



CHybrid – The changing face of the Testing Organization

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Agenda

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- Major Challenges faced by Test Organizations
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Why focus on Organization Structure?

- An organizational structure has a key role to play in the profitability / performance of the organization

Peter Drucker wrote, " A good organization structure is not a panacea... but the right organization structure is the necessary foundation; without it the best performance in all other areas of management will be ineffectual and frustrated"

Major Challenges faced by Test Organizations

- Increase in Competition / Other low cost geographies
 - Customers need for Total solutions
 - Interdependence
 - Diversity
 - Customers very strict on Timeliness of Deliveries and Quality while not compromising on cost
 - Organizational drive to be more profitable
- Increase in complexity of engagements.
 - Commitment to maintenance of timelines while working on an unstable / changing products
 - Focus on Reusable Development
 - Focus on Certifications / Compliance
 - Demand for specialized testing services

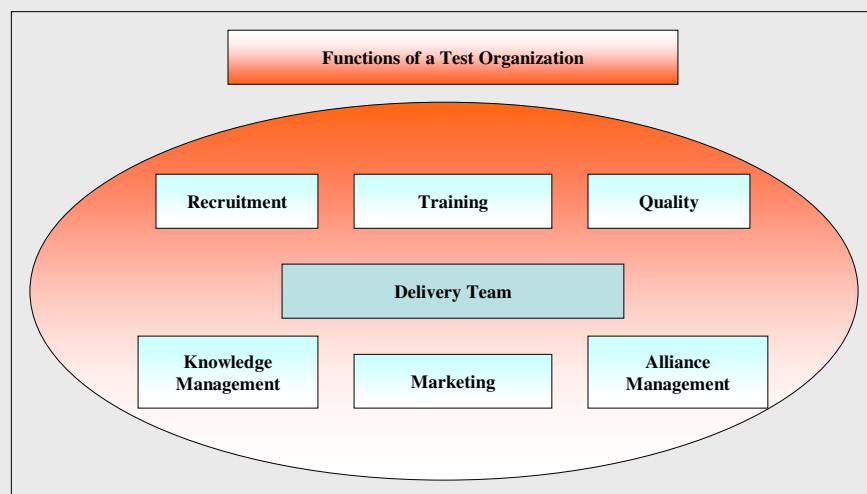
Key Drivers which structure should encourage

Competence, Profitability, Service Complex Engagements, Quality and Timeliness of Deliverables

Existing Organization Forms

- In Intra Organizational forms prominent forms are
 - Hierarchical grouped by Customers or Products
 - Hierarchical grouped by functions
 - Matrix where people would have dual reporting structures. (Primary manager could be the functions and secondary arm could be the product line)
 - Hybrids combination of above structures
- Some of the other Inter Organizational Forms are
 - Alliance
 - Joint Ventures
 - Franchise

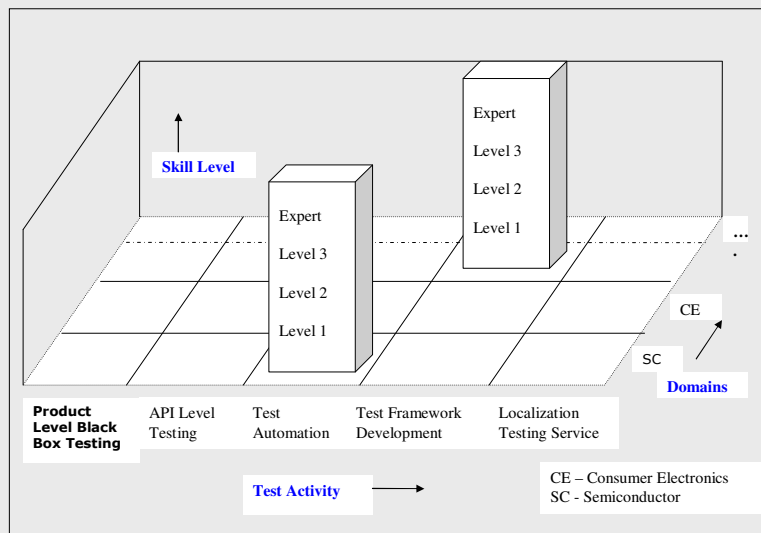
Major Functions of a Test Organization



Proposed Delivery Team Organization

- The delivery team is proposed to be organized as a Hybrid
- The main focus of this organization structure is the skills / competence.
- The proposed model is a combination of
 - Matrix organization
 - Cross Functional Team structure
- Core Matrix organization is proposed to have 2 main levers
 - Kind of Testing Activity (Primary Lever)
 - Domain (Secondary Lever)
- Every test engineer in the delivery organization will be mapped primarily along the Kind of Testing Activity.
- The second lever along which each of the engineers will be mapped is based on the Domain.

Delivery Team Organization – Core Matrix Organization



Classification based on testing activity



Classification Based
on Testing activity

Design of the organization under each Test Activity Bucket

- Every Testing activity should have clearly marked levels.
- Each level would be associated with the Kind of Skills needed.
- The progress of the test engineer along the levels should be measured based on the Skills acquired.
- Based on the organizations technological requirements different skills and levels for the skills can be defined for each level. The order of the ladder can also vary based on the organization requirements.
- For e.g. in the Test Automation bucket –
 - Level 1 could be Understanding of Test Automation concepts
 - Level 2 could require Test Automation Design plus knowledge of any Language say Perl
 - Level 3 could require familiarity with Test Automation Tool say WinRunner
 - Expert could be a person who has achieved a depth in how to write Test Automation Design, is comfortable in a pre-defined number of test automation tools and languages, would be comfortable in migrating to new automation tool / language with relative ease, etc.

Classification based on Domain

- The second lever along which each of the engineers will be mapped is based on the Domain.
- The basic additional skills which would be needed for a particular domain could include
 - Standards Understanding
 - Specific Tools Understanding
 - Test Environment Understanding
- The domains itself will be marked such that related domains should be placed closer in the axes.
- Related technologies / skills between two sister domains would need to be mapped.
- Technologies for each level could be defined such that easy migration of resources across two different domains can be achieved.

Assessing Performance

- Progression from one level to next along the test activity and domain axes should be governed by a transparent process. There should be clear weight age given to the following
 - Acquisition of needed knowledge. This part can be measured by tests.
 - Application of acquired knowledge. This part can be measured by the performance parameters in the projects.
 - Imparting of acquired knowledge to employees in junior levels. (Acting as Mentors)

Career Streams

- After a pre-defined level has been reached an option can be given to the employee based on his aptitude to choose what he wishes to do next. He can choose to continue on the following paths
 - Individual Contributor
 - Delivery Focus
 - Customer Interface / Business Development Stream
- For individual contributor he can continue as part of the matrix. For the other two streams he would be moved out of the matrix structures and be part of a separate structure

Individual Contributor Stream

- If he wishes to continue as individual contributor he can continue picking up the remaining needed skills. He will continue to function as part of the matrix structure.
- Some measures for progression could be defined as
 - The number of technologies he could support delivery on
 - His ability to provide solutions for core technical issues. The measure will also include the depth of support.
 - Ability to spot technological trends and propose solutions to remain competitive in future
 - Guide to implementation of new technology areas
 - Mentoring people as part of the core matrix

Delivery Stream

- Would be responsible for the project delivery.
- Would need to gain the corresponding knowledge / certifications. For e.g. PMP
- Some measures for progression could be defined as
 - Size of project managed
 - Number of projects managed
 - Successful delivery of the project.
 - Tracking Mechanism for Projects
 - Managing people expectations and controlling attrition
- The delivery function will be structured as a hierarchy
- At highest level there could be 1 officer, the Chief Delivery Officer who will be responsible for successful delivery across the entire organization
- The number of levels in the hierarchy can be suitably modified based on the number of groups, number and size of projects in a domain, number of domains in a group, etc.

Customer Interface Stream / Business Development Stream

- If any employee wishes to choose the customer interface / business development role he would need to be correspondingly enabled in key skills like communication, responding to proposals, understanding the market, customer need analysis, etc.
- An MBA would be a helpful qualification here.
- A measure of progress here could be the
 - Number of technology areas on which he is capable of respond to proposals on
 - Types of market he is comfortable with.
 - Accurate Estimations of new requirements
 - Ability to list the risks as part of proposals
 - Understanding of requirements with minimal information
 - Ability to respond to complex and huge proposals

Guidelines for Successful Implementation

- Irrespective of stream chosen based on individual preference sufficient opportunities should be given to an individual in any stream to be able to move to a related stream if he desires
- No one stream should be given higher preference than the other.
- Senior management should have sufficient positions / representation for people from all three streams. Similarly compensation opportunities should be equal for all streams
- Job Rotation at mid / high management levels across streams to give senior management exposure across streams
- Person's promotion at senior management levels guided by good performance across at least 2 streams.
- Well defined achievable criteria should be defined for all roles.
- Learning and Training opportunities should be created clearly for all streams
- Mentors must be clearly identified for every body especially in the individual contributor and customer focus streams

Cross Functional Team

- For every delivery requirement a project team would be formed
- The team composition will vary in terms of complexity of engagement
- If the project is having just one Kind of Testing Activity from one domain then staffing will be done with all people from the same point on the matrix
- The complexity of the teaming structure increases when project spans multiple testing activities and domains
- The most complex of the teaming structure would be one which spans domains, spans testing activities as also has multiple development activities
- Separate integrative processes need to be defined to ensure successful completion of cross functional projects.

Processes for Cross Functional Teams

- Should be staffed with people who have the needed technical skills.
- Selected team members should share a rapport and be able to work with each other. Team building exercises must be done
- The program lead should define goals, clear milestones, roles and responsibilities and schedules
- In cases where members are allocated on part time basis clear commitment would be needed from such individuals.
- Clear escalation paths must be defined
- Buy in must be taken from respective upper management for each of the involved divisions
- Team should be trained on cross cultural sensitivity

Integrative Processes

- Identification of a key lead / champion for interfaces with each of the functions
- Virtualization of all interfaces
 - Reduction in efforts through increase in automation , automatic data sharing and Reusable Modules
- Training for culture sensitiveness and global outlook
- Training for clear communication
- In addition to the normal functions like quality, marketing etc there is
 - Need for a dedicated TMO (Test Management Office)
 - Need for a separate division focusing on Reusable Component Development

Advantages of the defined Delivery Organization Framework

- Emphasis on the skill of the individual ensures a high quality workforce which in turn implies high quality deliverables
- Focus on domain as well as Testing skill enables to service complex requires which require deep domain as well as testing expertise
- The cross functional team ensures ability to service complex cross domain requirements
- The primary emphasis being on the testing skills ensures risk mitigation
- Equal learning/training opportunities, progression and remuneration for all based on performance leads to a balanced organization.
- The clearly quantified metrics for progression and performance enable a transparent process. This ensures that all employees understand that performance is the key driver and they also would put in their best effort to achieve this.

Other Needed Functions

- In addition to the normal functions like quality, marketing etc there is
 - Need for a dedicated TMO (Test Management Office)
 - Need for a separate division focusing on Reusable Component Development

How the model addresses some of the challenges?

- The core matrix structure of delivery team ensures the inbuilt capability to respond to most complex testing requirements since competence is built in each of the testing levers as well as in each of the testing domains
- Cross Functional Team Structure helps in tackling complex requirements which cut across domains. The processes as part of cross functional team which includes Cross Cultural sensitivity training helps in tackling Interdependence as well as Diversity
- Competence based delivery framework helps in reducing bench time since key lever is the testing skill and cross training in adjacent domains implies an easy movement across domains. This increases the profitability of organization
- The TMO along with the quality function ensures Timeliness of Deliveries and Quality
- Virtualization helps in reduction in overheads while interacting across functions

Further Work

- This paper has given an indicative direction of the way the Test Organization can be organized
- To implement these lots of effort needs to be put in designing the organization structure and detailed process. For e.g.
 - Lots of thought needs to go into what constitutes a level of a Test Activity area. How can engineers be enabled to move to the next level and How can this be evaluated
 - Focus on the progression and level definitions for the 3
 - More concentration has to be given in the working of each of functions including the TMO
 - Focus is needed on the virtualization aspects and how it could be achieved

Conclusions

- There are many challenges in running testing organizations
- The organization structure can greatly influence the overall profitability of the company
- A hybrid organization for the Delivery team where core structure is a Competence based matrix and individual project requirements are staffed using a Cross Functional team approach will greatly increase the quality of services
- Use of virtualization at interface points between different functions would increase the productivity by reducing communication overheads
- Many organizations are seriously focusing on improving the competence of their employees. Adopting the proposed organization model with appropriate modifications would help companies achieve their goals in an accelerated manner.

Thank you.

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