Arab Academy for Science, Technology & Maritime Transport

MRCC — Marlog 5 — 2016

International Maritime Transport and logistics Conference
Toward Smart Ports

13-15 March 2016 Hilton Green Plaza – Alexandria - Egypt

Presentation Title:

Process of the adoption Information Technology (IT)
in Shipping Companies to improve the efficiency of ISM Code implementation

Name: Dr Capt Taha Lebbadi
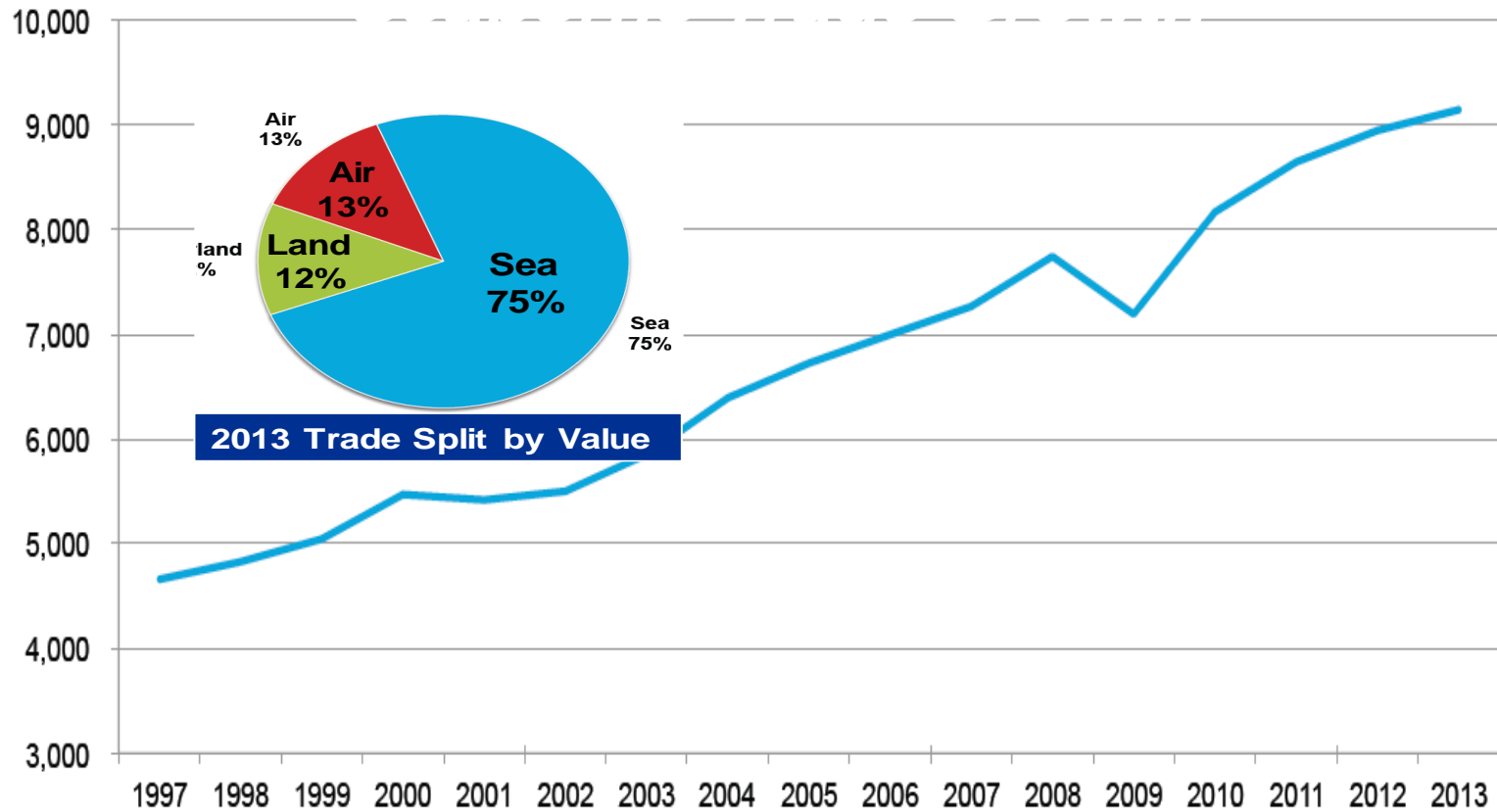
- Shipping and safety at sea.

Figure 2; world trading carried out by the shipping industry (UNCTAD, 2014).

International Maritime Organization(IMO).

Maritime conventions, resolutions, circulars, guidelines.....

- The maritime catastrophes are occur.

  Lloyd's List Intelligence Casualty Statistics.

Table1;Total loss by types of vessel 2005-2014. (Lloyd's List Intelligence Casualty Statistics. Analysis: AGCS (2015)

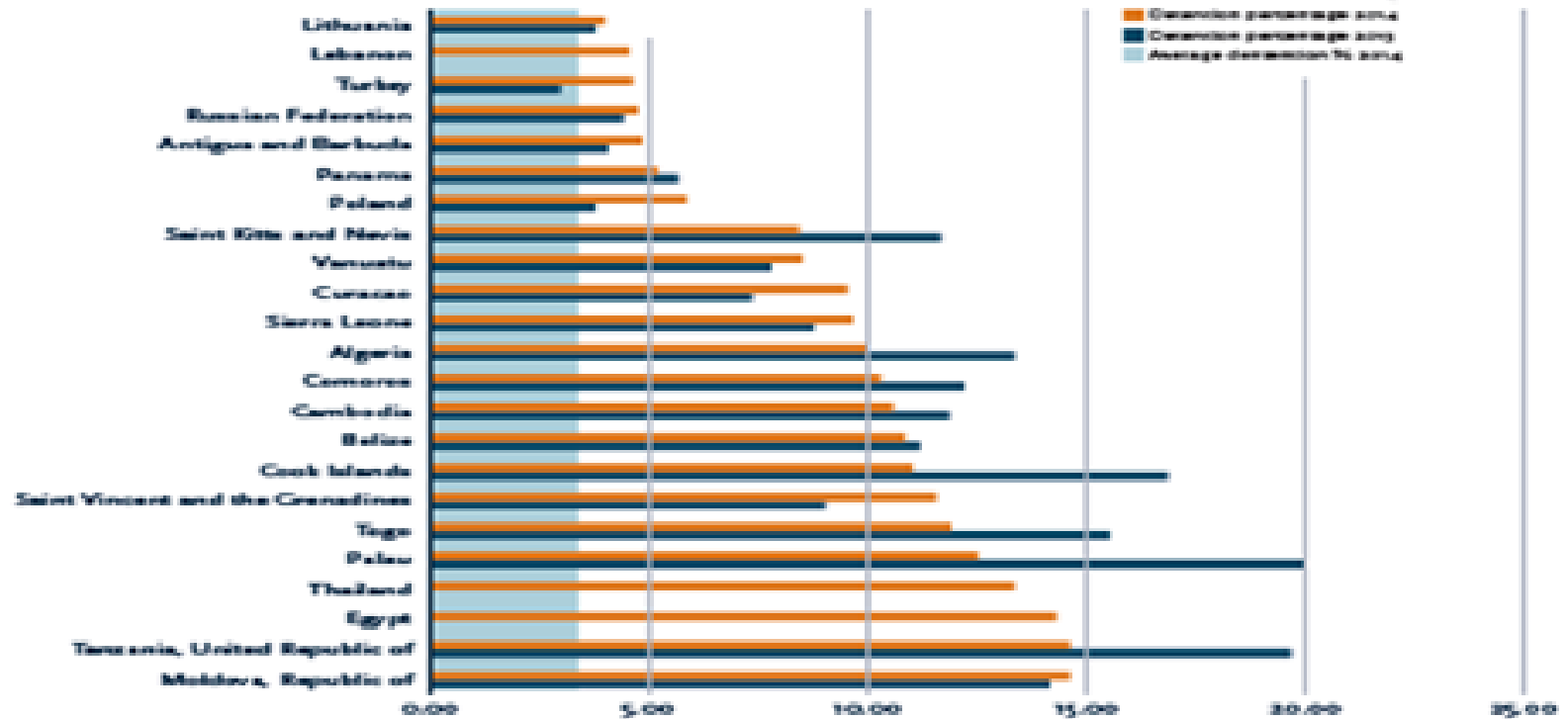| Period	Barge	Bulk	Cargo	Chemical / Product	Container	Dredger	Fishery	LPG/LNG	Other	Passenger	Ro-ro	Supply / Offshore	Tanker	Tug	Unknown	
2005	5	6	61	6	2	4	34	1	3	12	7	3		5		149
2006	6	8	61	11	4	3	23		3	12	10	3	2	7	1	154
2007	6	12	70	6	3	2	33		7	8	5	5	1	11	1	170
2008	3	8	58	7	2	5	36	1	5	4	8	1	3	7	1	149
2009		10	51	8	4		29		5	5	6	3	2	5		128
2010	1	11	60	5	5	2	21		3	3	1	2	3	7		124
2011		13	36	2	3	2	14	1	5	7	3	1	2	2		91
2012		8	61	8	5	2	12	1	3	6	5	3	1	6		121
2013	3	15	40	10	4		13		6	8	2	2		7		110
2014	1	3	25	2	4	1	14		3	7	5	2	1	7		75
Total	25	94	523	65	36	21	229	4	43	72	52	25	15	64	3	1,271

Table 2; Cause of Total losses 2005-2014. (Lloyd's List Intelligence Casualty Statistics. Analysis: AGCS (2015)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Grand Total
Collision (involving vessels)	26	23	17	12	13	10	3	5	2	2	113
Contact (e.g. harbour wall)	5	2	2	1	1			2			13
Foundered (sunk, submerged)	56	64	69	73	61	64	43	55	69	49	603
Fire/explosion	16	19	17	16	14	11	8	13	15	4	133
Hull damage (holed, cracks, etc.)	8	4	11	4	7	4	3	5	1	3	50
Missing/overdue	3	1	1			1					6
Machinery damage/failure	8	11	14	8	6	4	6	15	2	3	77
Piracy	1		1		1	2					5
Wrecked/stranded (aground)	23	29	35	34	23	22	28	25	20	13	252
Miscellaneous	3	1	3	1	2	6		1	1	1	19
Grand Total	149	154	170	149	128	124	91	121	110	75	1,271

- **Advanced Navigational Equipments........**
  - (AIS, SSAS, LRIT, ECDIS, SATCOM, GMDSS,…..)

- **Maritime catastrophes are still occur.**
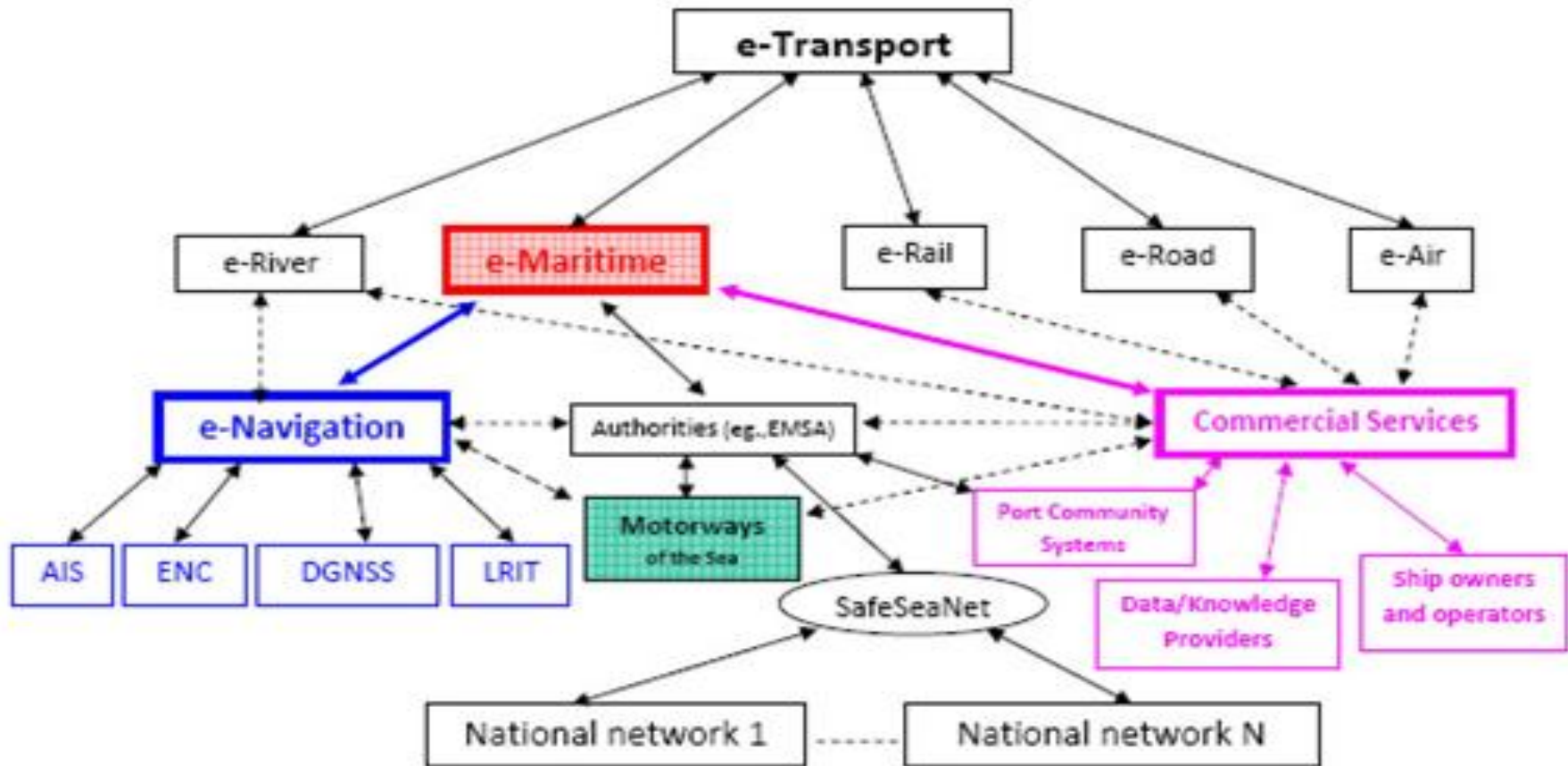 - **Port state control' (**management in sub-standard ships)

Figure 3; Detention ships per flag in 2014, exceeding average percentage

Information System: E-Transport. Dan Pillich (Pillich 2007).

Figure; 4. e-Maritime and e-Navigation shown in the broader context of e-Transport information services provision.

- *Adoption of Information Technology (IT)*
  - e-commerce & e-business, Internet banking......

- *Shipping organization and Information Technology.*

- *SMS research gap.*

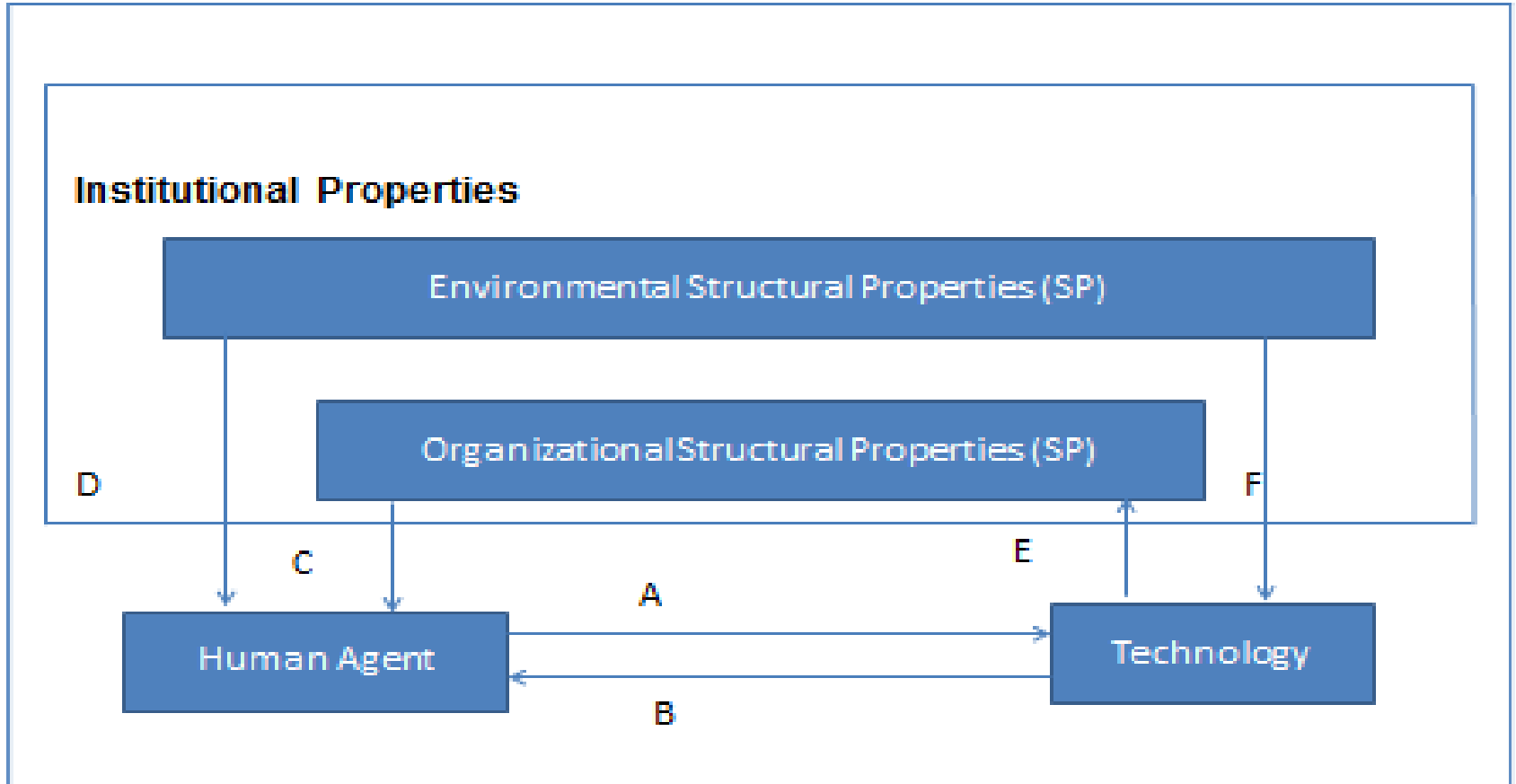- *Innovation adoption - Structurational Model of Technology.*

Figure 4; an Extension model of Structurational Model of Technology (Orlikowski 1992)

- *Innovation adoption through Institutional theory.*

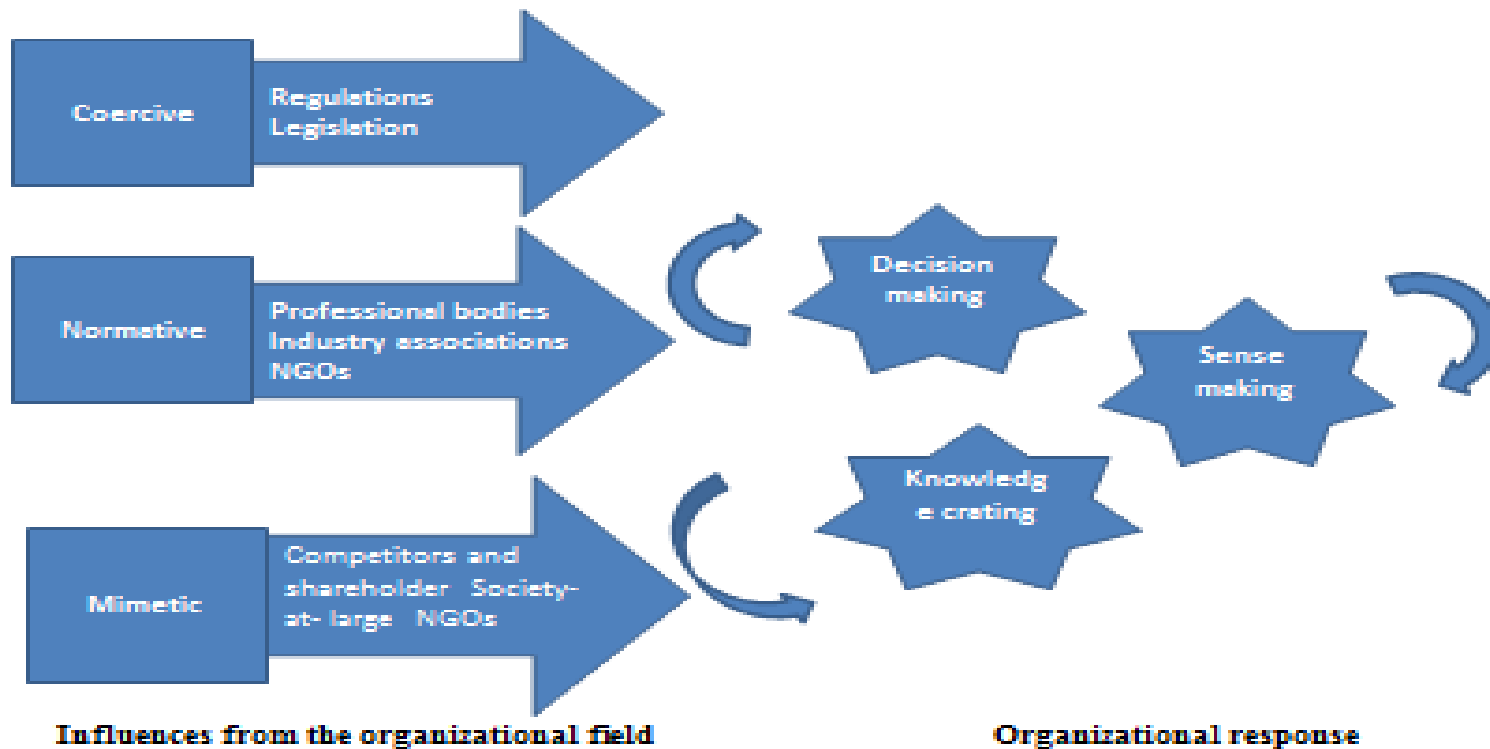Figure 5; Institutional Environments and Organizational Arrangements (adapted from DiMaggio and Powell (1983) and Choo (2006)).

External factors
(Sorenson & Buatsi, 2002)
Technological Infrastructure.
Socio-economic. Cultural. Political.
Legal and Regulatory.

Internal factors
(Kapurubandara & Lawson, 2006)
Firm's characteristics.
Owner/Manager/staff
Costs and investment wise.

Structurational Model of
Technology (Orlikowski 1992)
Institutional properties,
Human agent, Technology

Institutional Factors
(Dimaggio and Powell, 1983)
Mimetic, Regulatory,
Normative

Legitimating strategies
(Oliver, 1997),
(Suchman, 2005)

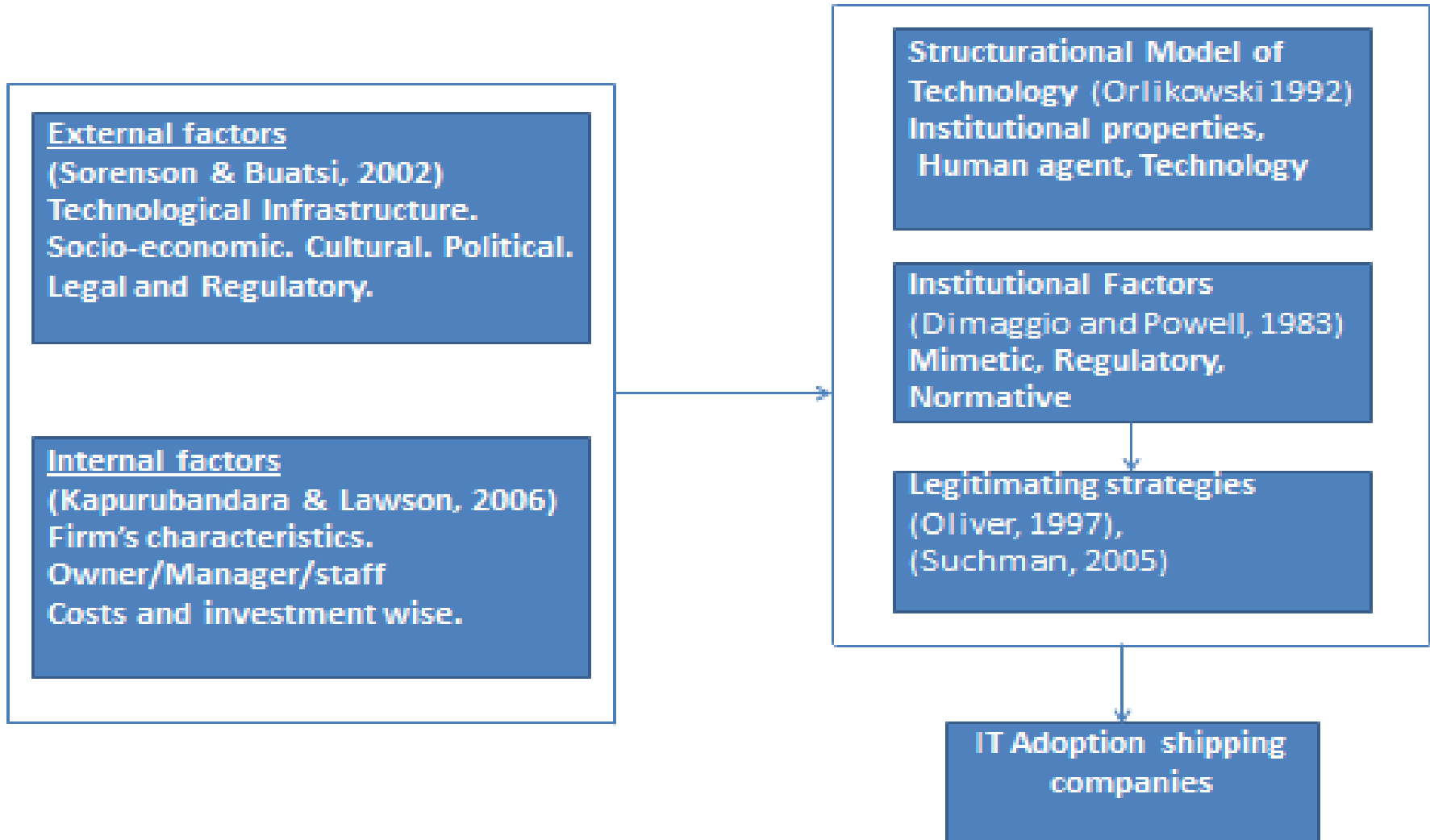IT Adoption shipping
companies

Figure: 6; IT Adoption Proposal Research Frameworks

Conclusion

- **Explore the process of IT adoption….**
    (contributing of relevant theories in the field of IT & IS)

- **The study has provides research gap to improve implementation of ISM code.**

- **Regulative factors**…..**(**Micro level & Macro level**)**

- **Develops of a theoretical IT adoption proposal research framework.**

Recommendation

- **Process of IT for SMS implementation needs to be backed up by institutional and regulative policies .**

- **Integrate database of SMS between office and ships at sea.**

Thank you