

# DEVOPS

A NEW DEVOPS MODEL FOR ACHIEVING MARKET AGILITY

BY

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# BACKGROUND TO STUDY

- THIS STUDY IS THE RESULT OF THE PRESENTER'S **MBA** RESEARCH (2015 – 2016)
- QUALITATIVE STUDY WITH EIGHT IT PROFESSIONALS
- **PURPOSE:** TO EXPLORE THE MAIN CHARACTERISTICS OF DEVOPS APPROACH
- ALSO TO IDENTIFY THE DIFFERENCES BETWEEN DEVOPS IN THEORY AND IN PRACTICE
- **REMEMBER!** AS A RESEARCHER I AM A HUMAN BEING AND THIS IS MY INTERPRETATION, HENCE HUMBLE CONTRIBUTION...

# SIX KEY THEMES IDENTIFIED

ANALYSIS OF THE RESEARCH DATA LED TO 6 KEY THEMES

IN DEVOPS UNDERSTANDING & ADOPTION



**Theme 1:** DevOps is a cultural change



**Theme 2:** Continuous Integration (CI), Continuous Delivery (CD) and Continuous Deployment (CDp) are key elements of DevOps



**Theme 3:** Tooling and Cloud Automation supported by the Right Culture are critical components of DevOps Strategy



**Theme 4:** DevOps needs to be part of the Business Strategy



**Theme 5:** Successful execution of DevOps within enterprise depends on understanding the problems and acting together to solve them



**Theme 6:** Everyone should benefit from DevOps

# ...CALMSLI... A NEW DEVOPS MODEL

A NEW FRAMEWORK HAS BEEN PROPOSED:

## ***CALMSLI DEVOPS MODEL***

BY COMBINING THE FINDINGS OF THE RESEARCH AND LITERATURE REVIEW

# CALMSLI DEVOPS MODEL

BASED ON THE ALREADY EXISTING **CA-L-MS MODEL** (BY *EDWARDS AND HUMBLE*)

**WILLIS** AND **EDWARDS** COINED THE ACRONYM **CAMS** MEANING

- **CULTURE**
- **AUTOMATION**
- **MEASUREMENT**
- **SHARING**

AND **JEZZ HUMBLE** INTRODUCED THE '**L**', MEANING FOR

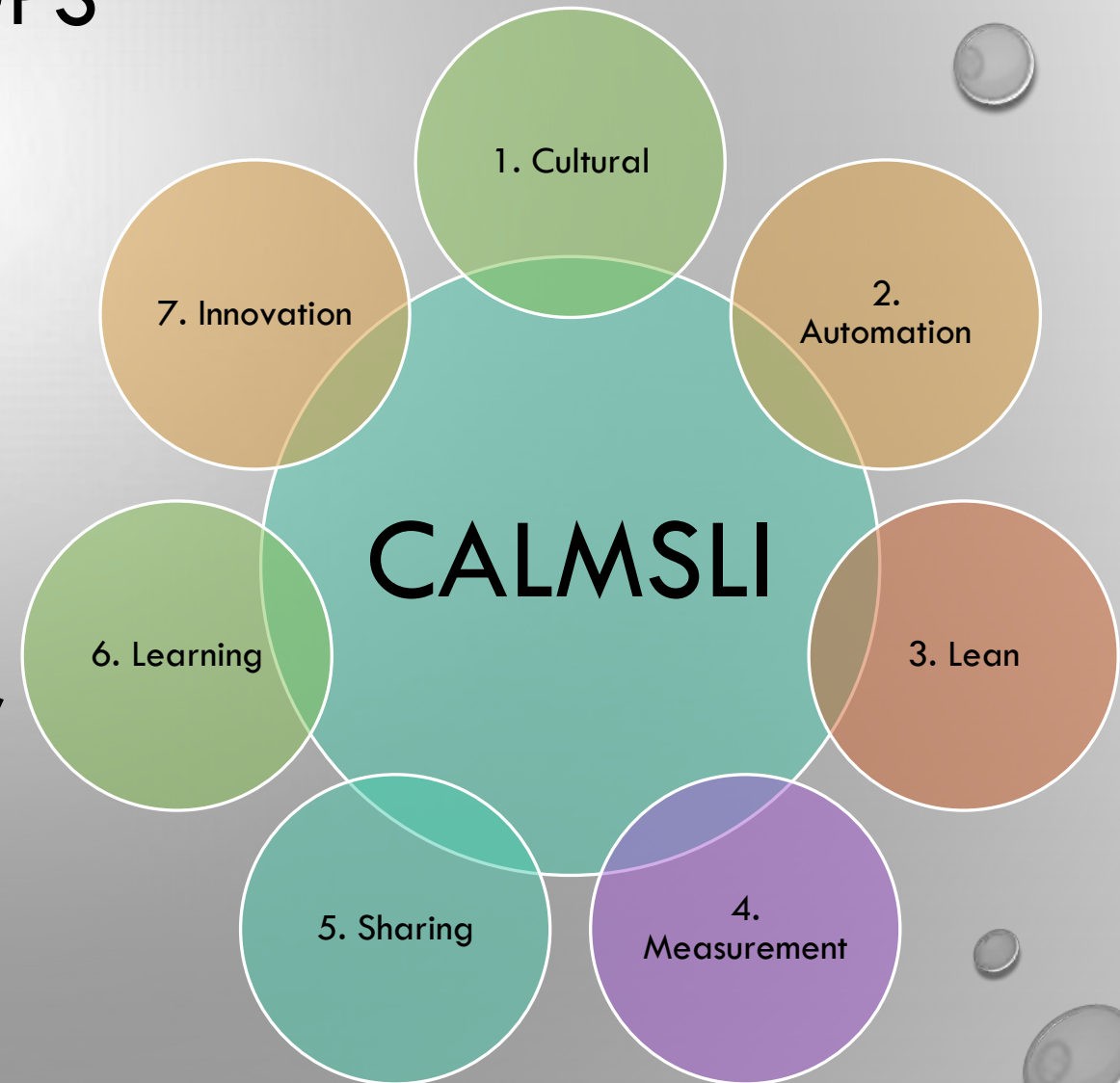
- **LEAN**

# NEW DEVOPS

YOU – AS A *SMALL OR LARGER ORGANISATION* - CAN USE THE PROPOSED MODEL AS A **STRATEGIC FRAMEWORK** TO ACHIEVE STRONG AGILITY

## UNDERPINNED BY 7 DIMENSIONS:

1. CULTURAL 2. AUTOMATION 3. LEAN 4. MEASUREMENT,  
5. SHARING 6. LEARNING 7. INNOVATION



# 1. Cultural Dimension

- ORGANISATIONAL CULTURE IS ONE OF THE STRONGEST PREDICTORS OF OVERALL PERFORMANCE OF THE ORGANISATION
- HIGH-TRUST ORGANISATIONS WITH GOOD INFORMATION FLOW, CROSS-FUNCTIONAL COLLABORATION, SHARED RESPONSIBILITIES AND CONTINUOUS REFLECTION ARE MOST LIKELY TO PERFORM AT A HIGH LEVEL

(Puppet Labs 2014)

CULTIVATING A **DEVOPS MINDSET** AND CREATING A CULTURE OF TOLERANCE IS KEY (**LETTING ITS PEOPLE LEARN FROM FAILURES**)

AS INDIVIDUALS OUR **CULTURAL CAPITAL** AND **HABITUS** (Bourdieu) PLAY AN IMPORTANT ROLE IN OUR SUCCESS

THE **ORGANISATIONAL CULTURE** SHOULD BE WILLING TO ACCEPT ITS PEOPLE WITH DIFFERENT LEVELS OF CULTURAL CAPITAL AND SUPPORT THEM TO ALTER THEIR INDIVIDUAL HABITUS FOR **GROWTH AND PRODUCTIVITY**

# 1. Cultural Dimension - Challenges

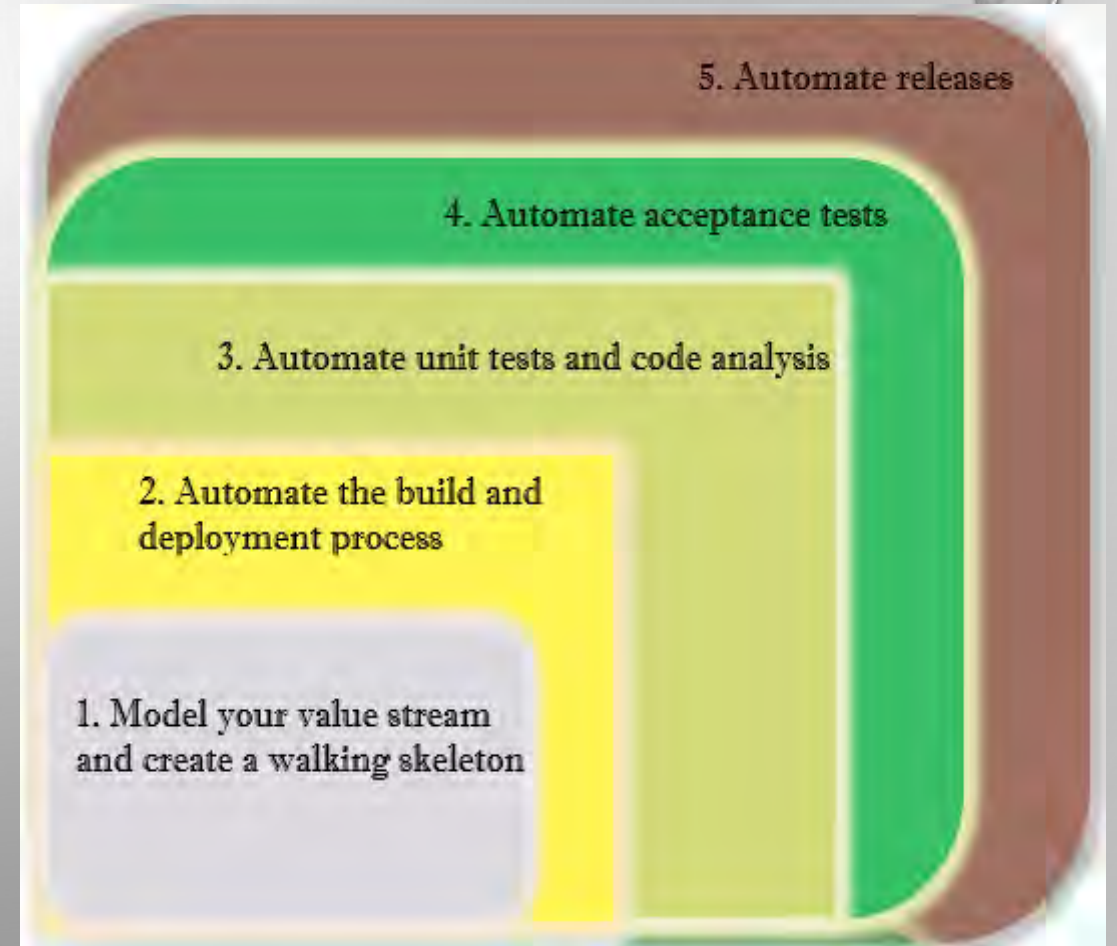
- SECURITY AND COMPLIANCE CONCERNS
- MISCONCEPTION THAT BY PURCHASING PERCEIVED DEVOPS TOOLS, SUCH AS CHEF OR PUPPET, WE WILL ACHIEVE DEVOPS
- TEMPTATION TO HAVE DEVOPS SPECIFIC ROLES WITH DEVOPS AS PART OF THE TITLE
- TOO TECHNICAL FOR THE SENIOR MANAGEMENT
- NOT REALLY UNDERSTANDING THE THEORETICAL UNDERPINNINGS
  - SYSTEMS THINKING, AMPLIFYING FEEDBACK LOOPS AND CREATING A CULTURE OF CONTINUAL EXPERIMENTATION AND LEARNING



## 2. Automation Dimension

HUMBLE AND FARLEY (2011)  
PROMOTES '**CONTINUOUS  
DELIVERY**' AS A **DEVOPS STRATEGY**

THEY CLAIM THAT IMPLEMENTING A  
'**DEPLOYMENT PIPELINE**' WILL  
ESTABLISH THE BACKBONE OF A  
DEVOPS STRATEGY



Deployment Pipeline creation steps

## 2. Automation Dimension - Automation Maturity Levels

	Base	Beginner	Intermediate	Advanced/Expert
<b>Culture &amp; Organisation</b>	<ul style="list-style-type: none"> <li>• <b>PRIORITISED WORK</b></li> <li>• DEFINED PROCESS</li> <li>• FREQUENT COMMITS</li> </ul>	<ul style="list-style-type: none"> <li>• ONE BACKLOG PER TEAM</li> <li>• <b>STABLE TEAMS</b></li> <li>• <b>BASIC AGILE METHODS</b></li> <li>• NO BOUNDARY IN DEV &amp; TEST</li> </ul>	<ul style="list-style-type: none"> <li>• EXTENDED COLLABORATION</li> <li>• COMPONENT OWNERSHIP</li> <li>• ACT ON METRICS</li> <li>• <b>NO BOUNDARY IN DEV &amp; OPS</b></li> <li>• COMMON PROCESS FOR ALL CHANGES</li> <li>• <b>DECENTRALISED DECISIONS</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>TEAM RESPONSIBILITY FOR PROD</b></li> <li>• CONTINUOUS RELEASES</li> <li>• <b>CONTINUOUS IMPROVEMENT CULTURE</b></li> <li>• CROSS-FUNCTIONAL TEAMS</li> <li>• NO ROLLBACKS (ALWAYS ROLL FORWARD)</li> </ul>

## 2. Automation Dimension - Automation Maturity Levels

	Base	Beginner	Intermediate	Advanced/Expert
<b>Design- Build- Test- Reporting</b>	<ul style="list-style-type: none"> <li>• <b>CONSOLIDATED PLATFORM &amp; TECHNOLOGY</b></li> <li>• VERSION CONTROL</li> <li>• BUILD SCRIPTS</li> <li>• MANUAL DEPLOYMENT</li> <li>• AUTOMATED UNIT TESTS</li> <li>• MANUAL REPORTING</li> </ul>	<ul style="list-style-type: none"> <li>• <b>MODULAR ARCHITECTURE</b></li> <li>• API MANAGEMENT</li> <li>• BUILDS STORED</li> <li>• MANUAL TAG &amp; VERSIONING</li> <li>• SOME AUTO INTEGRATION TESTS</li> <li>• STATIC CODE ANALYSIS</li> <li>• QUALITY REPORTS</li> </ul>	<ul style="list-style-type: none"> <li>• <b>NO OR MINIMAL BRANCHING</b></li> <li>• <b>CONFIGURATION AS CODE</b></li> <li>• FEATURE HIDING</li> <li>• AUTO BUILD/TAG</li> <li>• SCRIPTED CONFIG CHANGES</li> <li>• AUTOMATED (ISOLATED) TESTS</li> <li>• COMMON INFORMATION MODEL</li> </ul>	<ul style="list-style-type: none"> <li>• <b>ZERO DOWNTIME/TOUCH DEPLOYS</b></li> <li>• BUILD BAKERY</li> <li>• <b>FULLY AUTOMATED ACCEPTANCE/PERFORMANCE/SECURITY TESTS</b></li> <li>• VERIFICATION OF BUSINESS VALUE</li> <li>• DYNAMIC DASHBOARDS</li> </ul>

Source: Rehn et al. 2013

### 3. Lean Dimension

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LEAN IS A WAY OF THINKING:

**PURPOSE:** IT IS ALL ABOUT MAXIMISING CUSTOMER VALUE – **ASK WHY**

**PROCESS:** ANY ACTIVITY IN THE PROCESS OF CREATING THIS VALUE – WASTE IS DEFINED AS ANY ACTIVITY WHICH DOES NOT CONTRIBUTE TO THE FINAL CUSTOMER VALUE – **STREAMLINED FLOW**

**PEOPLE:** VALUE CREATING IS DONE BY PEOPLE HENCE THEY SHOULD BE GIVEN AUTONOMY TO CREATE IMPACT ON THE PRODUCT AND PROCESS – **EMPOWERMENT FOR DECISION MAKING AND EXECUTION**

### 3. Lean Dimension - Goals

ELIMINATED WASTE

AMPLIFIED LEARNING

DEFERRED COMMITMENTS

EMPOWERED TEAMS

BUILT-IN INTEGRITY

HOLISTIC APPROACH



### 3. Lean Dimension - Flow

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VISUALISE WORKFLOW

LIMIT WORK TO CAPACITY -  
WIP



CHUNK WORK TO SMALL  
BATCHES

ELIMINATE CONSTRAINTS

FAST VALUE DELIVERY – Two types of customers served:

1. External customer – paying customer
2. Internal customer – who receives and processes the work immediately

## 4. Measurement Dimension

***'WHAT GETS MEASURED, GETS MANAGED'***

Peter Drucker

COMING UP WITH GOOD METRICS IS A COLLABORATIVE EFFORT

FIRST DECIDE WHAT YOU CARE - MOST IMPORTANT METRICS

IDENTIFY THE MEASURES TO TRACK FOR THAT METRIC WHICH YOU THINK ARE WORTH YOUR ENERGY

SEE IF THAT METRIC IS PROVIDING YOU VALUABLE INSIGHTS

IF NOT FIND A BETTER ONE



## 4. Measurement Dimension

KEY  
ORGANISATIONAL  
CONCERNS →



### *Reasons for Adopting Agile*

Improving project visibility (43%) moved up three places to become the fourth most popular reason stated for adopting agile this year and accelerating product delivery increased from 62% last year to 69% this year.

\*Respondents were able to make multiple selections.



## 5. Sharing Dimension

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ONLY THROUGH SHARING WE CAN GROW AND SCALE HEALTHILY

- SHARED GOALS – COLLECTIVE EGO NEEDS TO BE BIGGER THAN ANY SINGLE EGO
- CLOSE COLLABORATION – AVOID OVERSHADOWING
- CONSTRUCTIVE FEEDBACK
- TRANSPARENT COMMUNICATION
- SHARED KNOWLEDGE

## 6. Learning Dimension

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- LEARNING ORGANISATION
- BUT FIRST LEARN TO UNLEARN
- JOURNEY TO MASTERY
- CONTINUOUS EXPERIMENTATION
- CALCULATED RISK TAKING
- CONTINUOUS REFLECTION
- ASKING QUESTIONS

## 7. Innovation Dimension

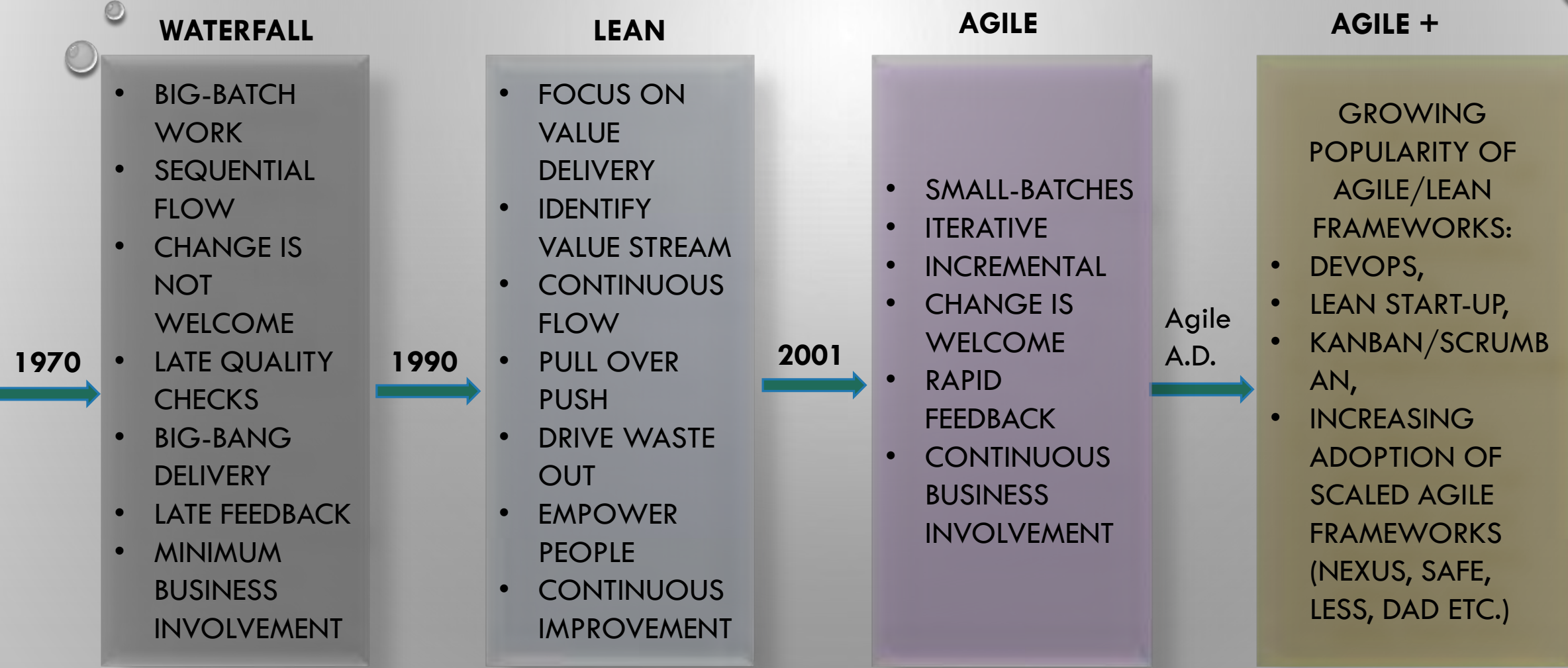
CALMSLI

IN THE PARADOX OF ICARUS, MILLER (1992) DRAWS OUR ATTENTION TO TWO ASPECTS OF STRATEGY:

1. SUCCESS CAN LEAD TO FAILURE

2. THE VERY CAUSES OF SUCCESS, WHEN EXTENDED, MAY BECOME THE CAUSES OF FAILURE.

# LET'S REMEMBER HOW WE GOT HERE - PARADIGMS



KEEP  
C.A.L.M.S.  
*L. J.*  
AND  
EMBRACE  
DEVOPS

### Cultural Goal

- To create a trust-based culture that fosters collaboration and experimentation, promotes failing fast and safe through unified goals

### Automation Goal

- To fully automate deployments to production at the push of a button

### Lean Goal

- To see the whole system
- To achieve a holistic waste elimination throughout

### Measurement Goal

- To identify right metrics and measure continuously

### Sharing Goal

- To have an open culture for all level of communication and knowledge sharing

### Learning Goal

- To learn and experiment continuously to keep focus on innovation and achieving a better state

### Innovation Goal

- to make innovation a systemic capability

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