

HealthCare Democratization through Biomedical Engineering Disruption

Michael H. Friebe ^{1,4} Debdoot Sheet ² Alfredo Illanes ¹ Paolo Bonato ³

¹ HealthTec Innovation Lab, Faculty of Medicine, Otto-von-Guericke-University, Magdeburg, Germany ² Indian Institute of Technology, Kharagpur, India ³ Harvard Medical School, Boston, US ⁴ IDTM GmbH, Recklinghausen, Germany

Abstract— A special session with 4 presentations covering future technologies and their impact and healthcare and related business models, translation methodologies in the US and India, and some examples on disruptive technologies. The presentations are followed by a short Innovation Game and a discussion with all attendees on the need of developing affordable health devices to lower the inequalities gap of healthcare provision and how to achieve that.

I. INTRODUCTION

This workshop will address the need for disruptions in lieu of the upcoming changes, challenges, and opportunities of global healthcare. The 4 P's (Predict, Prevent, Personalize, Participate) in combination with the quadruple aim of future health related innovations (better Outcomes, dramatically reduced cost, improved patient and clinician experience) will need to drive biomedical engineering developments.

II. METHODS

The current way of delivering services will be disrupted with new offerings and new business models. Exponential technologies - and the characteristic 6D's effecting the future - will be presented and their impact on development, as well as on clinical and biomedical engineering education of the future.

One of the D's is DEMOCRATIZATION, which ensures that access to novel technologies and services will be available to everyone on this planet.

In the introductory presentation (Michael Friebe) a future outlook of healthcare related technology developments, associated changes in healthcare business models and their impact on disrupting the current system will be presented.

Healthcare changes and associated developments likely start from a local perspective addressing the unit clinical needs found in a particular area and can then be adapted towards a more global view.

In back to back talks the typical biomedical engineering product innovation pathways in the US (Paolo Bonato) and India (Debdoot Sheet) will be presented with a particular focus on what triggers the development process and how the translation from a R&D environment to an actual patient use is addressed.

III. RESULTS

An actual translation of unmet clinical needs through developing devices and tools with a 100x or more potential cost saving focus (Alfredo Illanes) will complete the presentation section.

I. PRESENTATION TABLE

HealthCare Democratization Special Session Agenda		
	Presentation Title	Author
15 Min.	Future Outlook of Technologies on Healthcare and Business Models.	Michael Friebe
15 Min.	Biomedical engineering product innovation pathways in the US	Paolo Bonato
15 Min.	Biomedical engineering product innovation pathways in the India.	Debdoot Sheet
15 Min.	Actual Translation Example with Focus on Cost Reduction.	Alfredo Illanes
5 Min.	Innovation Game	All
20 Min.	Q&A Healthcare Democratization	All
5 Min.	Wrap-Up and Summary of Discussion	Michael Friebe

IV. DISCUSSION & CONCLUSION

The presentations are followed by a short Innovation Game with all participants and a joint discussion on how to stimulate a future oriented development value proposition of focussing on cost reduction and with that on „Democratization“ in our biomedical development efforts.

The results will be summarized and made available.

REFERENCES

1. Michael H. Friebe "Healthcare in need of innovation: exponential technology and biomedical entrepreneurship as solution providers (Keynote Paper)", Proc. SPIE 11315, Medical Imaging 2020: Image-Guided Procedures, Robotic Interventions, and Modeling; <https://doi.org/10.1117/12.2556776>