

Michigan Society of Professional Engineers

Virtual Conference – May 5th, 2021

PROJECT EVEREST

Reaching New Heights in Engineering & Project Management



@AlanMallorySpeaks



@AlMallory



linkedin.com/in/alanmallory



al.mallory



alanmallory.com/youtube

Alan Mallory, CSP, MA, BSc, PEng, PE, PMP

Speaker | Author | Performance Coach

Project Manager & Mechanical Engineer

alan@alanmallory.com

www.AlanMallory.com

PROJECT EVEREST: REACHING NEW HEIGHTS IN ENGINEERING & PROJECT MANAGEMENT

- Different type of project than we are used to but also very much the same in terms of the planning and processes
- Incorporated both waterfall and agile methodologies
- Strategic planning, scheduling and risk management were paramount because poor planning in these areas leads to loss of life on the mountain every year







Project Charter

Reach the Summit & Return Home Safely











ICN
Integrated
Communication
it consultancy
domain
web designing/hosting
software
networking
A total technology
solutions to help you
reach ultimate goals
PO Box 9077, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

Box
1/61











Monitoring Feedback

Environmental Factors & Performance Data



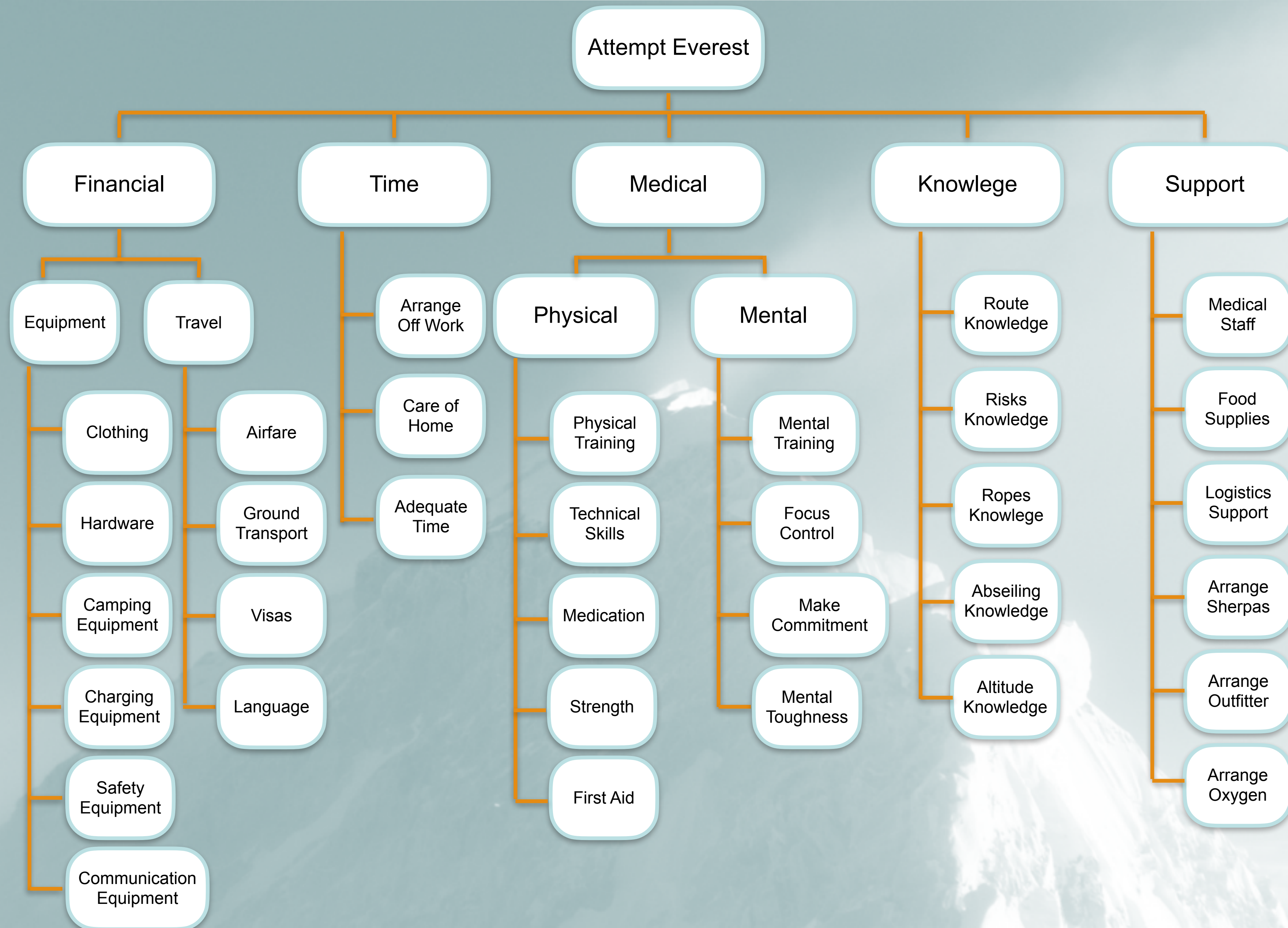


An aerial photograph of a mountain village. The village is built on a steep, terraced hillside. The houses have colorful roofs in shades of blue, green, red, and yellow. The surrounding landscape is rugged and mountainous, with some areas covered in green vegetation and others in bare earth. The text is overlaid on the center of the image.

Maintaining a Future Mindset

Crucial Planning & Sequencing of Activities

Sample Work Breakdown Structure for Attempting Everest











A photograph of two hikers standing on a rocky, dirt path in a high-altitude mountain valley. The hiker in the foreground is wearing a blue jacket, brown pants, and a backpack, using trekking poles. The hiker behind them is wearing a blue jacket and brown pants. In the background, there are steep, rocky mountains with patches of snow under a clear blue sky. A small stone building with a blue roof is visible on the right side of the valley.

Communication Challenges

Challenges with Stakeholder Communications









Base Camp – 17,500ft / 5,334m















Roles and Responsibilities



Responsibilities:

Adam - Technology and Electronics



Responsibilities:

Laura - Medical Challenges



Responsibilities:

Dan - Altitude and Acclimatization



Responsibilities:

Alan - Problem Solving



**Responsibilities:
Required to Take on Different Roles**





Individual Accountability

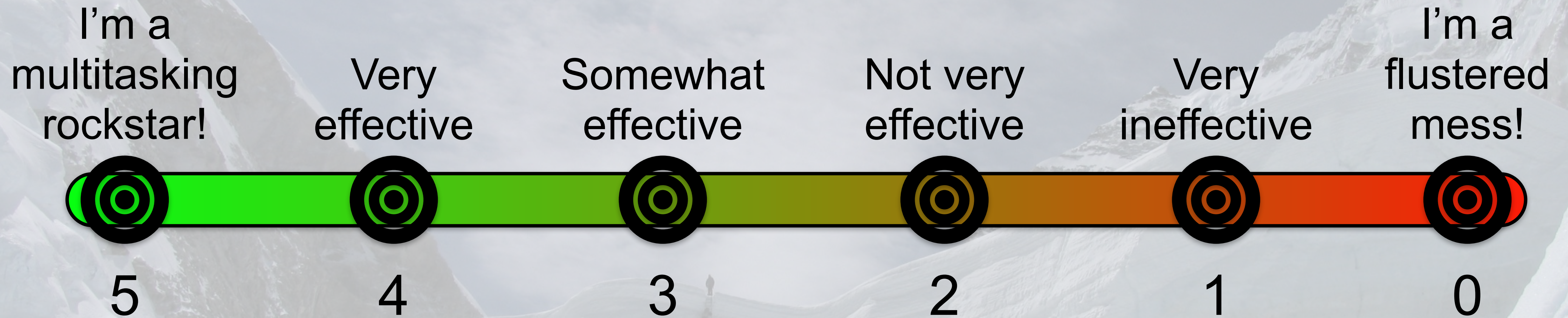


Shared Accountability



Poll Question #1:

How effective are you at multitasking?



A) 5 – Multitasking Rockstar

B) 4 – Very effective

C) 3 – Somewhat effective

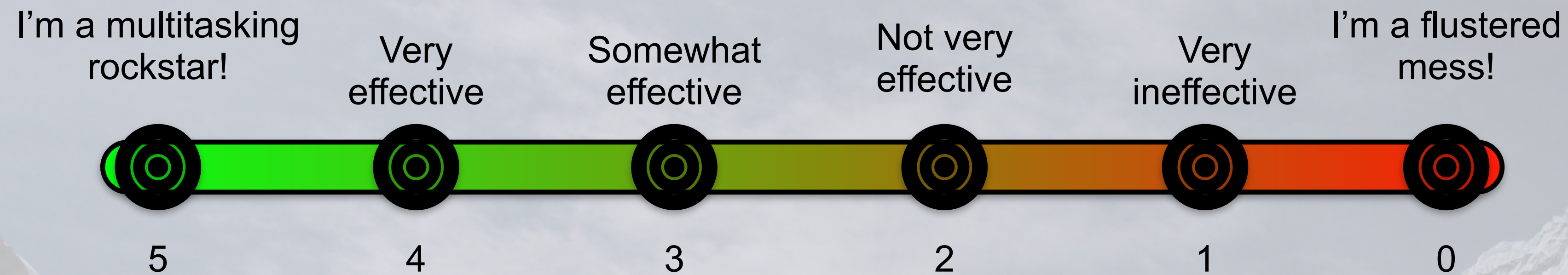
D) 2 – Not very effective

E) 1 – Very ineffective

F) 0 – Flustered mess



Multitasking




- Only 2.5% of the population is estimated to be proficient at multitasking *[Journal of Experimental Psychology]*. Ironically, these people are the less likely to multitask. It's those of us that think we're in the 2.5% that do it most often and end up killing productivity.
- Up to 40% of productivity time is lost by frequent task switching *[Meyer, Psychological Review]*









Iterative Approach

Planning - Execution - Review - Repeat



Agile vs. Waterfall

The Agile Manifesto:

- **Individuals and interactions** over processes and tools
- **Working software/solutions** over comprehensive documentation
- **Customer collaboration** over contract negotiation
- **Responding to change** over following a plan

Agile Principles:

- Flexible, adaptive process
- Iterative approach with sprint cycles
- Loosely defined requirements
- Goals and results based
- Change and uncertainty is embraced
- Dedicated, self-organized team

The Waterfall Manifesto:

- **Processes and tools** over individuals and interactions
- **Comprehensive documentation** over working software/solutions
- **Contract negotiation** over customer collaboration
- **Following the plan** over responding to change

Waterfall Principles:

- Rigid, linear process
- Sequential approach with phases
- Well defined requirements
- Tasks and procedure based
- Taxing change control procedures
- Structured team with defined roles



A high-altitude mountain landscape with snow-covered peaks and a rocky foreground. The sky is clear blue. The foreground is filled with dark, jagged rocks. The middle ground shows a wide, flat expanse of snow and ice. The background features steep, snow-covered mountain slopes with some exposed rock faces.

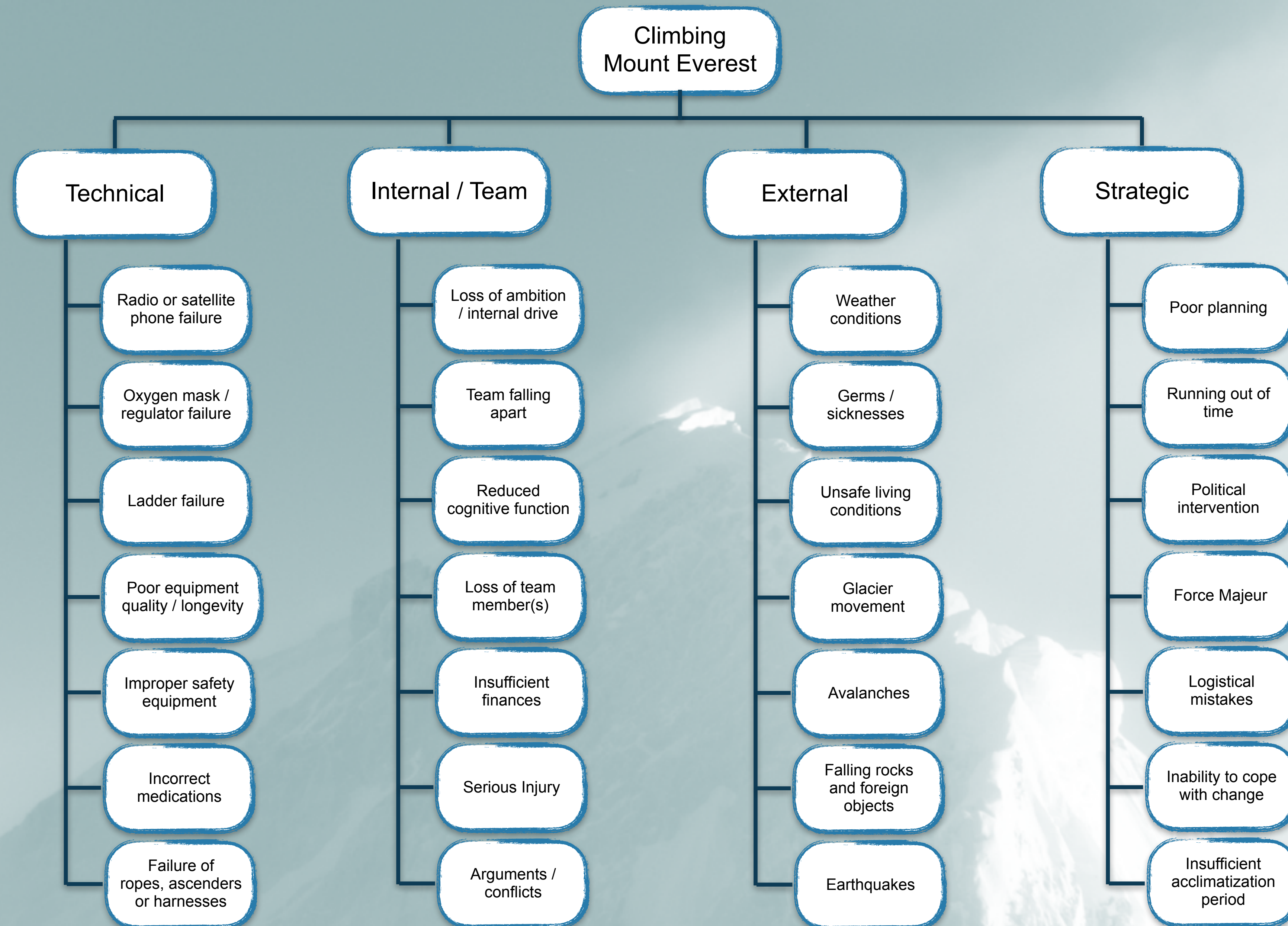
Risk Management

Developing Risk Mitigation and Response Strategies





Risk Breakdown Structure



Relative Impact

Catastrophic

Significant

Moderate

Minor

Limited

Low

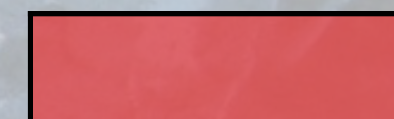
**Medium
Low**

Medium

**Medium
High**

High

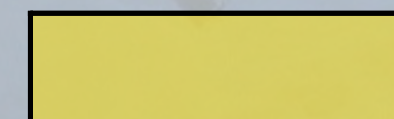
Relative Likelihood



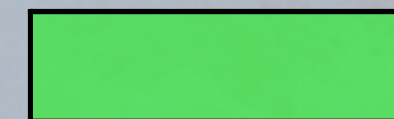
Very High



High



Medium



Low



































Camp 1 – 19,000ft / 5,800m







Camp 2 – 20,300ft/6,200m











A photograph of a person in a grey hoodie and a yellow face mask cooking at a campsite. They are using a small stove on a rock. The ground is covered in gravel. Various camping supplies are scattered around, including a large metal pot, a pink thermos, a blue water bottle, and several metal cups. In the background, another person is visible inside a green tent. The text "Controlling Costs" and "Strategic Allocation of Resources" is overlaid on the image.

Controlling Costs

Strategic Allocation of Resources















Camp 3 – 23,600ft / 7,200m

























The background of the slide is a photograph of a steep, rugged mountain peak. The mountain is covered in dark, jagged rocks and has several patches of white snow. A thin rope or cable runs diagonally across the face of the mountain. In the bottom left corner, a small figure of a person in a yellow jacket is visible, likely a climber. The sky is a clear, pale blue.

Quality Management

Auditing & Inspection Challenges









Camp 4 – 26,200ft / 8,000m







Building Relationships



Poll Question #2:

What have you found to be the most important in building professional relationships?

A) Technical competence

B) Communication and transparency

C) Trust

D) Mutual respect

E) Open-mindedness

F) Integrity













Resilience



















The Summit – 29,029ft / 8,848m





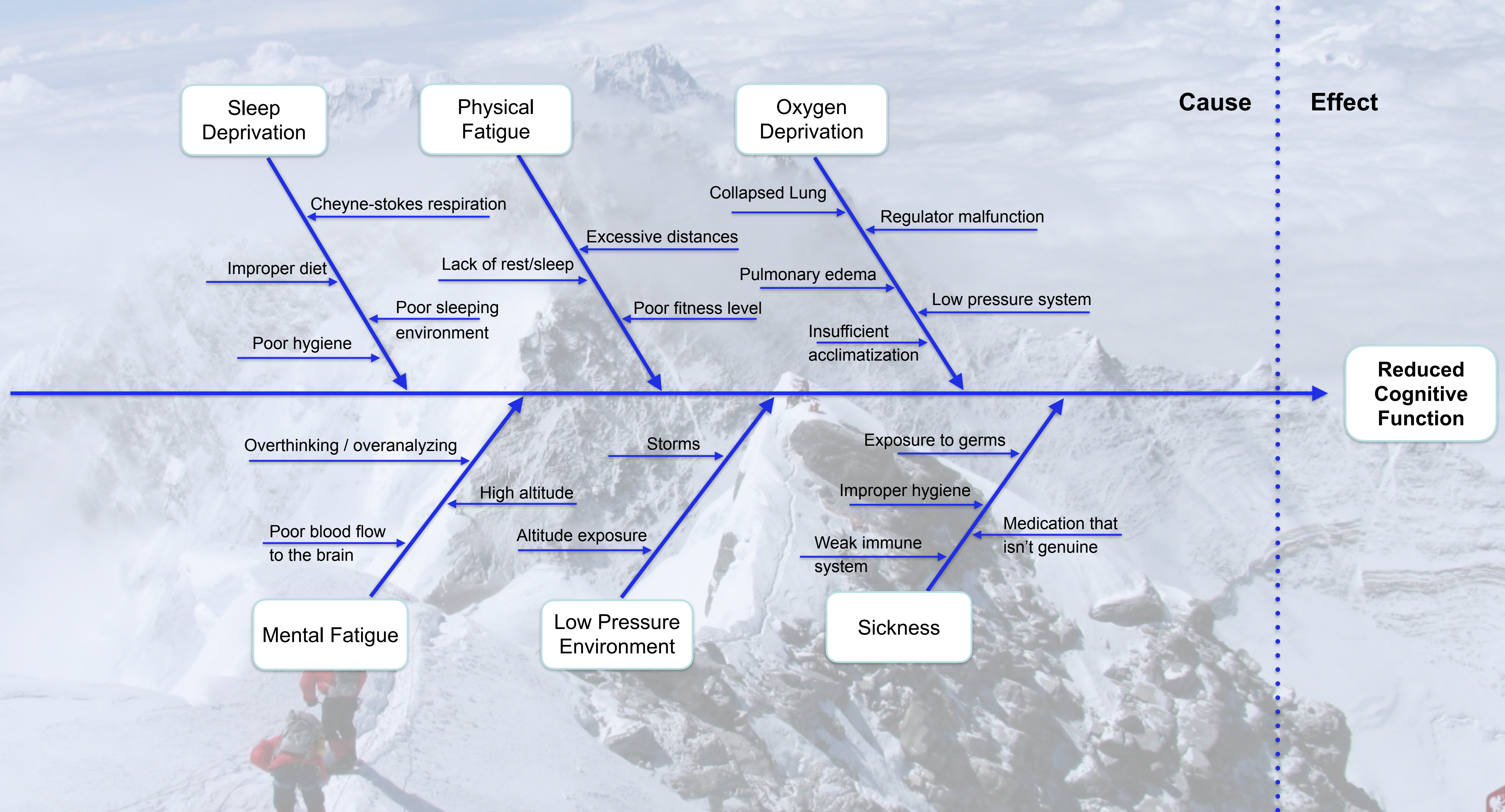




Lessons Learned & Root Cause Analysis



Cause & Effect (Ishikawa) Diagram



Root Cause Analysis: The Five “Why’s”

PROBLEM: Running out of oxygen on the summit ridge

Why?

Our oxygen masks leaked

Why?

The seal was not good and the mask wasn’t designed to work with our goggles

Why?

The masks we were using were a very economical version

Why?

We didn’t put in the required resources and time to get the right oxygen masks

Why?

We left it to the last minute and were rushed in our decision making process













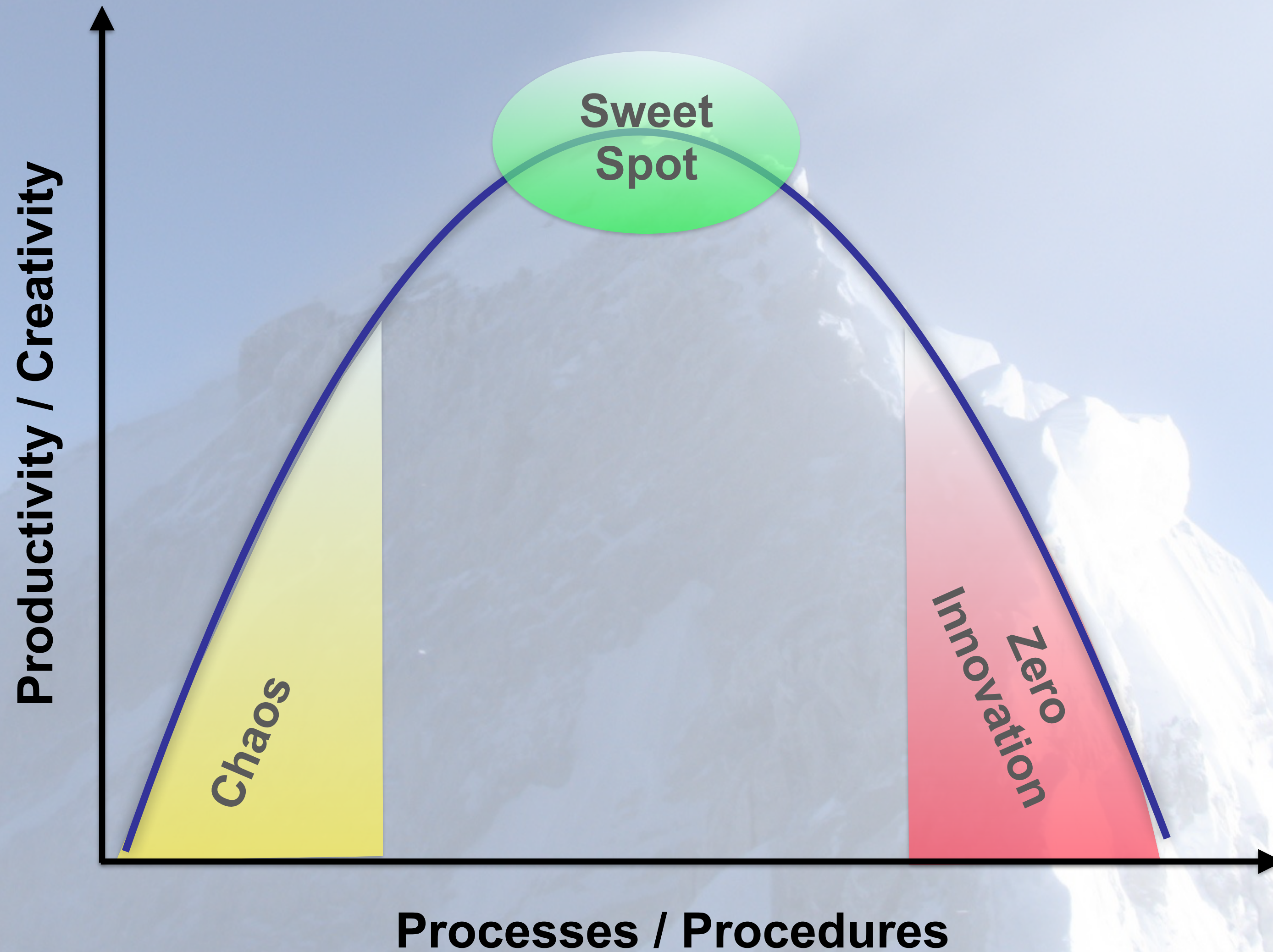


A group of people are gathered in a rocky, high-altitude environment, possibly a mountain camp. In the background, there are yellow tents and colorful prayer flags. The foreground is filled with large, light-colored rocks. The text "Empowering Team Members" is overlaid in the center in a large, bold, black font.

Empowering Team Members



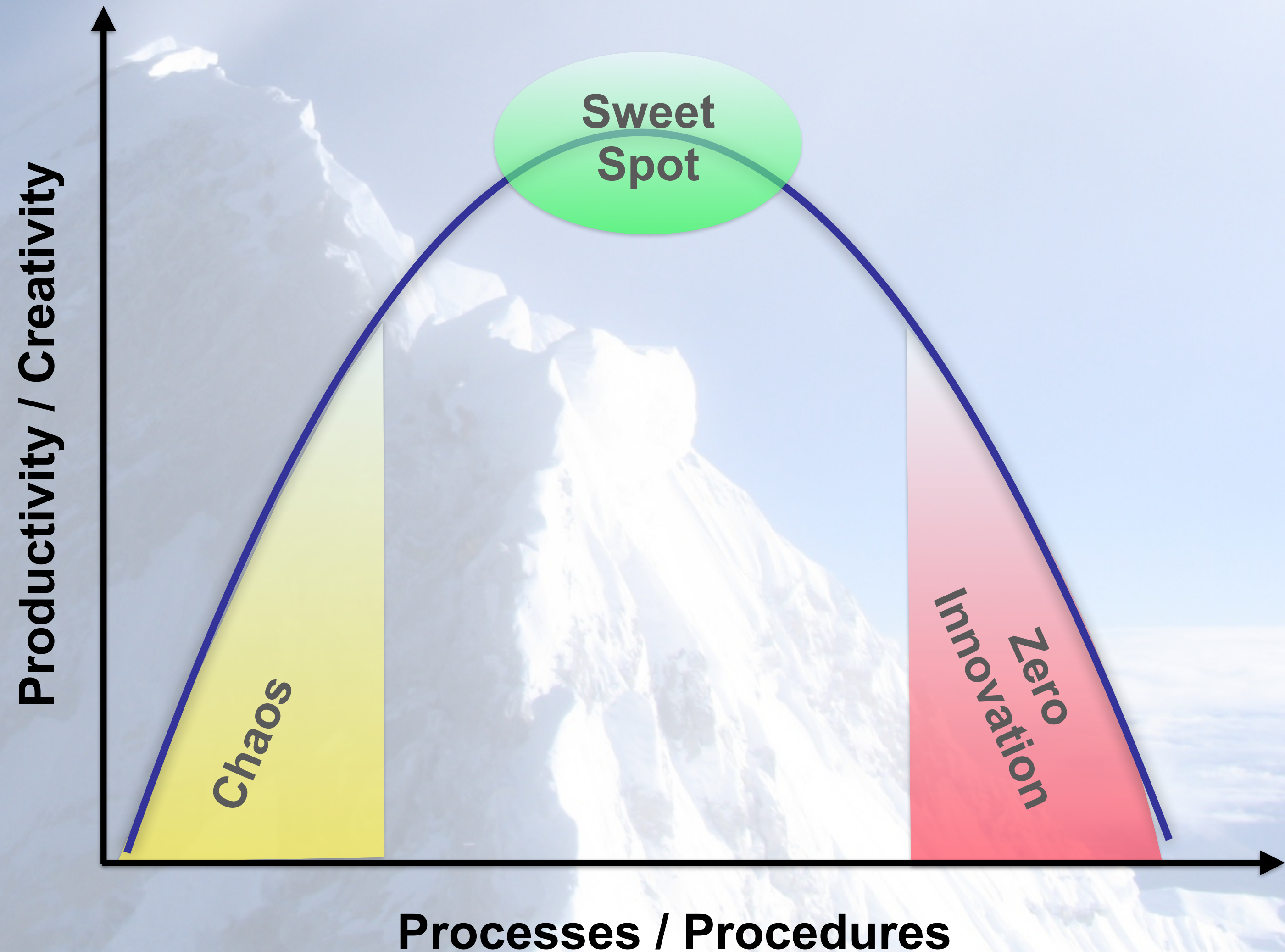
Empowering People



Poll Question #3:

Where on graph is your organization?

- A) Complete chaos
- B) Tending towards chaos
- C) The sweet spot
- D) Tending towards too much structure
- E) Innovation has been stifled



















“It’s not the Mountain we Conquer, but Ourselves”

– Sir Edmund Hillary

Questions?

Alan's Book can be found on:



For a personalized copy email
alan@alanmallory.com

Connect with Alan:

