

# MEDTECH MILESTONES FRAMEWORK

Innovation Maturity Level			Innovation Maturity Level Milestones			
			Clinical	Market/Business	Regulatory	Technology
1	Need	Insights into unmet clinical needs and available solutions	<ul style="list-style-type: none"> <li><input type="checkbox"/> Unmet need statement</li> <li><input type="checkbox"/> Disease state characterization</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Needs screening &amp; selection</li> <li><input type="checkbox"/> Existing solutions characterization</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Regulatory familiarization</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> State-of-the-Art summary</li> </ul>
2	Idea	Potential solution to unmet need described, evaluated and selected	<ul style="list-style-type: none"> <li><input type="checkbox"/> Workflow scenario</li> <li><input type="checkbox"/> Updated need statement</li> <li><input type="checkbox"/> Envisioned benefit statement</li> <li><input type="checkbox"/> Feedback from 5+ clinical stakeholders</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Competitive landscape</li> <li><input type="checkbox"/> Envisioned Value Proposition</li> <li><input type="checkbox"/> Key stakeholders identified</li> <li><input type="checkbox"/> Reimbursement familiarization</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Medical device determination (MDR in EU)</li> <li><input type="checkbox"/> Comparable identified</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Idea screening and selection</li> <li><input type="checkbox"/> Paper Prototype</li> <li><input type="checkbox"/> Institutional IP disclosure</li> </ul>
3	Proof of Concept (PoC)	Key component concepts validated in models and value proposition tested	<ul style="list-style-type: none"> <li><input type="checkbox"/> Feedback from clinical stakeholders in 5+ settings</li> <li><input type="checkbox"/> Updated need statement and workflow scenario</li> <li><input type="checkbox"/> Target outcomes</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Competing solutions characterization</li> <li><input type="checkbox"/> Preliminary value proposition</li> <li><input type="checkbox"/> Path-to-Payment plan</li> <li><input type="checkbox"/> Stakeholder map</li> <li><input type="checkbox"/> Business protection model</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Preliminary regulatory classification</li> <li><input type="checkbox"/> Preliminary regulatory pathway</li> <li><input type="checkbox"/> Preliminary intended /indications for use</li> <li><input type="checkbox"/> Preliminary risk and hazard analysis</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Key component PoC prototypes</li> <li><input type="checkbox"/> Demonstration results</li> <li><input type="checkbox"/> Preliminary Freedom to Operate (FTO) Assessment</li> <li><input type="checkbox"/> Updated institutional IP disclosure</li> <li><input type="checkbox"/> Key in-sourcing requirements</li> </ul>
4	Proof of Feasibility (PoF)	Feasibility of whole solution demonstrated in models and in feedback from stakeholders	<ul style="list-style-type: none"> <li><input type="checkbox"/> Feedback on users in 20+ settings</li> <li><input type="checkbox"/> Updated need statement and Use Case scenario/workflow</li> <li><input type="checkbox"/> Updated target outcomes</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Feedback from 5+ economic buyers</li> <li><input type="checkbox"/> Preliminary business model</li> <li><input type="checkbox"/> Development plan</li> <li><input type="checkbox"/> Key relationships identified</li> <li><input type="checkbox"/> Business advisory board</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Draft essential requirements checklist</li> <li><input type="checkbox"/> Draft product claims</li> <li><input type="checkbox"/> Draft instructions for use</li> <li><input type="checkbox"/> Institutional approval request(s)</li> <li><input type="checkbox"/> Submission pathway defined</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Product Requirement Document (PRD)</li> <li><input type="checkbox"/> "Works Like" and "Looks Like" prototypes</li> <li><input type="checkbox"/> Essential experiment results</li> <li><input type="checkbox"/> Provisional IP filing &amp; initial FTO review</li> <li><input type="checkbox"/> Key in-sourcing plans</li> <li><input type="checkbox"/> Manufacturing/QMS plan</li> </ul>
5	Proof of Value (PoV)	The potential of the solution to work and create value for all	<ul style="list-style-type: none"> <li><input type="checkbox"/> Feedback from 100+ users</li> <li><input type="checkbox"/> Feedback from 5+ KOLs</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Key management team committed</li> <li><input type="checkbox"/> Investor ready business plan</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Essential requirements checklist</li> <li><input type="checkbox"/> Application form to competent authority submitted</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> "Works Like, Looks Like, Made Like" prototypes</li> <li><input type="checkbox"/> Essential technical experiments results</li> </ul>

		<b>stakeholders is demonstrated</b>	<input type="checkbox"/> Use Case/ scenarios testing with 10+ users <input type="checkbox"/> <b>Animal/first in/with man experiments</b> <input type="checkbox"/> Medical advisory board <input type="checkbox"/> Clinical trial endpoints	<input type="checkbox"/> Feedback from 20+ economic buyers <input type="checkbox"/> <b>Initial Seed Investment</b> <input type="checkbox"/> Key relationships formalized <input type="checkbox"/> Incorporation & Founders agreement	<input type="checkbox"/> Clinical Investigation approval(s)	<input type="checkbox"/> IP search report <input type="checkbox"/> GMP compliant pilot manufacturing process <input type="checkbox"/> Key in-sourcing requirements committed
6	Initial Clinical Trials (ICT)	<b>Regulated production of prototypes and collection of clinical and economic data</b>	<input type="checkbox"/> <b>Endpoints achieved in Feasibility clinical trials</b> <input type="checkbox"/> Demo feedback from 25+ users <input type="checkbox"/> Peer reviewed publication(s) submitted	<input type="checkbox"/> Value quantification <input type="checkbox"/> Feedback from 25+ economic buyers <input type="checkbox"/> <b>1st institutional investment</b>	<input type="checkbox"/> GDPR/HIPAA compliance <input type="checkbox"/> Security and vulnerability certifications <input type="checkbox"/> Data requirements confirmation <input type="checkbox"/> Pre-submission filed	<input type="checkbox"/> cGMPs compliant manufacturing process <input type="checkbox"/> Updated specification & experimental validation <input type="checkbox"/> All in-sourcing licensing requirements achieved <input type="checkbox"/> <b>Full IP application</b>
7	Validation of Solution (VoS)	<b>The solution is shown to be effective and its value to all stakeholders is validated</b>	<input type="checkbox"/> <b>Endpoints achieved in pivotal clinical trials</b> <input type="checkbox"/> Peer reviewed publication(s) accepted	<input type="checkbox"/> Purchasing intent from 10+ buyers <input type="checkbox"/> <b>2nd round of institutional investment</b>	<input type="checkbox"/> Submission of Technical file to regulatory body	<input type="checkbox"/> Quality assured process validation (cGMP) <input type="checkbox"/> Updated specification & experimental validation
8	Approval & Launch (A&L)	<b>Institutional and regulatory approval received and sales launch</b>	<input type="checkbox"/> Training materials & support established <input type="checkbox"/> Specialty medical groups review in place	<input type="checkbox"/> <b>Initial sales</b> <input type="checkbox"/> Regionalization plans	<input type="checkbox"/> <b>Registration and listing</b> <input type="checkbox"/> <b>CMS/Public Coverage and CPT/DRG code determination</b>	<input type="checkbox"/> Finalized cGMP production environment <input type="checkbox"/> IP for improvements filed
9	Clinical Use (Use)	<b>The solution is used successfully in day-to-day clinical practice</b>	<input type="checkbox"/> Included in local practice guidelines <input type="checkbox"/> Peer reviewed publications	<input type="checkbox"/> <b>Profitable sales</b> <input type="checkbox"/> New markets launched	<input type="checkbox"/> Monitoring/ inspections	<input type="checkbox"/> Improvement plan <input type="checkbox"/> <b>Key patents issued</b>
10	Standard of Care (SoC)	<b>The solution is recognised as the standard of care</b>	<input type="checkbox"/> Recommended practice by medical specialty	<input type="checkbox"/> Dominant market share <input type="checkbox"/> Health economics study	<input type="checkbox"/> Product Obsolescence plan	<input type="checkbox"/> Component Obsolescence plan

For more information on the specific meaning of each of the milestones you can access:

<https://gait.org/web/medtech/guidance>

# DIGITAL HEALTH MILESTONES FRAMEWORK

Innovation Maturity Level			Innovation Maturity Level Milestones			
			Clinical	Market/Business	Regulatory	Technology
1	Need	Insights into unmet clinical needs and available solutions	<input type="checkbox"/> Unmet need statement <input type="checkbox"/> Disease state characterization	<input type="checkbox"/> Needs screening & selection <input type="checkbox"/> Existing solutions characterization	<input type="checkbox"/> Regulatory familiarization	<input type="checkbox"/> State-of-the-Art summary
2	Idea	Potential solution to unmet need described, evaluated and selected	<input type="checkbox"/> Workflow scenario <input type="checkbox"/> Updated need statement <input type="checkbox"/> Envisioned benefit statement <input type="checkbox"/> Feedback from 5+ clinical stakeholders	<input type="checkbox"/> Competitive landscape <input type="checkbox"/> Envisioned Value Proposition <input type="checkbox"/> Key stakeholders identified <input type="checkbox"/> Reimbursement familiarization	<input type="checkbox"/> Medical device determination (MDR in EU) <input type="checkbox"/> Comparable identified	<input type="checkbox"/> Idea screening and selection <input type="checkbox"/> System and module requirement specification <input type="checkbox"/> Interface mock-ups <input type="checkbox"/> Institutional IP disclosure
3	Proof of Concept (PoC)	Key component concepts validated in models and value proposition tested	<input type="checkbox"/> Feedback from clinical stakeholders in 5+ settings <input type="checkbox"/> Updated need statement and workflow scenario <input type="checkbox"/> Target outcomes	<input type="checkbox"/> Competing solutions characterization <input type="checkbox"/> Preliminary value proposition <input type="checkbox"/> Path-to-Payment plan <input type="checkbox"/> Stakeholder map <input type="checkbox"/> Business protection model	<input type="checkbox"/> Preliminary regulatory classification <input type="checkbox"/> Preliminary regulatory pathway <input type="checkbox"/> Preliminary intended /indications for use <input type="checkbox"/> Preliminary risk and hazard analysis	<input type="checkbox"/> Preliminary system and software architecture <input type="checkbox"/> Key module PoC prototypes <input type="checkbox"/> Demonstration results <input type="checkbox"/> Updated institutional IP disclosure <input type="checkbox"/> Key in-sourcing requirements
4	Proof of Feasibility (PoF)	Feasibility of whole solution demonstrated in models and in feedback from stakeholders	<input type="checkbox"/> Feedback on users in 20+ settings <input type="checkbox"/> Updated need statement and Use Case scenario/workflow <input type="checkbox"/> Updated target outcomes	<input type="checkbox"/> Feedback from 5+ economic buyers <input type="checkbox"/> Preliminary business model <input type="checkbox"/> Development plan <input type="checkbox"/> Key relationships identified <input type="checkbox"/> Business advisory board	<input type="checkbox"/> Draft essential requirements checklist <input type="checkbox"/> Draft product claims <input type="checkbox"/> Draft instructions for use <input type="checkbox"/> Institutional approval request(s) <input type="checkbox"/> Cyber security plan <input type="checkbox"/> Submission pathway defined	<input type="checkbox"/> Product Requirement Document (PRD) <input type="checkbox"/> Software and hardware architecture <input type="checkbox"/> "Works Like" prototype <input type="checkbox"/> Essential experiment results <input type="checkbox"/> Provisional IP filing & initial FTO review <input type="checkbox"/> Key in-sourcing plans <input type="checkbox"/> Risk mitigation and interoperability plan
5	Proof of Value	The potential of the solution to work and create value for all	<input type="checkbox"/> Feedback from 100+ users <input type="checkbox"/> Feedback from 5+ KOLs	<input type="checkbox"/> Key management team committed <input checked="" type="checkbox"/> <b>Investor ready business plan</b>	<input type="checkbox"/> Essential requirements checklist	<input type="checkbox"/> "Works Like, Looks Like, prototypes" <input type="checkbox"/> Essential technical experiments results

	(PoV)	stakeholders is demonstrated	<input type="checkbox"/> Medical advisory board <input type="checkbox"/> Clinical pilot <input type="checkbox"/> Clinical trial endpoints	<input type="checkbox"/> Feedback from 20+ economic buyers <input type="checkbox"/> Initial Seed Investment <input type="checkbox"/> Key relationships formalized <input type="checkbox"/> Incorporation & Founders agreement	<input type="checkbox"/> Application form to competent authority submitted <input type="checkbox"/> Clinical Investigation approval(s) <input type="checkbox"/> Protected Health Information (ePHI) plans	<input type="checkbox"/> Interoperability validation <input type="checkbox"/> cGMP medical software and production environments (s) <input type="checkbox"/> Key in-sourcing requirements committed
6	Initial Clinical Trials (ICT)	Regulated production of prototypes and collection of clinical and economic data	<input type="checkbox"/> <b>Endpoints achieved in Feasibility clinical trials</b> <input type="checkbox"/> Demo feedback from 25+ users <input type="checkbox"/> Peer reviewed publication(s) submitted	<input type="checkbox"/> Value quantification <input type="checkbox"/> Feedback from 25+ economic buyers <input type="checkbox"/> <b>1st institutional investment</b>	<input type="checkbox"/> GDPR/HIPAA compliance <input type="checkbox"/> Security and vulnerability certifications <input type="checkbox"/> Data requirements confirmation <input type="checkbox"/> Pre-submission filed	<input type="checkbox"/> Updated specification & experimental validation <input type="checkbox"/> All in-sourcing licensing requirements achieved <input type="checkbox"/> Full IP application
7	Validation of Solution (VoS)	The solution is shown to be effective and its value to all stakeholders is validated	<input type="checkbox"/> <b>Endpoints achieved in pivotal clinical trials</b> <input type="checkbox"/> Peer reviewed publication(s) accepted	<input type="checkbox"/> Purchasing intent from 10+ buyers <input type="checkbox"/> <b>2nd round of institutional investment</b>	<input type="checkbox"/> Submission of Technical file to regulatory body	<input type="checkbox"/> Quality assured process validation (cGMP) <input type="checkbox"/> Updated specification & experimental validation
8	Approval & Launch (A&L)	Institutional and regulatory approval received and sales launch	<input type="checkbox"/> Training materials & support established <input type="checkbox"/> Specialty medical groups review in place	<input type="checkbox"/> Initial sales/deployment <input type="checkbox"/> Regionalization plans	<input type="checkbox"/> <b>Registration and listing</b> <input type="checkbox"/> <b>CMS/Public Coverage and CPT/DRG code determination</b>	<input type="checkbox"/> Finalized cGMP production environment <input type="checkbox"/> Regionalization requirements
9	Clinical Use (Use)	The solution is used successfully in day-to-day clinical practice	<input type="checkbox"/> Included in local practice guidelines <input type="checkbox"/> Peer reviewed publications	<input type="checkbox"/> <b>Profitable sales</b> <input type="checkbox"/> New markets launched	<input type="checkbox"/> Monitoring/ inspections	<input type="checkbox"/> Improvement plan <input type="checkbox"/> Regionalization implemented
10	Standard of Care (SoC)	The solution is recognised as the standard of care	<input type="checkbox"/> Recommended practice by medical specialty	<input type="checkbox"/> Dominant market share <input type="checkbox"/> Health economics study	<input type="checkbox"/> Product Obsolescence plan	<input type="checkbox"/> Component Obsolescence plan

For more information on the specific meaning of each of the milestones you can access: <https://gaitis.org/web/-digital-medicine/guidance>

# BIOMARKERS DIAGNOSTICS MILESTONES FRAMEWORK

Innovation Maturity Level	Name	Overall Description	Innovation Maturity Level Milestones			
			Clinical	Market/Business	Regulatory	Technology
1	Need	Insights into unmet clinical needs and available solutions	<input type="checkbox"/> Unmet need statement <input type="checkbox"/> Disease state characterization	<input type="checkbox"/> Needs screening & selection <input type="checkbox"/> Existing solutions characterization	<input type="checkbox"/> Regulatory familiarization	<input type="checkbox"/> State-of-the-Art summary
2	Idea	Potential solution to unmet need described, evaluated and selected	<input type="checkbox"/> Clinical Workflow scenario <input type="checkbox"/> Updated need statement <input type="checkbox"/> Envisioned benefit statement <input type="checkbox"/> Feedback from 5+ clinical stakeholders	<input type="checkbox"/> Competitive landscape <input type="checkbox"/> Envisioned Value Proposition <input type="checkbox"/> Key stakeholders identified <input type="checkbox"/> Reimbursement familiarization	<input type="checkbox"/> Medical device determination (MDR in EU) <input type="checkbox"/> Comparable identified	<input type="checkbox"/> Idea screening and selection <input type="checkbox"/> Preliminary Target Product Profile <input type="checkbox"/> Biological mechanism of action identified <input type="checkbox"/> Institutional IP disclosure
3	Proof of Concept (PoC)	Key component concepts validated in models and value proposition tested	<input type="checkbox"/> Feedback from clinical stakeholders in 5+ settings <input type="checkbox"/> Updated need statement and workflow scenario <input type="checkbox"/> Target outcomes	<input type="checkbox"/> Competing solutions characterization <input type="checkbox"/> Preliminary value proposition <input type="checkbox"/> Path-to-Payment plan <input type="checkbox"/> Stakeholder map <input type="checkbox"/> Business protection model	<input type="checkbox"/> Preliminary regulatory classification <input type="checkbox"/> Preliminary regulatory pathway <input type="checkbox"/> Preliminary intended /indications for use	<input checked="" type="checkbox"/> <b>Key mechanism of action validated</b> <input type="checkbox"/> Updated Target Product Profile (TPP) <input type="checkbox"/> Preliminary Freedom to Operate (FTO) Assessment <input type="checkbox"/> Updated institutional IP disclosure <input type="checkbox"/> Key in-sourcing requirements
4	Proof of Feasibility (PoF)	Feasibility of whole solution demonstrated in models and in feedback from stakeholders	<input type="checkbox"/> Feedback on users in 20+ settings <input type="checkbox"/> Updated need statement and Use Case scenario/workflow <input type="checkbox"/> Updated target outcomes	<input type="checkbox"/> Feedback from 5+ economic buyers <input type="checkbox"/> Preliminary business model <input type="checkbox"/> Development plan <input type="checkbox"/> Key relationships identified <input type="checkbox"/> Business advisory board	<input type="checkbox"/> Draft essential requirements checklist <input type="checkbox"/> Draft product claims <input type="checkbox"/> Draft instructions for use <input type="checkbox"/> Institutional approval request(s) <input type="checkbox"/> Submission pathway defined	<input type="checkbox"/> Updated Target Product Profile (TPP) <input type="checkbox"/> "Works Like" and "Looks Like" packaging prototypes <input type="checkbox"/> Essential experiment results <input type="checkbox"/> Provisional IP filing & initial FTO review <input type="checkbox"/> Key in-sourcing plans <input type="checkbox"/> Manufacturing/QMS plan
5	Proof of Value (PoV)	The potential of the solution to work and create value for all stakeholders is demonstrated	<input type="checkbox"/> Feedback from 100+ users <input type="checkbox"/> Feedback from 5+ KOLs <input type="checkbox"/> Animal/first in/with man experiments <input type="checkbox"/> Medical advisory board	<input type="checkbox"/> Key management team committed <input type="checkbox"/> Investor ready business plan <input type="checkbox"/> Feedback from 20+ economic buyers <input type="checkbox"/> Initial Seed Investment <input type="checkbox"/> Key relationships formalized	<input type="checkbox"/> Essential requirements checklist <input type="checkbox"/> Application form to competent authority submitted <input type="checkbox"/> Clinical Investigation approval(s)	<input type="checkbox"/> "Works Like, Looks Like, Made Like", "Made Like" prototypes <input type="checkbox"/> Updated TPP & Essential technical experiments results <input type="checkbox"/> IP search report

			<input type="checkbox"/> Clinical trial endpoints	<input type="checkbox"/> Incorporation & Founders agreement		<input type="checkbox"/> cGMP compliant pilot manufacturing process <input type="checkbox"/> Key in-sourcing requirements committed <input type="checkbox"/> Conference/poster session/paper submitted
6	Initial Clinical Trials (ICT)	Regulated production of prototypes and collection of clinical and economic data	<input type="checkbox"/> <b>Endpoints achieved in Feasibility clinical trials</b> <input type="checkbox"/> Peer reviewed publication(s) submitted	<input type="checkbox"/> Value quantification <input type="checkbox"/> Feedback from 25+ economic buyers <input type="checkbox"/> <b>1st institutional investment</b>	<input type="checkbox"/> Data requirements confirmation <input type="checkbox"/> Pre-submission filed	<input type="checkbox"/> cGMPs compliant manufacturing process <input type="checkbox"/> Updated TPP & experimental validation <input type="checkbox"/> All in-sourcing licensing requirements achieved <input type="checkbox"/> <b>Full IP application</b>
7	Validation of Solution (VoS)	The solution is shown to be effective and its value to all stakeholders is validated	<input type="checkbox"/> <b>Endpoints achieved in pivotal clinical trials</b> <input type="checkbox"/> Peer reviewed publication(s) accepted	<input type="checkbox"/> Purchasing intent from 10+ buyers <input type="checkbox"/> <b>2nd round of institutional investment</b>	<input type="checkbox"/> Submission of Technical file to regulatory body	<input type="checkbox"/> Quality assured process validation (cGMP) <input type="checkbox"/> Updated TPP & experimental validation
8	Approval & Launch (A&L)	Institutional and regulatory approval received and sales launch	<input type="checkbox"/> Training materials & support established <input type="checkbox"/> Specialty medical groups review in place	<input type="checkbox"/> <b>Initial sales</b> <input type="checkbox"/> Regionalization plans	<input type="checkbox"/> <b>Registration and listing</b> <input type="checkbox"/> <b>CMS/Public Coverage and CPT/DRG code determination</b>	<input type="checkbox"/> Finalized cGMP production environment <input type="checkbox"/> IP for improvements filed
9	Clinical Use (Use)	The solution is used successfully in day-to-day clinical practice	<input type="checkbox"/> Included in local practice guidelines <input type="checkbox"/> Peer reviewed publications	<input type="checkbox"/> <b>Profitable sales</b> <input type="checkbox"/> New markets launched	<input type="checkbox"/> Monitoring/ inspections	<input type="checkbox"/> Improvement plan <input type="checkbox"/> Key patents issued
10	Standard of Care (SoC)	The solution is recognised as the standard of care	<input type="checkbox"/> Recommended practice by medical specialty	<input type="checkbox"/> Dominant market share <input type="checkbox"/> Health economics study	<input type="checkbox"/> Product Obsolescence plan	<input type="checkbox"/> Component Obsolescence plan

For more information on the specific meaning of each of the milestones you can access:

<https://gaitis.org/web/biomarker-diagnostic/guidance>



# PURE BIOTECH MILESTONES FRAMEWORK

Innovation Maturity			Innovation Maturity Level Milestones			
Level	Name	Overall Description	Clinical Validation	Market/Business	Technology	Regulatory
1	Need	Insights into unmet medical needs and available solutions	<ul style="list-style-type: none"> <li>Unmet needs defined</li> <li>Disease state characterized</li> <li>Biological Mechanism of action identified</li> <li>Cellular disease pathway identified and described</li> </ul>	<ul style="list-style-type: none"> <li>Deficiency in existing solutions identified</li> <li>Competitive landscape identified (academic, in pre-clinical/clinical development/commercial)</li> <li>Market Assessment/ Initial description of target population and its biological characteristics</li> </ul>	<ul style="list-style-type: none"> <li>Molecular target/s identified</li> <li>Approaches for pharmacological targeting searched and identified</li> <li>Proposed technological modality explored (small molecule, antisense oligo, antibody, gene therapy, cell therapy, repurposed/repositioned product, etc)</li> <li>Initial patent landscape reviewed and patentability assessment done</li> <li>Initial institutional "Idea" (IP) disclosed to employer</li> </ul>	<ul style="list-style-type: none"> <li>Clinical trials in the indication identified for reference trial design and timelines (ie. clinicaltrials.gov landscape)</li> </ul>
2	Idea	Potential solution to unmet need described, evaluated and selected	<ul style="list-style-type: none"> <li>Biological pathway studied and intervention/perturbation approaches developed</li> <li>Biotechnological platform characterized and potential use cases developed</li> <li>Proposed patient population (SOP) defined including genetic or other bio markers (biochemical, cellular, imaging/digital/electrophysiological) if possible</li> </ul>	<ul style="list-style-type: none"> <li>Envisioned Value Proposition</li> <li>Target Product Profile – (TPP) first iteration ready</li> <li>Identified complementary IP</li> <li>Initial dialogue with potential stakeholders (Pharma, VC, Corporate VC, Incubators) with positive feedback</li> <li>Investor ready business plan (milestone-based development plan R&amp;D)</li> </ul>	<ul style="list-style-type: none"> <li>Technological modality selected</li> <li>Mechanism of action of target group elucidated in vitro</li> <li>Compound starting point, screening and selection scheme planning done</li> <li>Compound selection assay development initiated</li> <li>Biological hypothesis and pharmacological hypothesis formulation identified</li> <li>For repurposed molecules not in the market (ie, shelved big pharma products) explore availability of clinical dossier from originator</li> <li>In licensing discussions with owners of IP have started (host institute, exclude originators of repurposed products until method of use patent is filed)</li> <li>Statement of employer issued</li> <li>Prior art has been assessed (Freedom to Operate analysis) and patentability of the innovation is confirmed by a patent attorney</li> <li>Translational models (patient sample based or in-vivo) identified</li> </ul>	<ul style="list-style-type: none"> <li>Regulatory Familiarization started</li> <li>For rare disease, paediatric or cell &amp; gene therapy: Consulted the regulatory roadmap pathways if applicable and familiarized with alternative pathways</li> </ul>
3	Proof of Concept (PoC)	Key component concepts validated in models and value proposition tested	<ul style="list-style-type: none"> <li>Mechanistic and therapeutic hypothesis validated in genetic/metabolic models and/or patient derived cells – go/no-go decision</li> <li>For repurposed products: Proof of concept in relevant in vivo model obtained with repurposed candidate with favourable HED (prospective dose in humans below doses already tested or within safety margins)</li> </ul>	<ul style="list-style-type: none"> <li>Business model defined - Value inflection points identified and preliminary value creation plan defined</li> <li><b>Seed investment secured</b></li> <li>Stakeholder map defined</li> <li>Scientific Advisory Board recruited</li> <li>Communication &amp; public dissemination plan established (ie: thesis, papers &amp; communications in relevant scientific forums)</li> <li>Killer experiment identified</li> </ul>	<ul style="list-style-type: none"> <li>Initial hits/compound candidates synthesized and evaluated</li> <li>Initial pharmacology analysis – efficacy, safety, PK and bioavailability in rodent/relevant animal model (if applicable)</li> <li><b>IP strategy defined and first IP filing initiated</b></li> <li>For non-generic repurposed products: started negotiations with originators to access IP &amp; clinical development - enabling data (updated IPMD, only if robust IP is filed)</li> <li>For biological or gene-therapy products: manufacturing roadmap and costing estimates defined</li> <li>If platform – initial creation and testing of platform modules and building blocks</li> </ul>	<ul style="list-style-type: none"> <li>Preliminary regulatory pathway defined</li> <li>For advanced therapies or paediatric diseases: scientific advice / pre-IND meeting or equivalent feedback required</li> </ul>
4	Proof of Feasibility (PoF)	Feasibility of whole solution demonstrated in models and in feedback from stakeholders	<ul style="list-style-type: none"> <li><b>Hit/lead compounds efficacy and potency in animal model or patient derived model validated</b></li> </ul>	<ul style="list-style-type: none"> <li>Deal and market benchmark cases identified</li> <li>Collection of economic data compared to SoC initiated (e.g. validating beach-head market)</li> </ul>	<ul style="list-style-type: none"> <li>Feasibility proven in essential experiment – safety, bioavailability, PK-PD. <b>For gene therapy product: biodistribution data in big animal (monkey, pig) provided</b></li> <li><b>Composition of matter IP filed</b> - IP search report is promising</li> </ul>	<ul style="list-style-type: none"> <li>Drafted essential requirements checklist</li> <li>Retrospective study performed if data available</li> </ul>

			<ul style="list-style-type: none"> <li><input type="checkbox"/> For biologicals or gene-therapy products: efficacy data in animal model obtained with regulatory compliant final candidate.</li> <li><input type="checkbox"/> Updated need description with confirmation of target patient population</li> <li><input type="checkbox"/> Proposed treatment scheme developed (preventive/therapeutic acute/chronic etc.)</li> <li><input type="checkbox"/> Clinical KOLs consulted in adhoc preparatory meetings, positive engagement and commitment to participate in clinical trials</li> <li><input type="checkbox"/> Draft clinical development plan completed (Incl. target population and line of care and target regimen)</li> <li><input type="checkbox"/> CRO screening initiated</li> <li><input type="checkbox"/> Potential biomarkers identified</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Pricing estimates validated through third party independent primary research</li> <li><input type="checkbox"/> Target Product Profile – (TPP) refined</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> In-licensing or round-A discussions are in progress to mutual satisfaction</li> <li><input type="checkbox"/> Manufacturing expertise initial conversations</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Submission pathway defined and validated by a regulatory body (scientific advice in EMA or official pre-IND meeting for FDA)</li> <li><input type="checkbox"/> Biomarker validation study approved, if needed</li> </ul>
5	Proof of Value (PoV)	The potential of the solution to work and create value for all stakeholders is demonstrated	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> <b>Clinical lead candidate validated in clinically relevant animal model</b></li> <li><input type="checkbox"/> Clinical advisory board recruited</li> <li><input checked="" type="checkbox"/> <b>Clinical protocol completed</b></li> <li><input type="checkbox"/> Clinical CRO selected</li> <li><input type="checkbox"/> Clinical endpoints defined and validated vs. competition – clinical target efficacy value defined</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Peer reviewed publication(s) accepted - preclinical (consider strategic perspective)</li> <li><input type="checkbox"/> Collection of economic data compared to SoC completed</li> <li><input type="checkbox"/> Series A/B financing completed</li> <li><input type="checkbox"/> Advanced stakeholder partnering discussions ongoing</li> <li><input type="checkbox"/></li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Minimum viable product (MVP) ready – clinical lead optimized</li> <li><input type="checkbox"/> CMC development started in parallel to IND-enabling safety tox preclinical package.</li> <li><input type="checkbox"/> Pharmaceutical development started</li> <li><input checked="" type="checkbox"/> <b>Full IP application – freedom to operate positive opinion.</b></li> <li><input type="checkbox"/> In-licensing of essential IP is completed (For Repurposed products: including third party IND-enabling clinical data)</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Application form to competent authority submitted</li> <li><input type="checkbox"/> Submission data package defined (essential Requirements checklist)</li> <li><input type="checkbox"/> IND/CTA meeting scheduled/performed</li> <li><input checked="" type="checkbox"/> <b>IND/CTA approved</b></li> <li><input type="checkbox"/> Clinical Investigation approval(s) achieved (Ethical committees/IRBs)</li> </ul>
6	Initial Clinical Trials (ICT)	Regulated production of prototypes and collection of clinical and economic data	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> <b>Endpoints Successfully achieved in clinical safety/efficacy trials (Phase 1/2 clinical trials)</b></li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Pharmacoeconomics analysis performed</li> <li><input type="checkbox"/> Advanced discussions for next steps with investors and stakeholders (pharma)</li> <li><input type="checkbox"/></li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Pre-clinical development of additional portfolio products</li> <li><input type="checkbox"/> Long term safety studies if applicable</li> <li><input type="checkbox"/> Potential formulation updates for lead product explored</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Additional data submitted</li> <li><input type="checkbox"/> Scientific advise / FDA consultation to validate phase II design</li> </ul>
7	Validation of Solution (VoS)	The solution is shown to be effective and its value to all stakeholders is validated	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> <b>Endpoints Successfully achieved in clinical efficacy trials (Phase 2a/2b)</b></li> <li><input type="checkbox"/> Preparation of Phase 3 clinical studies</li> <li><input type="checkbox"/> Peer reviewed publication(s) accepted -clinical</li> <li><input type="checkbox"/> Additional indications explored</li> <li><input type="checkbox"/> Biomarker /companion diagnostic validated (if applicable)</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> <b>Collaboration in place with Pharma / multiple pharma's</b></li> <li><input type="checkbox"/> Gearing up partnerships and development of new pipeline products</li> <li><input type="checkbox"/> Financing efforts in place for next round (private or public)</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Pharmaceutical development (final commercial formulation) completed</li> <li><input type="checkbox"/> Carcinogenicity studies if applicable.</li> <li><input type="checkbox"/> For biological products: full specs validated with regulatory bodies</li> <li><input type="checkbox"/> For immunological products: potency test validated with regulatory bodies</li> <li><input type="checkbox"/> Manufacturing of clinical batch for later phase clinical studies</li> <li><input checked="" type="checkbox"/> <b>Development of new products on the pipeline – IP submitted</b></li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Additional data submitted</li> <li><input type="checkbox"/> Proactive scientific advise / FDA consultation to validate phase III strategy</li> </ul>
8	Approval & Launch (A&L)	Institutional and regulatory approval received and sales launch	<ul style="list-style-type: none"> <li><input type="checkbox"/> Specialty medical groups review in place</li> <li><input type="checkbox"/> KOL's and clinical leads recruited and supportive</li> <li><input checked="" type="checkbox"/> <b>Endpoints Successfully achieved in Phase 3 clinical studies</b></li> <li><input type="checkbox"/> Post marketing trial initiated</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> <b>Initial sales achieved</b></li> <li><input type="checkbox"/> Expanding sales activities</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Three manufacturing batches validated</li> <li><input type="checkbox"/> Alternative manufacturers identified</li> <li><input type="checkbox"/> Manufacturing capability expansion planned</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> <b>Registration approval and listing</b></li> <li><input type="checkbox"/> CMS/Public Coverage and CPT/DRG code determination obtained</li> </ul>
9	Clinical Use (Use)	The solution is used successfully in day-to-day clinical practice	<ul style="list-style-type: none"> <li><input type="checkbox"/> Included in practice guidelines</li> <li><input type="checkbox"/> Additional data published in peer reviewed journals</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Profitable sales achieved ramp-up</li> <li><input type="checkbox"/> New markets launched</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Key patents issued.</li> <li><input type="checkbox"/> Competition monitored</li> <li><input type="checkbox"/> Alternative manufacturing sites validated (it may take over 2 years)</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Monitoring/ inspections</li> </ul>
10	Standard of Care (SoC)	The solution is recognised as the standard of care	<ul style="list-style-type: none"> <li><input type="checkbox"/> Recommended practice by medical specialty</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Dominant market share status</li> <li><input type="checkbox"/> Operating margin profile achieved</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Patents issued - Patent Lifecycle Management</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Health economic studies carried</li> </ul>



Patient Population (SOP)- Standard operating procedures

KOL- Key Opinion Leader

HED- Human Equivalent Dose

PK/PD Modeling- pharmacokinetic/pharmacodynamic modeling

CRO- Contract research organization

CMC- Chemistry, manufacturing, and control

PCT- Patent Cooperation Treaty

IRB- Institutional Review Board

CTA- Clinical Trial Application

IND- Investigational New Drug

CMS- Centers for Medicare & Medicaid Services

CPT- Current Procedural Terminology

DRG- Diagnosis-related group