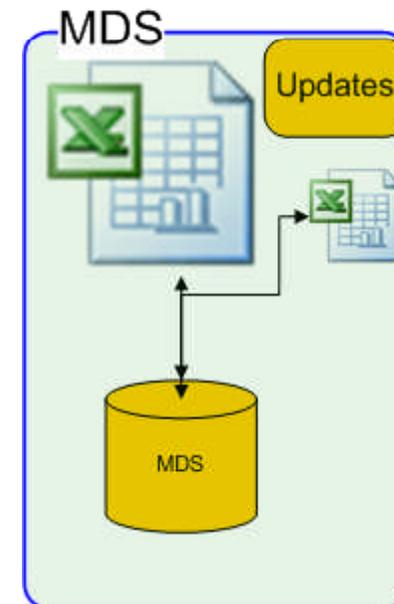


## Lemontree's SDS – Demonstration

- Scenario – production defect when transferring full balance
  - Banking system
  - New test case required
  - Create 2 customer
  - Create a deposit on customer 1
  - Transfer it "all" to customer 2
  - Check the transfer was successful

## Lemontree's Master Data Solution

- Communication enabled between a database and Excel
- Only one Excel template to maintain for creating Input Data
- Template is used to build a database schema
- Input Data is created based on the template
- It is then loaded into the database when ready
- All Input Data is centrally stored in a database
- Changes can be made on specific or global level
- Input data is extracted at the time of execution



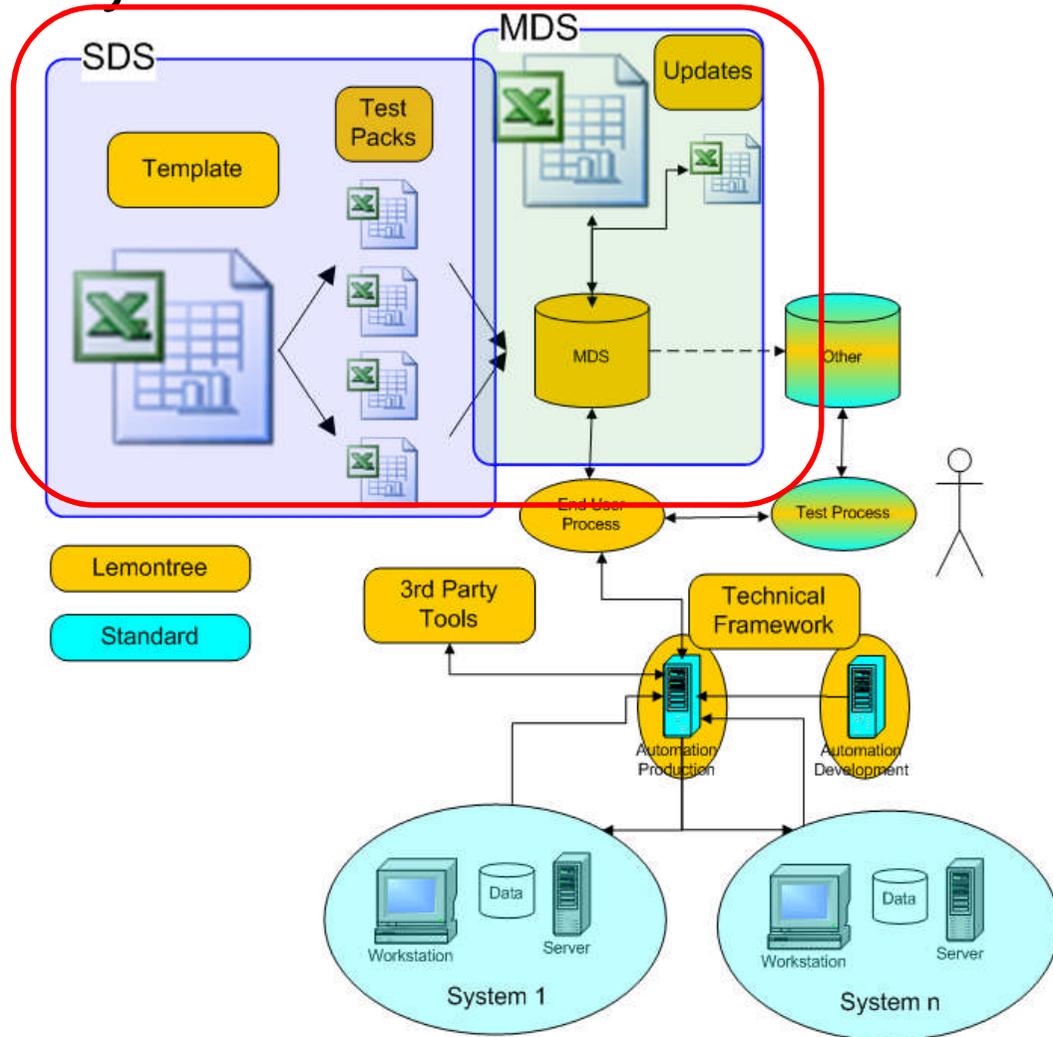
# Lemontree's MDS - Demonstration

- Scenario
  - New mandatory GUI field for customer creation (DOB)
  - The title options changed from Mr etc to Mr.
  - Home Telephone is now a mandatory field
- Without MDS you would have to open each workbook one by one, make the change and hopefully not make a mistake
- With MDS you:
  - Extract all data from database to Excel
  - Make the required changes
  - Send the updated data back to the database
  - Now all test data is prepared for the change

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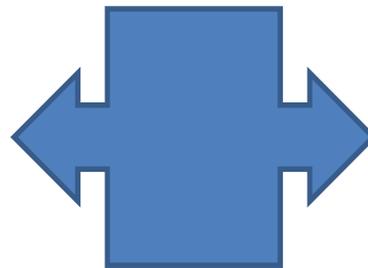
# Summary

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## Summary - what was covered?

- How Test Automation can be viable even for systems under change
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## Keep it real!



Improve  
this



Avoid this



Target



Skillnaden som gör skillnaden

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And finally....

## And finally....

- Beat the Robot Monkey – Win a Nintendo Wii
- Matthew Lapsley
  - [matthew.lapsley@lemontree.se](mailto:matthew.lapsley@lemontree.se)
  - +46 70 444 2463
- Please see us outside for:
  - Q&A
  - More SDS and MDS information
  - Technical Framework
  - Demonstrations of MDS, SDS, Automation etc
  - TestPartner presentation – VisualTest