



Interpretive Structural Model for use of ICT based practices for Entrepreneurship Incubation/Startup Projects

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ABSTRACT: Interpretive structural modelling (ISM) is a well-established methodology for identifying relationships among specific items, which define a problem or an issue. ISM approach has been increasingly used by various researchers to represent the interrelationships among various elements related to the issue. ISM method starts with the identification of drivers relevant to the problem. Then the relation between the drivers is done. Based on the relations a structural self-interaction matrix (SSIM) is developed. The SSIM is then converted into a reachability matrix (RM). By doing the level portioning method a ISM is derived. The final model can be used by entrepreneurs for boosting the overall growth of their startups.

I. INTRODUCTION

Interpretive Structural Modeling (ISM), gives a masterminded, directional framework for complex issues, and gives boss a reasonable picture of their situation and the elements included. The ISM method incorporates the distinctive verification of components, the importance of their interrelationships, and the weight of rank solicitation and course to illuminate complex issues from a systems perspective [1], [2],[3].

ISM process changes obscure, incapably articulated mental models of systems into obvious and especially portrayed models. These models help to find the key factor related to issue or problem. After conspicuous confirmation of key factor or segment, framework may be delivered for overseeing issue. ISM system is sensible to an arrangement of customers in the interdisciplinary social events, gives a techniques for planning the diverse perspective on partaking get-togethers, is prepared for dealing with innumerable and associations average of complex structures, is heuristic to the extent looking over the ampleness of model arrangement, and prompts bits of learning about framework conduct[2],[3].

Numerous researchers utilized ISM method to assemble the model for finding the relationship among the factors like obstruction, drivers, achievement variables or disappointment factors in different context and different perspective. These give comprehension and inspiration to utilize ISM approach for the present investigation [12],[13],[21].

II. IDENTIFICATION OF DRIVERS WITH USE OF ICT FOR ENTREPRENEURSHIP INCUBATION/ STARTUP PROJECTS

The identified driver and outcomes described according to the context of study and understanding of the researchers are as follows:

The description of drivers with use of ICT for Entrepreneurship Incubation/ Startup projects is as given in Table 1:

Table 1: Drivers of ICT for Entrepreneurship Incubation/ Startup projects

Driver No.	Variables
D1	Reduction in startup capital, risk involved and creation of more jobs
D2	Increase in efficiency and productivity of business processes
D3	Fostering innovation and entrepreneurial capacity by promoting ICT
D4	Creating innovation capital
D5	Elimination of non-value adding procedures and processes
D6	Competition
D7	Social networking
D8	Human resource development
D9	Innovative services and models
D10	Business angels or access to VCs
D11	Increased skill of workforce



D12	Fostering capacity
D13	Desire for business ownership
D14	ICT infrastructure for trusted electronic payment system
D15	Digital entrepreneurship
D16	Accommodative government policies
D17	Globalization
D18	Recruiting the right talent
D19	Understanding the potential of ICT for entrepreneurship/startup projects

III. ISM METHODOLOGY

For preparing the ISM model some standard methods are to be followed. The method is as explained below:

A. Steps involved in ISM

Identification of drivers, which are pertinent to the problem or issues, this should be possible by literature review or any group critical thinking system.

1. Setting up a relevant connection between components as for which sets of components will be inspected.
2. Building up a structural self-interaction matrix (SSIM) of components, which shows pair-wise connection between components of the framework.
3. Building up a reachability matrix from the SSIM and checking the framework for transitivity. Transitivity of the logical connection is a fundamental supposition in ISM which expresses that if component A is identified with B and B is identified with C, at that point A will be essentially identified with C.
4. Apportioning of reachability matrix into various levels.
5. In view of the connections given above in the reachability matrix.
6. Survey the ISM model to check for applied irregularity and make the important alterations [1],[2],[3],[7],[8],[10]

B. Structural self-interaction matrix (SSIM)

For communicating the connection between various variables for coordination and responsiveness in production network, four images have been utilized to mean the heading of connection between the parameters i and j (here $i < j$):

- V: parameter i will lead to parameter j;
- A: parameter j will lead to parameter i;
- X: parameter i and j will lead to each other; and
- O: parameters i and j are unrelated [9],[10],[16],[17].

The following statements explain the use of symbols V, A, X and O in SSIM: variable 1 leads to 5 (V); variable 4 and 5 leads to each other (X); and variables 14 and 16 are unrelated (O). Based on contextual relationships the SSIM is developed in Table 2



Table 2. SSIM of ICT for Entrepreneurship Incubation/ Startup projects

Sr. No	Drivers of ICT for Entrepreneurship/ startups	Driver No	D19	D18	D17	D16	D15	D14	D13	D12	D11	D10	D9	D8	D7	D6	D5	D4	D3	D2
1	Reducing cost, risk	D1	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
2	Increase in efficiency and productivity	D2	A	A	A	A	A	A	A	A	A	A	A	O	A	O	O	O	O	
3	Fostering innovation	D3	A	A	A	A	A	A	A	A	A	A	A	A	A	O	O	O		
4	Creating innovation capital	D4	A	A	A	A	A	A	A	A	A	A	A	A	A	A	O			
5	Elimination of non-value adding procedures	D5	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
6	Competition	D6	A	A	A	A	A	A	A	A	A	A	X	X	A					
7	Social networking	D7	A	A	A	A	A	A	A	A	A	A	A	V						
8	Human resource development	D8	A	A	A	A	A	A	A	A	A	A	A							
9	Innovative services	D9	A	A	A	A	A	A	X	A	X	V								
10	Business angels	D10	A	A	A	A	A	A	A	A	O									
11	Increased skill of workforce	D11	A	A	A	A	A	A	A	A										
12	Fostering capacity	D12	A	A	A	A	A	A	X											
13	Desire for business ownership	D13	A	A	A	A	X	V												
14	ICT infrastructure for payment system	D14	A	A	A	X	A													
15	Digital entrepreneurship	D15	A	X	X	X														
16	Accommodative government policies	D16	A	V	A															
17	Globalization	D17	A	A																
18	Recruiting the right talent	D18	V																	
19	Understanding the potential of ICT for startup projects	D19																		

C. Initial Reachability Matrix

The SSIM has been changed over into a twofold lattice, called the underlying reachability network by substituting V, A, X and O by 1 and 0 according to the case. The substitution of 0 s is according to the accompanying principles:

- (1) If the (i, j) passage in the SSIM is V, the (i, j) section in the reachability framework ends up 1 and the (j, i) passage progresses toward becoming 0.
- (2) If the (i, j) passage in the SSIM is A, the (i, j) section in the reachability framework ends up 0 and the (j, i) passage progresses toward becoming 1.
- (3) If the (i, j) passage in the SSIM is X, the (i, j) section in the reachability grid ends up 1 and the (j, i) section likewise progresses toward becoming 1.
- (4) If the (i, j) passage in the SSIM is O, the (i, j) section in the reachability grid ends up 0 and the (j, i) section likewise progresses toward becoming 0 [9],[11],[16],[17],[18]. Following above tenets, the underlying reachability network for the basic achievement factors is appeared Table 3.



Table 3: Initial reachability matrix

Sr. No	Drivers of ICT for Entrepreneurship/ startups	Driver No	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	
1	Reducing cost, risk	D1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	Increase in efficiency and productivity	D2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3	Fostering innovation	D3	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4	Creating innovation capital	D4	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5	Elimination of non-value adding procedures	D5	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6	Competition	D6	1	0	0	1	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	
7	Social networking	D7	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	
8	Human resource development	D8	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	
9	Innovative services	D9	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	0	
10	Business angels	D10	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	
11	Increased skill workforce	D11	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	
12	Fostering capacity	D12	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	
13	Desire for business ownership	D13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	
14	ICT infra. for payment system	D14	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	0	0	0	
15	Digital entrepreneurs hip	D15	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	
16	Accommodative govt. policies	D16	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0
17	Globalization	D17	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0
18	Recruiting the right talent	D18	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1
19	Understanding the potential of ICT startup projects	D19	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1



D. Final reachability matrix

The last reachability network is gotten by consolidating the transitivity as listed in Step (4) of the ISM procedure. This appears in Table 4. In this table, the driving force and reliance of each factor have likewise appeared. In Table 4, the driving force and reliance on every factor likewise appear. Driving force for every factor is simply the absolute number of factors (counting), which it might accomplish. Then again, reliance is simply the absolute number of factors (counting), which may help in accomplishing it. These driving force and conditions will be later utilized in the arrangement of factors into the four gatherings of self-sufficient, ward, linkage and drivers [1],[2],[15],[17].

Table 4 Final reachability matrix

Sr. No	Drivers of ICT for Entrepreneurship/ startups	Driver No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Driving power	
1	Reducing cost, risk	D1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
2	Increase in efficiency and productivity	D2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
3	Fostering innovation	D3	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4	Creating innovation capital	D4	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5	Elimination of non-value adding procedures	D5	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
6	Competition	D6	1	0	0	1	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	6
7	Social networking	D7	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	8
8	Human resource development	D8	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	7
9	Innovative services	D9	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	12
10	Business angels	D10	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	9
11	Increase skill of workforce	D11	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	10



1 2	Fostering capacity	D12	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	13
1 3	Desire for business ownership	D13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	15
1 4	ICT infrastructure for payment system	D14	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	0	0	0	14
1 5	Digital entrepreneurship	D15	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	18
1 6	Accommodative government policies	D16	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	17
1 7	Globalization	D17	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	17
1 8	Recruiting the right talent	D18	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	18
1 9	Understanding the potential of ICT for startup projects	D19	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	18
Dependence			1 9	14	1 4	1 5	1 5	14	1 2	1 4	1 1	10	10	8	8	7	6	5	4	3	2	

E. Level Partitioning

Last reachability matrix got from stage 4 is used for level allocating. From the last reachability system, the reachability and antecedent set for each factor are found. The reachability set contains the segment itself and diverse parts to which it may help achieve, however the antecedent set includes the segment itself and substitute segments which may achieve it.

By then, the intersection purpose of these sets is resolved for all segments. The segment for which the reachability and combination sets are same is the best measurement part in the ISM hierarchy of leadership [2],[3],[17].

The best measurement part of the hierarchy of leadership would not help in achieving some other segment over their own. At the point when the best measurement part is recognized, it is confined out from exchange segments. By then by a comparable technique, the accompanying element of segments is found. These distinguished dimensions help in structure the digraph and last model. From Table 4, it is seen that the execution improvement is found at level I [1],[3],[17]. Hence, it would be situated at the highest point of the ISM chain of importance. This emphasis is reshaped until the dimensions of each factor are chosen. These emphases have appeared in tables 5 to 8.



Table 5: Reachability set and antecedent set

Drivers	Reachability set	Antecedent set	Intersection
1	1	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19	1
2	1,2	2,6,7,9,10,11,12,13,14,15,16,17,18,19	2
3	1,3	3,6,7,9,10,11,12,13,14,15,16,17,18,19	3
4	1,4	4,6,7,9,10,11,12,13,14,15,16,17,18,19	4
5	1,5	5,6,7,8,9,10,11,12,13,14,15,16,17,18,19	5
6	1,4,5,6,8	6,7,8,9,10,11,12,13,14,15,16,17,18,19	6,8
7	1,2,3,4,5,6,7,8	6,7,8,9,10,11,12,13,14,15,16,17,18,19	6,7,8
8	1,2,3,4,5,6,8	6,7,8,9,10,11,12,13,14,15,16,17,18,19	6,8
9	1,2,3,4,5,6,7,8,9,10	9,10,11,12,13,14,15,16,17,18,19	9,10
10	1,2,3,4,5,6,7,8,9,10,11	10,11,12,13,14,15,16,17,18,19	9,10,11
11	1,2,3,4,5,6,7,8,9,10,11	9,10,11,12,13,14,15,16,17,18,19	9,10,11
12	1,2,3,4,5,6,7,8,9,10,11,12,13	12,13,14,15,16,17,18,19	12,13
13	1,2,3,4,5,6,7,8,9,10,11,12,13	12,13,14,15,16,17,18,19	12,13
14	1,2,3,4,5,6,7,8,9,10,11,12,13,14	12,13,14,15,16,17,18,19	12,13,14
15	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,18	15,16,17,18,19	15,16,18
16	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,18	15,16,17,18,19	15,16,17,18
17	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18	15,16,17,18,19	15,16,17,18
18	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,18	15,16,17,18,19	15,16,17,18
19	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,19	18,19	19

Iteration1: When the best dimension is resolved, the recognized variable(s) are dropped from further examination and the way toward contrasting achieve capacity and forerunner sets is reshaped to distinguish resulting levels. The iterative procedure is conveyed until all dimensions are resolved for every factor. Seven cycles are required in this investigation. Table 6 shows cycle 1 which has separated driver 1 at a level I from the convergence of reachability set and precursor set.

Table 6 Iteration 1 in level partitioning

Drivers	Reachability set	Antecedent set	Intersection	Level
1	1	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19	1	1
2	1,2	2,6,7,9,10,11,12,13,14,15,16,17,18,19	2	
3	1,3	3,6,7,9,10,11,12,13,14,15,16,17,18,19	3	
4	1,4	4,6,7,9,10,11,12,13,14,15,16,17,18,19	4	
5	1,5	5,6,7,8,9,10,11,12,13,14,15,16,17,18,19	5	
6	1,4,5,6,8	6,7,8,9,10,11,12,13,14,15,16,17,18,19	6,8	
7	1,2,3,4,5,6,7,8	6,7,8,9,10,11,12,13,14,15,16,17,18,19	6,7,8	
8	1,2,3,4,5,6,8	6,7,8,9,10,11,12,13,14,15,16,17,18,19	6,8	
9	1,2,3,4,5,6,7,8,9,10	9,10,11,12,13,14,15,16,17,18,19	9,10	
10	1,2,3,4,5,6,7,8,9,10,11	10,11,12,13,14,15,16,17,18,19	9,10,11	
11	1,2,3,4,5,6,7,8,9,10,11	9,10,11,12,13,14,15,16,17,18,19	9,10,11	
12	1,2,3,4,5,6,7,8,9,10,11,12,13	12,13,14,15,16,17,18,19	12,13	
13	1,2,3,4,5,6,7,8,9,10,11,12,13	12,13,14,15,16,17,18,19	12,13	
14	1,2,3,4,5,6,7,8,9,10,11,12,13,14	12,13,14,15,16,17,18,19	12,13,14	
15	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,18	15,16,17,18,19	15,16,18	
16	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,18	15,16,17,18,19	15,16,17,18	
17	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18	15,16,17,18,19	15,16,17,18	
18	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,18	15,16,17,18,19	15,16,17,18	
19	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,19	18,19	19	



Iteration2: At that point the next dimension is dictated by watching the gathering of variable 2, 3, 4, 5 from drivers D2 to D19 and 2, 3, 4, 5 are result factors so these factors are considered for the second emphasis however they are not assembled in convergence set but rather these factors happen in a gathering from driver D6 to D19 and connected with D1. Here the effect of D2-D5 isn't considered on one another. This is likewise affirmed after the master supposition. Variable 2, 3, 4, 5 are distinguished in the second dimension and are dropped from further examination [2],[3],[17]. Table 7 shows iteration 2 which has removed drivers at a level II from the crossing point of reachability set and precursor set.

Table 7 Iteration 2 in level partitioning

Drivers	Reachability set	Antecedent set	Intersection	Level
2	2	2,6,7,9,10,11,12,13,14,15,16,17,18,19	2	II
3	3	3,6,7,9,10,11,12,13,14,15,16,17,18,19	3	II
4	4	4,6,7,9,10,11,12,13,14,15,16,17,18,19	4	II
5	5	5,6,7,8,9,10,11,12,13,14,15,16,17,18,19	5	II
6	4,5,6,8	6,7,8,9,10,11,12,13,14,15,16,17,18,19	6,8	
7	2,3,4,5,6,7,8	6,7,8,9,10,11,12,13,14,15,16,17,18,19	6,7,8	
8	2,3,4,5,6,8	6,7,8,9,10,11,12,13,14,15,16,17,18,19	6,8	
9	2,3,4,5,6,7,8,9,10	9,10,11,12,13,14,15,16,17,18,19	9,10	
10	2,3,4,5,6,7,8,9,10,11	10,11,12,13,14,15,16,17,18,19	9,10,11	
11	2,3,4,5,6,7,8,9,10,11	9,10,11,12,13,14,15,16,17,18,19	9,10,11	
12	2,3,4,5,6,7,8,9,10,11,12,13	12,13,14,15,16,17,18,19	12,13	
13	2,3,4,5,6,7,8,9,10,11,12,13	12,13,14,15,16,17,18,19	12,13	
14	2,3,4,5,6,7,8,9,10,11,12,13,14	12,13,14,15,16,17,18,19	12,13,14	
15	2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,18	15,16,17,18,19	15,16,18	
16	2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,18	15,16,17,18,19	15,16,17,18	
17	2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18	15,16,17,18,19	15,16,17,18	
18	2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,18	15,16,17,18,19	15,16,17,18	
19	2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,19	18,19	19	

Iteration 3: In this cycle, third dimension factors 6, 7, 8 are recognized. These factors are dropped from further examination. The same technique is connected for next dimension cycles too. Table 8 shows cycle 3, which has separated driver 6, 7, 8 at dimension III from the crossing point of reachability set and forerunner set [2],[3],[17].

Table 8 Iteration 3 in level partitioning

Drivers	Reachability set	Antecedent set	Intersection	Level
6	6, 8	6,7,8,9,10,11,12,13,14,15,16,17,18,19	6,8	III
7	6,7,8	6,7,8,9,10,11,12,13,14,15,16,17,18,19	6,7,8	
8	6, 8	6,7,8,9,10,11,12,13,14,15,16,17,18,19	6,8	
9	6,7,8,9,10	9,10,11,12,13,14,15,16,17,18,19	9,10	
10	6,7,8,9,10,11	10,11,12,13,14,15,16,17,18,19	9,10,11	
11	6,7,8,9,10,11	9,10,11,12,13,14,15,16,17,18,19	9,10,11	
12	6,7,8,9,10,11,12,13	12,13,14,15,16,17,18,19	12,13	
13	6,7,8,9,10,11,12,13	12,13,14,15,16,17,18,19	12,13	
14	6,7,8,9,10,11,12,13,14	12,13,14,15,16,17,18,19	12,13,14	
15	6,7,8,9,10,11,12,13,14,15,16,18	15,16,17,18,19	15,16,18	
16	6,7,8,9,10,11,12,13,14,15,16,18	15,16,17,18,19	15,16,17,18	
17	6,7,8,9,10,11,12,13,14,15,16,17,18	15,16,17,18,19	15,16,17,18	
18	6,7,8,9,10,11,12,13,14,15,16,18	15,16,17,18,19	15,16,17,18	
19	6,7,8,9,10,11,12,13,14,15,16,19	18,19	19	

Iteration 4: In this cycle, forward dimension factors 9, 10, 11 are distinguished. These factors are dropped from further investigation. The same strategy is connected for the next dimension cycles moreover. Table 9 shows emphasis 4, which has removed driver 9, 10, 11 at a dimension IV from the crossing point of reachability set and forerunner set.



Table 9 Iteration 4 in level partitioning

Drivers	Reachability set	Antecedent set	Intersection	Level
9	9,10	9,10,11,12,13,14,15,16,17,18,19	9,10	IV
10	9,10,11	10,11,12,13,14,15,16,17,18,19	9,10,11	
11	9,10,11	9,10,11,12,13,14,15,16,17,18,19	9,10,11	
12	9,10,11,12,13	12,13,14,15,16,17,18,19	12,13	
13	9,10,11,12,13	12,13,14,15,16,17,18,19	12,13	
14	9,10,11,12,13,14	12,13,14,15,16,17,18,19	12,13,14	
15	9,10,11,12,13,14,15,16,18	15,16,17,18,19	15,16,18	
16	9,10,11,12,13,14,15,16,18	15,16,17,18,19	15,16,17,18	
17	9,10,11,12,13,14,15,16,17,18	15,16,17,18,19	15,16,17,18	
18	9,10,11,12,13,14,15,16,18	15,16,17,18,19	15,16,17,18	
19	9,10,11,12,13,14,15,16,19	18,19	19	

Iteration 5: In this cycle, fifth dimension factors 12, 13, 14 are recognized. These factors are dropped from further investigation. The same strategy is connected for the next level iteration also. Table 10 shows emphasis 5, which has extricated driver at level-V from the convergence of reachability set and predecessor set.

Table 10 Iteration 5 in level partitioning

Drivers	Reachability set	Antecedent set	Intersection	Level
12	12,13	12,13,14,15,16,17,18,19	12,13	V
13	12,13	12,13,14,15,16,17,18,19	12,13	
14	12,13,14	12,13,14,15,16,17,18,19	12,13,14	
15	12,13,14,15,16,18	15,16,17,18,19	15,16,18	
16	12,13,14,15,16,18	15,16,17,18,19	15,16,17,18	
17	12,13,14,15,16,17,18,19	15,16,17,18,19	15,16,17,18	
18	12,13,14,15,16,18	15,16,17,18,19	15,16,17,18	
19	12,13,14,15,16,19	18,19	19	

Iteration 6: In this cycle, forward dimension factors 15, 16, 17, 18 are recognized. These factors are dropped from further investigation. The same method is connected for next dimension cycles too. Table 11 shows emphasis 6, which has separated driver at a dimension VI from the crossing point of reachability set and predecessor set.

Table 11 Iteration 6 in level partitioning

Drivers	Reachability set	Antecedent set	Intersection	Level
15	15,16, 18	15,16,17,18,19	15,16,18	VI
16	15,16, 18	15,16,17,18,19	15,16,17,18	
17	15,16,17,18	15,16,17,18,19	15,16,17,18	
18	15,16, 18	15,16,17,18,19	15,16,17,18	
19	15,16, 19	18,19	19	

Iteration 7: In this cycle, the seventh dimension variable 19 is recognized. This variable is dropped from further investigation. This is the last dimension emphasis in light of the fact that no factor in the table for a further cycle. Table 12 shows cycle 7, which has separated driver 19 at a dimension VII from the crossing point of reachability set and forerunner set [2],[3],[15].

Table 12 Iteration 7 in level partitioning

Drivers	Reachability set	Antecedent set	Intersection	Level
19	19	18,19	19	VII



IV. MODEL BUILDING USING ISM

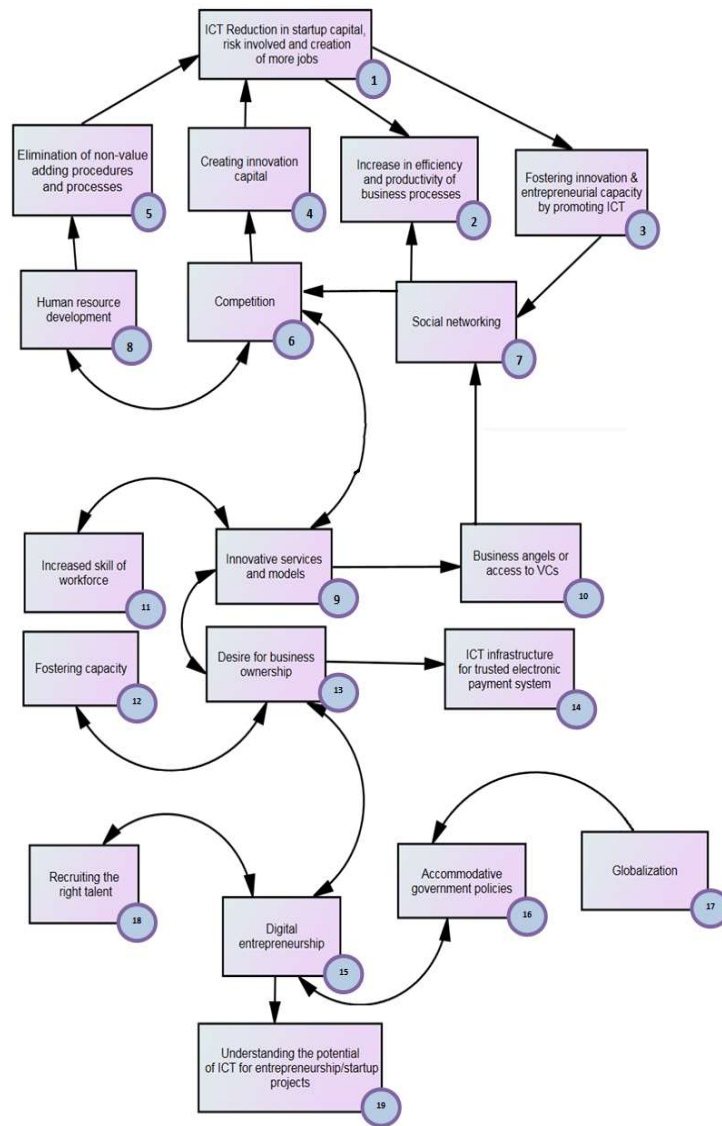


Figure 1 Statistical model using ISM

V. CONCLUSION

ISM method is utilized to develop the model and the distinguished best drivers are encircled into model to break down the communication between drivers. The investigation additionally furnishes the exact bifurcation of drivers with reliance powers and driving force. It encourages the startup proprietors in recognizing the drivers who have high effect. The entrepreneurs can give high need to the drivers which have a high driving force, with the goal that the other low need drivers can be affected.

REFERENCES

1. Gopal Pardesi, "Modeling Role of ICT in Business Startups and Incubation", IJCSE, Vol-6, Issue-8, Aug 2018.
2. Raj T., Shankar R. and Suhaib M., An ISM approach for modeling the enablers of flexible manufacturing system: The case for India, International Journal of Production Research, 46(24), 1-30 (2007)



3. Rajesh Attri, Nikhil Dev and Vivek Sharma, Interpretive Structural Modeling (ISM) approach: An overview, ISSN 2319 – 1171, Vol.2 (2), 3-8, February (2013).
4. Faisal Talib and ZillurRahman, “An ISM for sustainable healthcare quality dimension in hospital services”, Int. J. Qualitative Research in Services, Vol. 2, No. 1, 2015.
5. Farris D.R. and Sage A.P., On the use of interpretive structural modeling for worth assessment, Computer and Electrical Engineering, 2, 149–174 (1975)
6. Sage A.P., Interpretive structural modeling: Methodology for large scale systems, New York, NY: McGraw-Hill (1977)
7. Warfield J.W., Developing interconnected matrices in structural modeling, IEEE Transactions on Systems Men and Cybernetics, 4(1), 51-81 (1974)
8. Singh M.D., Shankar R., Narain R. and Agarwal A., An interpretive structural modeling of knowledge management in engineering industries, Journal of Advances in Management Research, 1(1), 28–40 (2003)
9. Watson R., Interpretive Structural Modeling- A useful tool for worth assessment? Technological Forecasting and Social Change, 11, 165-185 (1978)
10. Raj T., Attri R. and Jain V., Modelling the factor affecting flexibility in FMS, International Journal of Industrial and System Engineering, 11(4), 350-374 (2012)
11. Shodhganga, ISM, Chapter 6 “Information Communication Technologies for Entrepreneurship Incubation/Startup Projects” 107
12. Attri R., Grover S., Dev N. and Kumar D., An ISM approach for modeling the enablers in the implementation of Total Productive Maintenance (TPM), International Journal System Assurance Engineering and Management, DOI: 10.1007/s13198-012-0088-7 (2012)
13. Chidambaranathan S., Muralidharan C. and Deshmukh S.G., Analyzing the interaction of critical factors of supplier development using Interpretive Structural Modeling-an empirical study, International Journal of Advance Manufacturing Technology, 43, 1081-1093 (2009)
14. Li W.L., Humphreys P., Chan L.Y. and Kumaraswamy M., Predicting purchasing performance: the role of supplier development programs, Journal of Material Processing Technology, 138(1-3), 243-249 (2003)
15. Banwet D.K. and Arora R., Enablers and inhibitors of ecommerce implementation in India-an interpretive structural modeling (ISM) approach, In: Kanda A et al (ed) Operations management for global economy challenges and prospects, Phoenix, New Delhi, 332-341 (1999)
16. Rajesh K.S., Suresh K.G. and Deshmukh S.G., Interpretive structural modeling of factors for improving competitiveness of SMEs, International Journal of Productivity and Quality Management, 2(4), 423-440 (2007)
17. Saxena J.P., Sushil and Vrat P., The impact of indirect relationships in classification of variables: A MICMAC analysis for energy conservation, System Research, 7(4), 245- 253 (1990)
18. Mandal A. and Deshmukh S.G., Vendor selection using interpretive structural modeling (ISM), International Journal of Operations and Production Management, 14(6), 52–59 (1994)
19. Thakkar J., Kanda A., Deshmukh S.G., Evaluation of buyer supplier relationships using an integrated mathematical approach of interpretive structural modeling (ISM) and graph theoretic approach, Journal of Manufacturing Technology Management, 19(1), 92-124 (2008)
20. Thakkar J., Deshmukh S.G., Gupta A.D. and Shankar R., Development of Score card: An integrated approach of ISM and ANP, International Journal of Production and Performance Management, 56(1), 25-59 (2007)
21. Bolanos R., Fontela E., Nenclares A. and Paster P., Using interpretive structural modeling in strategic decision making groups, Management Decision, 43(6), 877-895 (2005).