Teamwork is a fundamental component management essay

Business, Management

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Introduction

While nobody willing sets out to commit an error, there has been many instances of errors which are attributable to the " human factor". From Three mile island 1979 and Chernobyl 1986 in the Nuclear industry with overall fatalities of more than 5000 to Eastern Airlines flight 401 1972, Los Rodeos Airport, Tenerife 1977 and Avianca flight 52 1990 with losses of 757 persons, human error was at fault on all of these instances. United Airlines Flight 173, Douglas DC-8 was en route from Denver, Colorado to Portland, Oregon on 28/12/78. While on approach to Portland the landing gear was lowered, however only one of the three green landing gear indicator lights came on. After aborting the landing the captain and his crew investigated the problem, however they became fixated with the issue and after an hour the plane ran out of fuel and crashed. The crash resulted in the deaths of 10 and injury to 24 of the 189 passengers on board. It was subsequently discovered that

while the captain was correct in aborting the landing, the crew became so preoccupied with the problem that they allowed the plane to run out of fuel causing the crash. The NTSB report suggested a recurring problem, that of a " breakdown of cockpit management and teamwork during a situation involving malfunctions of aircraft systems in flight." NTSB (1979)The NTSB went on to blame the captain for lack of situational awareness however they also determined the other crew members were also deficient in knowledge and communication skills." Contributing to the accident was the failure of the other two flight crewmembers either to fully comprehend the criticality of the fuel state or to successfully communicate their concern to the captain." NTSB (1979)It was because of this and similar crashes, Eastern Airlines flight 401, LOT 007 and SAS 993 which became the incentive to the Aviation industry to recognise that technology alone was not the cause of air mishaps and went on to develop and implement a training program which hoped to reduce the human factors in accidents and incidents. Following work by the National Aeronautics and Space Administration (NASA) Cooper et al (1980), the NTSB made recommendations to the US Federal Aviation Authority (FAA) and to the airline industry to take measures to ensure a policy of teamwork be implemented, a policy in which the captain is a leader who depends on other crewmembers to assist on safety critical tasks, to share responsibilities and offer information if required." The value of CRM was demonstrated on July 19, 1989, when a United Airlines DC-10 experienced a catastrophic engine failure over Iowa that destroyed the aircraft's hydraulic systems, rendering it virtually uncontrollable. The cockpit crew and a deadheading captain who was a passenger worked as a team to bring the aircraft down to a crash

landing at Sioux City. Although more than 100 people perished, almost 200 survived a situation for which no pilots in the world had ever been trained." NTSB (1998)The resulting Cockpit resource management (CRM) focused on interpersonal communication, leadership and decision making in the cockpit. The subsequent success (after some trepidation from some senior pilots due to the dilution of the traditional rigid hierarchy of autocratic captain and subservient crew) lead on to encompass all aspects of aviation, from the flight crew to ATC and evolved into Crew resource management. CRM has gone on to be accepted in other " safety critical industries" from the military to the maritime and from the health sector to the fire service.

Definition of terms

Crew Resource Management: A way of addressing the challenge of optimising the human/machine interface and accompanying interpersonal activitiesTeamwork: Individuals working together in a cooperative environment to achieve common team goals through sharing knowledge and skills

" To Err is Human"

Study after study has shown that like aviation, operating room accidents are directly attributable to human error. In 2000, the Institute of Medicine in the US reported that medical errors in hospitals accounted for between 44, 000 and 98, 000 preventable deaths and in excess of 1, 000, 000 injuries each year. This figure represents almost twice how many die from road traffic accidents or breast cancer but receives less public attention. Add the financial cost to the human tragedy, and medical error easily rises to the top

ranks of urgent, widespread public problems." Crew Resource Management" which was instigated over 20 years ago has become a resounding success, so much so that other safety critical organisations looked at the model and adapted it to their own industry. The medical industry has implemented CRM in order to reduce surgery room fatalities due to human error. The Joint Commission survey in 2006 showed that almost 65% of medical errors causing patient injury was attributable to a communication breakdown amongst the medical team. The study highlighted the need for a serious program like the one embraced by the aviation industry to eliminate that discrepancy and minimise human errors due to lack of communication. Now most hospitals in the US are rapidly initiating CRM with nurses who go through the training appearing to be much less intimidated by the surgeon performing the operation compared to those who haven't got the training. One important factor of CRM is the procedure it introduces to make sure the communication is acknowledged and followed up. If any member of the operation team detects something wrong during the operation, they are encouraged to express concern. The use of Checklists is another innovation used by CRM similar to type used by pilots before take-off. The checklist is regularly edited, revised and improved through post-op debriefings, similar again to the post-flight debriefs that flight crews go through. As mentioned in its reports on the crash of United Airline Flight 173, The NTSB sighted a lack of situational awareness by the captain when dealing with the incident. As with communication in situational awareness has been highlighted as a key factor allowing for human error. The fire service has introduced as part of its crew resource management changes in which the old-style phased incident

scene size-up and monitoring is no longer appropriate or applicable. Situational awareness with a mixture of attitudes, previous experiences and new information gained from the incident scene and environment which enables the incident commanders, sector commanders and crew leaders to gather all the necessary information they need to make the appropriate decisions that will keep their firefighters safe. Everyone at an incident scene needs to be watchful to shifting environments, clear or obscure conditions or escalating dynamics that require swift identification, understanding and suitable application of actions." Dynamic Risk Assessment is a process of risk assessment carried out in a changing environment, where what is being assessed is developing as the process itself is being undertaken" DOE (2012)" To the Incident Commander, fire officer or firefighter, knowing what's going on around you, in and around the building structure and understanding the consequences of building, construction, assembly, fire load and fire development and growth is mission critical to incident stabilisation and mitigation and profoundly crucial in terms of personnel safety." Naum (2009)

Teamwork

When comparing a Dublin Fire Brigade response crew and flight crews of a modern airliners some similarities are apparent, the structures of both are of a leader with one or more crew members. They are expected to function as one cohesive group in order to complete the task at hand, the crews are also expected to be able respond swiftly under stressful conditions typically after a period of many hours dealing with mundane tasks. Crews can work frequently together however at times may be asked to work with other crews

of which they have little previous knowledge. Teamwork within the fire service is essential and is instilled from day one in the training centre, with every drill or procedure a team driven effort. Breathing Apparatus procedures require a minimum of two crew members to a maximum of four and within this there is a leader designated usually the most senior firefighter. There are mock ups of buildings where while under observation the firelighters use their training to complete a designated task (recover a casualty) within a specific timeframe usually determined by BA cylinder contents. This BA training within Dublin Fire Brigade extends beyond the training centre and continues at station level throughout a firefighter's career. Similar to CRM which also comprises of three stepsAwarenessReinforcementRepetitive trainingFirefighter training is on-going, the training centre gives the concept and develops the team attitude, this is reinforced over the six months of training and a further six months' probation and finally repetitive training which all firefighters are subject to as a matter of their daily workload. Teamwork requires individuals to work together in a cooperative environment to achieve common team goals through sharing knowledge and skills. These goals need to be identified by the leader and at least one other person to perform the task in order to establish the goal. Firefighters are required by training and nature of their work to come together to achieve a goal, the failure of this teamwork leads to failure in the task or injury. The skills involved in teamwork includeLeadershipCommunicationConstructive conflictRole responsibilityClear mission objectivesMutual accountability

Leadership

Leadership within the Dublin Fire Brigade is by its nature a quasi-military style similar to other uniform bodies, leadership is determined by positions within the organisation. DFB has a rank structure of firefighter, sub-officer, station officer, district officer, third officer, assist chief fire officer and chief fire officer. While these are defined leadership rank structures there are sections within the service that require leaders that does not necessarily confer rank, for example the leader of a BA team may be a senior firefighter or indeed a more junior firefighter but one with prior knowledge of the location or when attached to the ambulance the senior firefighter becomes the leader within the crew of two. Regardless of how leadership is determined there are certain factors which need to be required in order to become an effective leader, Authoritysuccessful authority fosters an environment of respectful communication, failures in this environment have been shown in many airline disasters. Soliciting input from crews so as to properly weigh up a situation (two sets of eyes etc.)Mentoringmentoring is a fundamental skill necessary to develop leadershipConflict Resolutionconflict can be healthy and unhealthy, a good leader needs to be able to resolve unhealthy conflict as this will interfere with team harmony and goal accomplishmentMission Analysisthe ability to size-up what the goal is, what approach to undertake to achieve the goal and the resources required. Firefighting for the most part is unpredictable, each situation is unique with factors such as what's on fire? Where is the fire located? Are there other risks nearby? What's the best medium to extinguish it and is there enough resources available? One of the most difficult tasks faced by a newly

appointed officer is facing their crew for the first time with a mixture of firefighters with service possibly ranging from recruit to vastly experienced senior men. A recently appointed officer was assigned a position at Tallaght fire station which at the time was the busiest fire station in the country for both fire and ambulance calls, when the officer arrived he had only eight years' service in total in the DFB and was initially received with some cynicism, " what experiences does he have?", " He's never seen a real fire!", " This guy won't last the pace!" were typical comments made by more experienced firefighters. Showing good leadership the officer on a number of occasions at incidents would purposefully elicit an input from these senior men as to what approach should be taken. Whether or not this input was used it created an opportunity to boost the morale of these men which in turn bolstered a team spirit in which everybody felt that they could, if necessary give their observation with regard to an incident.

Communication

As pointed out communication is liable to error with disastrous results, generally communication is between at least two people and has a number of steps to ensure the message is relayedhttp://www. mybusinessprocess. net/wp-content/uploads/2012/02/The-Communication-Process-5. gifIn 2011, Dublin Fire Brigade were called to smoke issuing from a disused shop formally " Chartbusters" in Stillorgan, while there was considerably smoke there was no sign of flames. On arrival there was two teams assigned to don Breathing Apparatus, one of the two man BA teams had orders to search to the left hand side of the premises, while a second two man team searched to

the right hand side and to meet up with them at the rear of the building. Both teams had charged hoses with them and both teams had one handheld radio between them. When they got to the rear of the shop they located the fire above a tanning booth and began to fight it, as they were fighting the fire they heard calls from the front of the shop to " pull back, the fire is behind you" both teams began to pull back with the initial intention of fighting the fire from closer to the door, however they were met with intense heat and flames and instead began to attempt an evacuation. They got within 8-9 feet of the exit however due to the intense heat and fallen debris they had become trapped. Luckily they had managed to get to the window where the Breathing Apparatus entry board had been set up and eventually their colleagues outside were able to break the glass and effect their rescue. The subsequent enquiry set up by the Health and Safety Authority established a number of salient factors which required immediate action. Although both teams had hand-held radios neither crew received important information regarding how the fire was developingEven if information was being passed the radios had only one channel of operation, so BA control was competing with Fire ground controlThe radios were not fit for purpose and had been scheduled for replacementThe communication that was received was a verbal " pull back, the fire is behind you" this was misinterpreted by both BA crews, the correct notification for evacuation is three sharp whistles repeated. The development of the fire at such a rate was due to another officer opening a doorway above the incident allowing in a sudden rush of oxygen, this officer was unaware of the location of the BA

teams and should have requested permission before opening, however his radio wasn't working!.

Constructive Conflict

Conflict is pretty much inescapable when you work with others. People have different viewpoints and under the right set of circumstances, those differences escalate to conflict. How conflict is handled will determine whether it works to the team's advantage or not. Conflict isn't necessarily a bad thing and is expected in many high performance teams. When a crew which has different viewpoints, skills or opinions are met with a challenge this crew will often benefit from this diversity however the members of the crew must be open to others inputs as failure to do so can lead to a more uncontrolled dispute. As mentioned earlier the nature of firefighting is that no two fires or incidents are the same and accordingly the use of combined knowledge of the team is vital. While on-station training is vital for teamwork and maintaining operational awareness, the importance of experience can't be underestimated. A good cohesive team would have firefighters from many backgrounds each giving their own opinion. Cooper, G. E., White, M. D., & Lauber, J. K. (1980). Resource management on the flightdeck: Proceedings of a NASA/Industry Workshop (Rep. No. NASA CP-2120). Moffett Field, CA: NASA-Ames Research Center (http://ntrs. nasa. gov/archive/nasa/casi. ntrs. nasa. gov/19800013796_1980013796. pdf) [Accessed 27/1/13]International Association of Fire Chiefs (2003) " Crew Resource Management: A positive change for the fire service" (https://www. iaff. org/06news/NearMissKit/6.%20Crew%20Resource%20Management/CRM.

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